

OPTIMAL STRATEGIES FOR THE DEVELOPMENT OF MICROFINANCE
IN KOREA AND THE IMPACT OF MICROFINANCE

BY

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DISSERTATION

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Abstract

This paper mainly focuses on finding optimal strategies for the development of microfinance in Korea and on predicting the impact of microfinance in the future.

First, this paper reviews and assesses the impact of microfinance in Korea. I suggested that recent phenomena of income polarization and credit rationing in the financial market are evidence that microfinance is needed in Korea. Although the Korean economy has made great strides, the difference in the income between the poor and the rich has gotten much greater. The foreign currency crisis in 1997 deepened income polarization and the impact is continuing. Banks choose to ration credit instead of increasing interest rate (when there was an excess demand for loans) which would lead adverse selection and moral hazards. The poor are in an inferior position when it comes to getting funds when credit ration happens because they cannot offer collateral and they need money urgently.

This paper analyzes the factors which impact up on the survival of microenterprises using two econometric methods (the logit regression model and the Cox proportional hazard model). Attributes of microenterprises, such as organizational form, sex of the owner(s), income level of the owner(s), and types of business are chosen as independent variables which may have impact on the survival. The results from the econometric models indicate that more support should be provided when the income level of the owner(s) became less if we want to make more microenterprises survive. The direction of impact or the relative magnitudes of impact is not exactly the same between two econometric methods. Therefore, proper interpretation and fine tuning are needed in applying the results into the real microcredit world.

Next, this paper outlines the impact of microfinance on the income level of the poor and the repayment ratio of microcredit. This task is carried out by a simulation which is an agent based model. The simulation of the agent based model shows that two different policy directions are needed to guarantee the success of microfinance. First, it is necessary to magnify positive impacts. There are at least two ways this can be done. You can increase the amount of microcredit to make it easier to start businesses and you can support an increase in the yield rate of return. Minimizing negative impacts is also important. This can be done by decreasing the interest rate charged by local money lenders and closely monitoring their behavior to see if they obey the usury law.

Finally, I proposed several optimal strategies for the development of microfinance in the future. (1) Introducing and enforcing group lending, because group lending can solve two major problems in microfinance, adverse selection by assortative matching and moral hazard by monitoring group members' transactions. (2) Letting MFIs (Microfinance Institutions) carry out both microsaving and microinsurance. (3) Establishing independent committees to mediate disputes regarding microcredit issues, which can solve commitment problem. (4) Expanding microfinance services by letting MFIs handle housing microfinance and loans for education and health care. (5) Encouraging social enterprise to help the poor overcome their state of poverty.

In conclusion, appropriate social objectives and forward looking entrepreneurship when properly supported by MFIs can bring remarkable progress in social integration and help the poor overcome their state of poverty.

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Chapter 1

Introduction

Microfinance has played a key role in helping citizens out of poverty in the past 25 years since it was introduced in Bangladesh by Muhammad Yunus in the mid 1970s. Microfinance has helped the poor improve their economic situation by providing a small amount of loans which they used to start their own microenterprises and survive tough economic times caused by various factors. Yunus' winning Nobel Peace Prize in 2006 was an indication of widespread enthusiasm around the world for microfinance.

Korea is not an exception. Recent phenomena of income polarization and credit rationing in the financial market are evidence that microfinance is needed in Korea. The foreign currency crisis in 1997 deepened income polarization and the impact is continuing. This is the reason why government circles as well as the academic world have shown a fierce interest in microfinance as a means to help the poor.

Many questions have been raised lately about the effectiveness of microfinance. For example, Roodman and Morduch (2009) suggest that a replication exercise shows the impact of the previous studies which concluded that microcredit helped the poor is weak.

Based on the experience of the other countries, microfinance has been played as finance and empowerment. Korea today is, however, different from a rural, individual

and subsistence economy such as Bangladesh (which motivates much Microfinance work). The current role of microfinance institutions (referred to here as “MFIs”) in helping the poor out of the poverty trap, however, is weaker in Korea than it is in other countries. Hence the institutions and procedures that apply in such a society need to be re-thought. This thesis is a connected attempt to rethink the issues, particularly with respect to Korea.

There are no systematic studies on microfinance in Korea, so in a sense everything is new, but some aspects of this dissertation are new even methodologically. A minor novelty is the use of econometric tests for microenterprise survival and a major innovation is the design of agent based model (referred to here as “ABM”) to describe and evaluate the microfinance. The primary thrust is, however, to get policy level statements that may be useful in guiding economic policies to combat poverty.

This dissertation mainly focuses on finding optimal strategies for the development of microfinance in Korea and on predicting the impact of microfinance in the future. For that purpose, chapter 2 covers why microfinance is needed and reviews the current state of microfinance in Korea. Chapter 3 presents analysis of existing data regarding the outcome of microenterprises in Korea. Two econometric methods (the logit regression model and the Cox proportional hazard model) are used in an exploratory study of the survival of microenterprises in Korea. Chapter 4 discusses an agent based model of microfinance, which shows the future impact of microfinance. Chapter 5 discusses various plans for the future of microfinance in Korea. Chapter 6 presents a summary of the findings.

Chapter 2

Review of the Impact of Microfinance in Korea

This chapter mainly focuses on reviewing and assessing the impact of microfinance in Korea. This chapter consists of 5 sections. Section 1 discusses the need for microfinance in Korea and section 2 addresses the current state of microfinance in Korea. Section 3 covers the use of financial markets by the poor and section 4 reviews the existing microfinance institutions in Korea.

2.1 Why Microfinance is needed?

Microfinance so far has been an effective means for getting people out of extreme poverty in less developed countries. Although the overall Korean economy has grown greatly since the 1960s, there is still a need for microfinance in Korea, because of the recent phenomena of income polarization and credit rationing in the loan market. In the following subsections, I will explain these phenomena in detail.

2.1.1 Poverty in Korea

2.1.1.1 Poverty Reduction in Past Decades

Korea has made remarkable progress in reducing poverty during the past decades. It was possible through successful government policies which mainly focused on an

agricultural development project, Saemaul Undong, and labor intensive industrialization from 1970 ~ 1985. Thanks to steady economic growth, poverty has been continuously reduced. The data shown in table 1 suggests that absolute poverty has been virtually eliminated in Korea.

During the last two decades Korea took the lead among Asian countries in reducing absolute poverty. According to a poverty study by the World Bank from 1970 to 1990, Korea's poverty rates ranked 2nd among Asian countries (see table 2).

2.1.1.2 Recent Poverty Dynamics

In this section, I will use actual data to analyze the characteristics and causes of recent poverty in Korea.

2.1.1.2.1 Data Set

To analyze the recent poverty dynamics in Korea, I used data from 1998 to 2005 which came from the Korean Labor and Income Panel Study (referred to here as "KLIPS") that was provided by the Korean Labor Institute. Only the data from households which responded to every survey were chosen for the analysis.

2.1.1.2.2 Trend in Poverty Rate

I used income level to categorize households. I choose semi ordinary income, which is defined as an ordinary income minus government subsidies. In 1999, the Korean government announced the minimum cost of living for households according to size. This in effect was a poverty line. I use the 1999 minimum cost of living figures and changes in

price indexes to calculate the absolute poverty line for 1998 and 2000 ~ 2004, which the government did not provide.

Table 3 shows trends in the absolute poverty rate of households from 1998 to 2004. On average, the absolute poverty rate moved downwards. More specifically, the absolute poverty rate for the year 1998 was 23.91% and then it steadily decreased to 16.80% in 2001. After that it increased for two years and then finally decreased to 16.08% in 2004.

2.1.1.2.3 Causes of Poverty

In the following two subsections, I will provide information on the causes of poverty in Korea.

2.1.1.2.3.1 General Features of Poverty

To acquire a general understanding of poor households, I looked at the demographics of poverty. Table 4 shows whether or not the households were below the poverty and the number of years they were below the poverty line. 45.4% of the households were under the poverty line at least once. 14.0% were below the poverty line just once while 5.9% were always during the period of this study below the poverty line.

Note that the experiencing poverty was different depending on sex, age, education level, economic activity, and household composition. The number of households that experienced at least one year of poverty was greater if (1) the household was led by a female, (2) the age of the household leader was above 60, (3) education the household leader had was below a high school diploma, (4) the household income was generated by

a daily job, the household leader was unemployed or had not entered the labor market, or if (5) the household was composed of only a married couple, a single parent with a kid or kids or one man.

2.1.1.2.3.2 Economic Activity and Career Development

Since households get income from economic activity, I analyze the transition of economic activity status to find out the impact of a change in economic activity status on household income. Table 5 shows the transition probability of economic activity status depending on the level of poverty. We can see that 88.8% of the poor were employed maintained employment for the next year while 96.2% of employees who were not poor maintained their employment. Analysis shows that 7.0% of the poor left the labor market whereas only 2.7% of the non poor left the labor market. Inspection of the data also shows that of the poor (those below the poverty line) only 62.3% succeed in finding a job. In contrast 74.3% of the non poor were able to find a job. Thus a portion of the unemployed poor either still remained unemployed (11.5%) or exited the labor market (26.2%). These percentages are much higher than the percentages for the non poor, which were 11.0% and 14.7% respectively. From these observations, we can conclude that instability in employment and difficulties in getting a job are two of the causes of poverty in Korea.

The difficulty the poor have in finding regular employment makes it hard for them to acquire enough income to escape from poverty. Table 6 shows the transition probability of economic activity status of the employed depending on their poverty level. The possibility that workers who are poor will continue to have regular jobs is just 80.4%,

which is much lower than the 91.8% of non poor who will be able to maintain their regular job. The possibility that poor workers will shift to unemployment or be forced from the labor market is much higher than it is for the non poor. Poor workers with non stable jobs, such as temporary or daily jobs, have a lower probability of being able to get a regular job than do non poor workers. The probability for the poor and the non poor to move from temporary job to a regular job is 3.9% and 20.0% respectively. The probability for the poor and the non poor to move a daily job to a regular job is 4.0% and 7.5% respectively.

2.1.1.2.4 Do Poverty Traps exist?

Are there poverty traps in Korea? This question is really difficult to answer, because there has not been any research that addresses this question nor has enough data on this subject been collected to warrant an investigation of this issue. In the following two subsections, I will address two different positions on this issue.

2.1.1.2.4.1 Frequent Entry and Escape of Poverty

A change in economic activity status eventually induces a change in household income. Table 7 shows the transition probability of the level of household wealth. 46.8% of the households, which were poor in a particular year, were still poor the following year, while 40.6% of them succeeded in escaping from poverty. 19.9% of households in the “less poor” tier were in the poor tier and 62.4% were in the non poor tier the following year. Among the non poor households, 5.6% were in the poor tier the following year.

These data suggests that both entry into poverty and escape from poverty happens frequently in Korea. Note that the entry and escape happens more frequently between the poor tier and the non poor tier than between the poor tier (or the non poor tier) and the less poor tier. Based on these results, it seems that the durability of poverty in Korea, if it occurs, does not usually last a long time.

2.1.1.2.4.2 State Dependency in Poverty

Table 8 shows the distribution of non poverty households, poor households with just a one year experience of poverty, and poor households which continuously experienced poverty, according to household features such as sex, age, education level, economic activity, and household composition. The portion of male led households with continuous poverty was just 53.2%, while that of households with one year of experience with poverty and households in the non poverty group were 92.3% and 93.8% respectively. In contrast the portion of female led households in the non poverty group was 6.3%, in the one year of experience in poverty group 7.7%, and in the continuous poverty group 46.8%. Thus we can say that the possibility of poverty for the households with a female leader was greater than for households with a male leader.

63.5% of the leaders of households in the continuously poor group were not in the labor market, whereas 13.4% of the leaders of households in the one year experience of poverty group and 6.8% of the leaders of households in the non poverty group were not in the labor market. Inspection of the data also shows that 33.3% of the households in the continuously poor group were households with only one member.

In summary, households with female leaders, households with leaders 60 years of age or above, households with leaders that are outside the labor market and households that have only one person tend to be poor in Korea.

2.1.1.3 Income Concentration

The performance of the Korean economy during the last four decades has been outstanding by any international measures. From 1962 to 2005, the Korean economy grew at an average annual rate of nearly 7% in real terms. During this time, the distribution of income favored the wealthy, and this was regarded as an impediment to the unity of society. Especially the foreign currency crisis in 1997 made income polarization more significant. The worsened situation has not improved yet.

In comparing the percentages of different income classes in figure 1, we can see that the percentage of the middle class decreased but those of the upper and the lower classes increased. The percentages of the lower and the upper classes in 2005 were higher by 1.7% and 3.7%, respectively, than those in 1997, while the percentage of the middle class decreased 5.3% between the two years. The number who shifted from the middle class to the lower class is estimated to be 1,747,000, while the number who moved from the middle class to the upper class is estimated to be only 945,000 (Minsungkyu et al., 2006).

The main indexes for measuring the inequality in income distribution are the Gini coefficient and the income multiplier, which is defined as the ratio of the average income of the top 20% in the upper class to that in the lower class. These surprisingly increased in 1998 right after the foreign currency crisis. The Gini coefficient in 1998 was 0.32,

which is 0.04% higher than that for the previous year. The income multiplier was 5.41 in 1998 and 5.49 in 1999. (See figure 2 for details.)

Furthermore, the poverty ratio¹ increased steadily after the foreign currency crisis. The poverty ratio using either regular income or disposable income shows an increasing trend, implying that the number of the poor is steadily increasing. (See figure 3 for details.)

2.1.1.3.1. The Impact of the Foreign Currency Crisis

Let me briefly look over the impact of the foreign currency crises on the society, especially on the psychological impact on the people. Korean society experienced a lot of changes after the foreign currency. The foreign currency started to impact on financial markets, and then on real economy and finally on individuals' life through unemployment.

As the real economy was expected to slow down further for a long period of time, several social problems emerged at the same time. Many companies laid a lot of employees off in the process of restructuring to survive in a new circumstance. As a result of layoff, the number of homeless increased and the crimes from the homeless, e.g. alcohol addiction and sexual assault, became an object of social concern.

This widespread layoff also made the idea of a lifelong workplace disappear among the employed. The company which they worked for don't have common interest

¹ The poverty ratio is defined as the ratio of the number of people whose income is below the minimum cost of living to the total population.

anymore. It is needless to say that the instability of job gave a lot of stress to the society as a whole. The economic difficulties from layoff, together with several gloomy economic indices, such as high exchange rates, high interest rate, high price indices, and low growth rate, casted a sense of defeat both to the middle class of income and to the poor. This increased in inequality of income distribution and poverty in Korea. These phenomena were considered as a huge confusion, because Korean society had been a cooperative and egalitarian society. This change, however, cause positive effects on labor market. It increased flexibility of labor market and appropriate reward system for effort were started to be established.

Some of the changes of lifestyle in a society became a new tradition and still ongoing. The foreign currency crisis made income polarization more significant. The worsened situation has not improved yet.

2.1.2 Credit Rationing

Credit rationing is another reason why microfinance is necessary in Korea. In this section, I analyze the phenomenon of credit rationing in Korea. Before that, I consider the notion of the credit rationing equilibrium.

2.1.2.1 Credit Rationing Equilibrium

There exists a credit rationing equilibrium because of asymmetric information in the credit market (Stiglitz and Weiss, 1981). Banks, as suppliers of funds, have inferior information on the expected yield on projects compared with the information of applicants. If the interest rate increases, then the expected return to banks may decrease.

The increased interest rate can induce riskier borrowers to apply for loans, thus exacerbating the problem of adverse selection. The increased interest rate also increases the relative attractiveness of riskier projects with higher returns and higher probabilities of bankruptcy. This is a well-known moral hazard problem, for which a bank's return may be lower. Therefore, banks that want to maximize their expected returns from lending money choose to ration credit instead of increasing the interest rate when there is an excess demand for loans in the market.

2.1.2.2 Analysis of Overall Credit Rationing in Korea

In this section, I estimate the disequilibrium model for bank loan markets by maximum likelihood estimation, as suggested by Maddala and Nelson (1974). The sample period is from 1987 to 2004. Based on the empirical results, I can identify whether there exists excess demand or credit rationing in the bank loan market.

2.1.2.2.1 Disequilibrium Equations for Bank Loan

The disequilibrium model for bank loans is composed of the following three equations:

$$(2.1) \quad D_t = X'_{1t} \alpha + U_{1t}$$

$$(2.2) \quad S_t = X'_{2t} \beta + U_{2t}$$

$$(2.3) \quad Q_t = \text{Min} (D_t, S_t)$$

, where D , S , and Q denote the demand, supply, and actual loan of funds, respectively, and X_{1t} and X_{2t} stand for the vector of explanatory variables for demand and supply of funds, and the interest rate is included in one of these. Furthermore, U_1 and U_2 are the

disturbances. Equation (2.3) is based on the hypothesis that the short side dominates the market if the market is not in equilibrium.

2.1.2.2.2 Maximum Likelihood Estimation (see Maddala and Nelson (1974) for details)

Suppose that the error terms in equation (2.1), the U_{1t} s, are independent and identically distributed (*iid*) with normal distribution with mean zero and variance σ_1^2 , independently distributed from the errors in equation (2.2), the U_{2t} s, which are assumed to be *iid* with normal distribution with mean zero and variance σ_2^2 . Then the probability that Q_t , the actual loan of funds, belongs to D_t , the demand for funds, is given by:

$$\begin{aligned}
 (2.4) \quad \pi_t &= \Pr(D_t < S_t) \\
 &= \Pr(X'_{1t} \alpha + U_{1t} < X'_{2t} \beta + U_{2t}) \\
 &= \Pr(U_{1t} - U_{2t} < X'_{2t} \beta - X'_{1t} \alpha).
 \end{aligned}$$

Note that because U_{1t} and U_{2t} are independent normal distributions, then $(U_{1t} - U_{2t})$ has normal distribution with mean zero and variance $\sigma^2 = \sigma_1^2 + \sigma_2^2$.

Let $f_1(Q_t)$ denote the probability that the demand becomes Q_t , let $f_2(Q_t)$ denote the probability that the supply becomes Q_t , let $F_1(Q_t)$ denote the probability that the demand is bigger than Q_t , and let $F_2(Q_t)$ denote the probability that the supply is bigger than Q_t . Then:

$$(2.5) \quad f_1(Q_t) = \frac{1}{\sqrt{2\pi}\sigma_1} \exp \left[-\frac{1}{2\sigma_1^2} (Q_t - X_{1t}^i \alpha)^2 \right],$$

$$f_2(Q_t) = \frac{1}{\sqrt{2\pi}\sigma_2} \exp \left[-\frac{1}{2\sigma_2^2} (Q_t - X_{2t}^i \beta)^2 \right],$$

$$F_1(Q_t) = \frac{1}{\sqrt{2\pi}\sigma_1} \int_{Q_t}^{\infty} \exp \left[-\frac{1}{2\sigma_1^2} (Q_t - X_{1t}^i \alpha)^2 \right] dD_t,$$

$$F_2(Q_t) = \frac{1}{\sqrt{2\pi}\sigma_2} \int_{Q_t}^{\infty} \exp \left[-\frac{1}{2\sigma_2^2} (Q_t - X_{2t}^i \beta)^2 \right] dSD_t.$$

Now the conditional density of Q_t if Q_t belongs to demand is given by:

$$(2.6) \quad \frac{f_1(Q_t)F_2(Q_t)}{\int_{-\infty}^{\infty} f_1(Q_t)F_2(Q_t)dQ_t} = \frac{f_1(Q_t)F_2(Q_t)}{\pi_t}.$$

Similarly, the conditional density of Q_t if Q_t belongs to supply is given by:

$$(2.7) \quad \frac{f_2(Q_t)F_1(Q_t)}{1 - \pi_t}.$$

Hence, the unconditional density of Q_t can be written as:

$$(2.8) \quad f(Q_t | X_{1t}, X_{2t}) = \pi_t \left[\frac{f_1(Q_t)F_2(Q_t)}{\pi_t} \right] + (1 - \pi_t) \left[\frac{f_2(Q_t)F_1(Q_t)}{1 - \pi_t} \right]$$

$$= f_1(Q_t)F_2(Q_t) + f_2(Q_t)F_1(Q_t).$$

Therefore, the likelihood function becomes:

$$(2.9) \quad L = \prod_t [f_1(Q_t)F_2(Q_t) + f_2(Q_t)F_1(Q_t)].$$

I can estimate the disequilibrium model defined by equations (2.1) – (2.3) by maximizing the likelihood function (2.9) suggested by Maddala and Nelson (1974). I can also get the excess demand (or supply) by the difference between the estimated demand and supply of the funds.

2.1.2.2.3 Estimated Model and Data Set

Assume that the demand for funds is determined by the interest rate, the economic activity, and the inflation rate and that the supply for funds is determined by deposits reflecting the capacity to supply funds, the interest rate, and the inflation rate. More specifically:

$$(2.10) \quad D_t = \alpha_0 \text{ IMF} + \alpha_1 + \alpha_2 y_t + \alpha_3 L_{t-1} + \alpha_4 (\text{CB}_t - \Delta p_t)$$

$$(2.11) \quad S_t = \beta_0 \text{ IMF} + \beta_1 + \beta_2 L_{t-1} + \beta_3 \text{ DP}_t + \beta_4 (\text{lr}_t - \Delta p_t)$$

, where IMF is a dummy variable that accounts for the foreign currency crisis in 1998, y_t denotes the nominal GDP in year t , L_t denotes the balance of the bank loan at the end of year t , CB_t denotes the rate of return for corporate bonds in year t , Δp_t denotes the rate of change of the GDP deflator in year t , DP_t denotes the balance of bank deposits at the end of year t , and lr_t denotes the interest rate for the loan in year t .

The sample period is the years 1987 to 2004. All values of variables, except the interest rate and the GDP deflator, are used after taking natural logarithms.

2.1.2.2.4 Empirical Results

Table 9 shows the empirical results for the nation as a whole. The demand for funds decreases as the real rate of return for corporate bonds, $\text{CB}_t - \Delta p_t$, increases, while it increases as economic activities, represented by y_t , increase. The supply of funds is not sensitive to changes in the real interest, $\text{lr}_t - \Delta p_t$, and it increases as the balance of bank deposits increases.

Table 10 shows the empirical results of the same model for the capital and its neighbors, the Seoul region. Note that the magnitudes of the coefficients are different from those for the whole nation.

Figure 4 shows the amount of estimated oversupply of funds for the nation as a whole and for the Seoul region. The lower line from the start is for the nation, and the upper line is for the Seoul region.

Korean loan markets by banks, as a whole, show excess demand before the year of 1997, when the Korean economy suffered the foreign currency crisis and the excess supply that existed after that time. More specifically, at the beginning of 1990, there was a kind of equilibrium between the supply and demand for funds, after which there was huge excess demand between 1993 and 1998, when the foreign currency crisis happened. After this crisis time, there was huge excess supply and, then, recently, the supply and demand became similar.

It is interesting to note that the situation for the Seoul region shows the opposite patterns. That is, the loan markets in the Seoul region show excess supply before the foreign currency crisis and excess demand after that time.

2.1.2.2.5 Implication

If there is excess demand and, thus, credit rationing, the poor are usually in an inferior situation to get funds, because they cannot offer enough collateral for their loans, and they need the money for more urgent purposes. Although the Korean loan markets, as a whole, recently show excess supply, there is excess demand for funds in the center of Korea, Seoul and its adjacent area. This is because the real economy of the capital city grows rapidly, and this results in many promising microcredit project items in this area. This is the reason why Seoul and its adjacent area should be the main target region of microfinance in Korea.

2.2 The Present State of Microfinance in Korea

2.2.1 Why are MFIs so late to start?

The history of the Microfinance in Korea is less than 10 years, whereas microfinance was introduced in Bangladesh in the mid 1970s and then it spread through the world. In this section, I briefly discuss why the Microfinance start so late in Korea.

First, Korea chose different approaches to reduce poverty; Saemaul Undong which mainly focused on an agricultural development project, and labor intensive industrialization from 1970 ~ 1985. The Korean government led these policies and offered a lot of incentives for private sectors to encourage these policy directions. These policies enabled remarkable and steady economic growth since it was introduced. Poverty has been continuously reduced as a result. At that time, the whole society, including NGOs and academic world, were supportive and cooperative in these policies. The major concern in society was how to organize the Saemaul Undong so that it carried out efficiently and bore fruit quickly. Therefore, the society doesn't feel any need to consider the microfinance as another alternative to reduce the poverty.

Although the distribution of income became unfair and favored for the rich in the process of the economic development, the unfairness of income distribution was not severe enough to hinder people from keeping cooperative attitude toward the economic development. Recently the distribution of income significantly favored the wealth and the relative ratio of the poor in population drastically increased. This trend was decisively exacerbated by the foreign currency crisis in 1997. The income concentration was regarded as an impediment to the unity of society and thus the idea that the society need

to take care about the poor formed social consensus. As a result, government circles as well as the whole society recently showed a fierce interest in microfinance as a tool for fight against poverty.

Another reason why the Microfinance start so late in Korea is that there were several other financial systems with similar role as microfinance and these systems worked normally until recently. For example, “gye” has been a kind of traditional private fund popular among Koreans, whose members chip in a modest amount of money and take turns to receive a lump sum share. Savings banks and mutual financial institutions carried out loans with a small amount of money (usually less than \$ 5,000). These loans have several something in common with microfinance; they don’t require collateral and they are mostly used by the poor. But they have several different aspects from microcredit. These loans are carried out to make a profit. Thus there is no restriction with respect to users or the use of money. The interest rate charged for this loan was usually much higher than the market level, because no collateral is required.

However, in the restructuring process after the foreign currency crises, many financial companies, whose fiscal stability and profitability is poor, should be excluded from the market. It is needless to say that many savings banks and mutual financial institutions with these loans no longer survived, as the individuals with loans lost the ability to repay their loans and they don’t have any collateral to cover the losses.

2.2.2 The Present State of Microfinance in Korea

Microfinance in Korea does not have a long history. Although MFI has roots in the Joyful Union (JOU) in 2000, concerns and interests of the government and the public bore fruit with the establishment of the Microfinance Foundation (MIF) in 2008.

MFIs are mainly located in the Seoul region, and they target people in urban areas. Microfinance does not carry out microsaving, which makes the source of funds unstable. So far, MFIs mainly provide microcredit that helps the poor start up businesses by lending them small amounts of money. Recently, microfinance developed into the current situation where one major commercial bank commenced the microcredit project and the coverage of microfinance expanded into microinsurance.

2.2.2.1 The Current MFIs in Korea

Besides the JOU and the MIF, the Social Solidarity Bank (SSB) and the Beautiful World Fund (BWF) are representative MFIs, and they managed approximately \$40 million in October 2008. Below, I explain the current status of microfinance in Korea, which is mainly focused on the terms of microcredit and the structure and behavior of these MFIs.

2.2.2.1.1 The Microfinance Foundation

The MIF was established as a public foundation in March 2008, based on the Law of Establishment of the Microfinance Foundation, which was enacted to regulate the establishment and operating procedures of the MIF in August 2007. The main funding

sources of MIFs are the deposits in dormant accounts in banks and insurance companies, which are assessed around \$0.2 billion.

The major projects of the MIF are as follows, (1) microcredit to help the poor to start new businesses or to get new jobs; (2) microinsurance to support the poor to make contracts and to maintain basic insurance; and (3) public welfare projects to relieve the burden of the expenses of tuition and medical services for the children of low-income families. The actual projects are conducted by different financial institutions that the MIF designates as agents and whose behavior it controls on those projects. The MIF started microcredit and public welfare projects right after it was established, but it started microinsurance only recently, which I explain later in more detail. To carry out these projects, the MIF has around 20 staff, but the main decisions are made by the governing body, which is composed of 11 members from both the public and private sectors.

Beneficial outcomes from the recent establishment of the MIF are yet to be revealed, but its establishment has made the Korean people take more interest in microfinance.

2.2.2.1.2 The Social Solidarity Bank

The Social Solidarity Bank (SSB) is a nongovernment organization (NGO) that was established in December 2002 to aid poor people who were running, or planning to start, a microenterprise. The SSB provides seed money for low-income families without collateral and provides assistance in the form of training in management and marketing skills for their continuous growth. Sponsored by the Samsung Group and the Ministry of Gender Equality and Families, the SSB manages funds of around \$8 million with 28 staff.

Since its establishment, the SSB had advanced \$6 million to 352 persons by September 2006, which is the largest amount among MFIs in Korea. In terms of business scope, the largest portion of the credit was used for the start-up of businesses. If differentiated with respect to business types, the service sector (37%) is ranked first, followed by the food sector (31%), the wholesale/retail sector (21%), the manufacturing sector (10%) and agriculture (1%).

Each person can get, at most, \$20,000 in a loan over four years with an annual interest rate of between 0% and 6%. Repayments are over equal installments for 42 months after a six-month period of deferment. The repayment rate has been relatively high, namely 90% by September 2006. The approval of loans usually takes three to four weeks, during which time the SSB inspects basic documents and checks the proposed businesses, the repayment ability of the applicants and their basic skills.

2.2.2.1.3 The Joyful Union

The JOU was established in June 2000 to help the poor who could not provide the collateral for loans and, thus, by giving them seed money, enabled them to start up their businesses. The JOU manages funds of about \$1.5 million, sponsored by the City Group, the Munwha Broadcasting Corporation (one of the major broadcasting companies) and donations from many individuals, with 18 staff and volunteers.

The JOU targets communities in rural areas, especially the low-income group, which makes it different from the other MFIs. Since its establishment, the JOU has advanced loans totaling \$1 million to 73 communities by July 2007.

The maximum loan is \$50,000 per community, with an annual interest rate between 2% and 4%. Repayments are by one of two options: weekly base repayments over 200 weeks; or monthly base repayments of equal installments over four years after a one-year period of deferment. The repayment rate has been very high, namely 96% up to July 2006. The approval of loans is based on inspecting basic documents, checking the place of business and interviewing. This process usually takes around 60 days.

2.2.2.1.4 The Beautiful World Fund

The Beautiful World Fund (BWF) was established to support the start-up of businesses, especially for families without male heads. Actually, the BWF is one of the funds in the Beautiful Foundation, whose main purpose is to help the poor in various ways. Based on the bequest of an owner of a conglomerate, this foundation has funds of \$1.4 million, and the BWF supports microcredit projects using the gains from its funds.

Since its establishment, the BWF has approved 15 loans amounting to \$4.7 million, most loans being to help families without male heads to start new businesses in Seoul.

The basic features of the BWF loans are that \$30,000 is the maximum amount, and they have a seven-year maturity with a 1% annual interest rate. Repayments of the loans are by equal installments each month. The repayment rate has been very high (90.9% of loans). The approvals of loans usually take six months and are based on inspections.

2.2.2.2 Recent Phenomena in Microfinance

In this section, I will explain two unprecedented phenomena in microfinance in Korea; namely, commercial banks participating in microcredit, and the MFIs starting to offer microinsurance.

2.2.2.2.1 Participation of Commercial Banks in Microcredit

As the volume of microcredit has become bigger and people have taken an interest in microfinance, the Hana Bank, which is ranked fifth among commercial banks in terms of magnitude of assets in Korea, announced that it was going to participate in microcredit for profit. Compared with other MFIs, its scheme is more aggressive and expansive. The Hana Bank gives not only microcredit loans which can be used for starting up businesses but also additional synthetic business consulting to help microcredit users survive in the long term. For this reason, the amount of loans is larger, being in the range of \$50,000 to \$300,000 per person.

2.2.2.2.2 Commencement of Microinsurance

Another recent phenomenon in microfinance is that microinsurance has emerged in the market. In December 2008, the MIF and insurance companies decided to provide microinsurance, after long discussions among task force members from the public and private sectors.

Normally, contractors can get benefits between \$5,000 and \$10,000 with microinsurance premiums less than \$180, in case of death, casualty or hospitalization. Contractors who are low-income families do not need to pay the whole premium but are

required to pay only 5%, while the MIF pays the remainder. In this sense, this microinsurance project is expected to play an important role as a social safety net.

2.3 The Use of Financial markets by the Poor

In the first section, I explained credit rationing in the bank loan markets. Now I discuss how credit is rationed for the poor by closely investigating the use of financial markets in Korea by the poor.

2.3.1 Who are the unbanked?

The formal financial institutions whose main targets are the poor people in Korea are savings banks, credit unions, and community credit cooperatives. As is clear from table 11, about 42.3% of the total number of these institutions disappeared from the market through the restructuring process after the foreign currency crisis in 1997. This implies that the use of formal institutions by the poor decreased very sharply, even for the poor with adequate collateral.

Furthermore, the poor usually obtain smaller levels of credit because of low income, insufficient wealth, and inability to offer adequate collateral for loans. According to the report by the Ministry of Finance and Economy distributed on Dec. 12, 2006, about 16.6% of the total users of financial services, or 5.6 million people, have credit range 8 to 10, implying that they cannot use the normal financial institutions (see figure 5 for details).

Included among those who have been excluded from the normal financial services are those who failed to fulfill their financial obligations and thus were listed as bad

debtors, and the number of those is estimated to be 2.8 million, which is about 8.2% of the total, as of December 2006.

These people can only use private lending, such as local moneylenders, if they need external loans because of their poor credit. The number of local moneylender users is estimated to be 3.3 million, based on the investigation in 2006 for all registered local moneylenders under the unified governance by the Ministry of Public Administration and Security and the Korea Institute of Finance.

2.3.2 Money Borrowing from the Informal Sectors

The poor, because of low credit availability, usually depend on informal local moneylenders for their urgent loans. Although registration is required to operate as a local moneylender, there are still many nonregistered moneylenders. I introduce several aspects of local moneylenders, based on the investigation in 2006 for all the registered local moneylenders under the unified governance of the Ministry of Public Administration and Security and the Korea Institute of Finance (referred to here as “KIF”). More recently in 2008, another inspection by the Financial Services Commission (referred to here as “FSC”) was carried out. I revealed some data in the following section and compare the data in 2008 inspection with the data in 2006 inspection.

2.3.2.1 General State of Local Moneylenders

The number of moneylenders registered in local government areas is 17,210 in 2006. The number of moneylenders has shown a steady increase over time. The size of

the market for the local moneylenders is conjectured to be \$18 billion and the number of users is conjectured to be 3.3 million.

The number of moneylenders registered in local government areas in 2008 is almost the same as in 2006. The number of moneylenders has shown a steady increase over time until 2006, but it maintained almost the same. The size of the market for the local moneylenders is conjectured to be \$10 billion and the number of users is conjectured to be 1.3 million, which shows a huge decrease from the previous 2006 inspection.

2.3.2.2 The Users of Local Moneylender Market

Among the age groups, the group in their thirties, whose ratio was 36% in the survey by the KIF and 50% by the Financial Supervisory Service in 2006 inspection, is ranked first and then the group in their twenties. As for occupation, company employees have the largest percentage, being between 51% and 61%, and the self-employed are the next largest group.

The survey by the Financial Supervisory Service in 2006 shows that the reason for using local moneylenders is the difficulties caused by the current economic situation. The inspection in 2008 by FSC shows the same result.

The users depend on only small amounts of money, based on the survey by the KIF in 2006; i.e., 57% of the total borrowers get credits amounting to less than \$5,000 and average amount of loans from local money lenders is around \$9,000. The amount of

loans from local money lenders decreased in 2008, based on the fact that the average amount of loans is around \$8,000.

As for the interest rate charged on credit in 2006, only 27% of total users of registered local moneylenders and 14% users of nonregistered—and thus illegal—local moneylenders are charged below 66%, which is the maximum interest rate permitted by the Korean usury law. More specifically the average interest rate charged for the loans from local money lenders in 2006 is 199% a year. The interest rate charged from local money lenders decreased in 2008, based on the fact that the average interest rate charged from local money lenders is 72.2% a year. The maximum interest rate permitted by the Korean usury law changed to be 49% a year from Aug, 2007. I think this change lowered average interest rate charged for the loans, although it was still higher than the maximum interest rate permitted by the Korean usury law.

2.3.2.3 The Percentages of Lending for Each Credit Range

As conjectured, local moneylenders usually give loans to households with bad credit ratings. Among the total credit advanced by local moneylenders in 2006, the percentage for households with credit scores between 4 and 7 is 52.2% and that for credit scores between 8 and 10 is 44.1%, based on information given by local moneylenders to the National Information and Credit Evaluation, which is one of the credit bureaus in Korea. The percentage of householders with credit scores between 4 and 7 is 52.2%, but that for credit scores between 1 and 3 is just 3.7%.

2.3.2.4 Profitability of Local Moneylenders

Based on the audit reports by an independent audit of 29 moneylenders, the overall profitability for moneylenders is good and has been increasing. The net current profit for the fiscal year 2006, as a whole, was \$2.1 billion, being an increase of 4.5% compared with \$2.0 billion in 2005.

2.3.3 Money Lending from the Formal Sectors

Normal financial institutions that operate money lending for the poor are commercial banks, credit finance institutions including credit card companies and mutual financial institutions. In the restructuring process after the financial crisis in Korea, many financial companies, whose fiscal stability and profitability is poor, should be excluded from the market. This means that the financial institutions that survive require strict collateral when they give loans to clients. The poor usually cannot offer collateral, and they do not have a good credit score either. Thus, financial services for the poor are so restricted that they cannot satisfy their needs. In the following sections, I explain these phenomena in more detail, based on actual data.

2.3.3.1 Commercial Banks

The total credit balances of commercial banks to households increased by 11.1%, from \$389 billion in June 2005 to \$432 billion in March 2007. Most of the loans were granted to households with good credit. Among the total loans by March 2007, about 52.1% of the loans were granted to households with credit scores in the range 1 to 3, and

about 42.7% to households with credit scores in the range 4 to 7. However, the percentage of households with credit scores in the range 8 to 10 was just 5.2%.

2.3.3.2 Credit Finance Institutions

Credit card companies and leasing and installment financing companies are listed in the category of credit financial institutions. These institutions do not provide savings accounts but only credit services, which make them crucially different from commercial banks.

The total credit balances for households of credit card companies was \$6.9 billion by March 2007, reflecting the steady decrease from December 2005. The credit balances for households with credit scores in the range 8 to 10 showed a remarkable decrease of 74%, from \$6.8 billion in June 2005 to \$1.8 billion in March 2006.

The credit balances of leasing and installment financing companies show the same trend; the loan for bad credits shows a steadily decreasing trend.

2.3.3.3 Savings Banks and Mutual Financial Institutions

Savings banks in Korea are small consumer banks mainly targeting ordinary people and small enterprises. The total credit for households was \$12.9 billion in March 2007 and increased by 3% from \$12.6 in June 2005. The percentage of households with credit scores in the range 8 to 10 was 51% in March 2007, which is the highest ratio among formal financial institutions. Recently, the percentage of households with credit rating in the bad credit range decreased because of the steady increase in the percentage of loans to households with good credit ratings.

The credit for the households from the mutual financial institutions, including credit unions, mainly targets households with good credit; the largest percentage of the credit was allotted to households with credit scores in the credit range 4 to 7, namely 66.6%. Loans for households with credit scores in the bad credit range increased steadily.

2.4 Review of the Existing Microfinance Institutions in Korea

In this section, I review and assess the impact of microfinance in Korea. The assessment mainly focuses on the SSB, which is one of the major MFIs.

2.4.1 More Details on Funds and Repayments

The SSB has done well in getting funds to support the microenterprises and managing the repayments for the last five years after it undertook these projects in 2003. The SSB is now one of the major MFIs supporting microenterprises in the private sector.

The funds of the SSB were \$2.5 million, as of 2005, accounting for 6.6% of the total funds for supporting the start-up of businesses. If I exclude public funds, then 78% of the remaining funds were allotted to the SSB, which is the largest percentage to any MFI, the next most important being the JOU.

The amount of funds and the number of microenterprises and beneficiaries of the SSB show steady growth patterns for the last five years. The amount of funds used to help start businesses increased from \$23,000 in 2003 to \$3.3 million in 2007. The number of microenterprises increased from 10 in 2003 to 165 in 2007, while the number of beneficiaries increased from 36 in 2003 to 262 in 2007. (See figure 6 for details.)

I now consider the sources of funds to the SSB from 2003 to July 2007. The total amount of funds for these four years was \$9.4 million, of which the central government contributed 47.2%, and the rest was from the private sector. Of the government's contribution, 16.8% (\$1.5 million) was from the Ministry for Females and Families; 30.9% (\$2.9 million) was from the Ministry of Health and Welfare; 38.9% (\$3.7 million) was from financial companies; and 13.4% (\$1.3 million) was from general companies. The sources of the funds make impacts on the role of the SSB. As for the funds that the SSB collects by itself, the SSB carries out the whole business procedure, including choosing the targets, giving the loans, managing repayments, and several other services after the loans are approved. The funds help to self-support the communities from the Ministry for Females and Families and to help sexually harassed women to start new businesses with support from the Ministry of Health and Welfare. These ministries provide a total of 47.2% of the total funds of the SSB. The other 11.6% of the total is assigned to management and administration of the SSB, while other procedures are carried out by several financial companies.

Table 12 shows the status of repayments for the period from 2003 to July 2007. Among the 479 enterprises that got loans for these five years, 85% succeeded in repaying without any problems. Only 0.6% of the loans defaulted. Thus, the maximum repayment rate could rise to 99.6% if the enterprises that the SSB tried to get repayment succeeded in repaying. In this sense, it is crucially important to encourage these enterprises to make smooth repayments to achieve stable sources for microcredit and to ensure financial sustainability.

2.4.2 Assessment of the Procedure in Microcredit

The SSB can get funds from both the government and the private sector, because it is widely accepted that the SSB has better project schemes than the other MFIs for microcredit projects, including such procedures as choosing the targets, approving loans, managing repayments and providing several services later. To check whether the SSB's microcredit projects have produced good results, I conducted some synthetic analysis using the documents from the SSB survey of the 345 microenterprises that were in operation in December 2007. Interviews were conducted with 12 relationship managers (RMs) who delivered services to the targeted enterprises from the first stage to the end of the repayments.

2.4.2.1 General Comparison with Other Projects

The SSB's services for start-up businesses have some differences from other services from the public sector, including a loan project from an occupation fund by the Ministry of Health and Welfare, a loan project for store lease by the Korea Workers' Compensation and Welfare Service, and a support project for small and medium businesses by the Small and Medium Business Administration. Clients who do not have collateral or cosigners but who have willingness to self-support and good business sense may be able to get loans, but they may need collateral and/or cosigners for some projects. In addition to the basic documents on which other agents depend heavily when considering loan applications, the SSB carries out strict on-the-spot surveys and interviews, through which it finds the most promising targets with a high probability of repayments being made.

The SSB makes it mandatory for loan applicants to get necessary training from appropriate specialists as a package program, so that they get useful guidance on starting up businesses.

Other institutions have standardized rules concerning the amounts and conditions of loans, and the repayments are managed by normal non-specialist staff or by the bank. However, with the SSB's microcredit, the amount and the conditions are flexible depending on the economic situations of the clients, and the repayments are managed by specialists, RMs. These features contribute to high repayment rates for SSB loans. The RMs fully charge for the services provided after loans are approved by the SSB, which contribute to high survival rates of the target enterprises.

2.4.2.2 Choice of the Target

The target is the fragile class such as the poor and those excluded from financial services. Among these, those with a high willingness to self-support, preparations for the commencement of business, and business acumen or ability will be finally chosen, so that the probability of success will be increased.

The loan approval procedure is strict and well organized. In inspecting basic documents, administrative staff checks the economic conditions of the families involved, the business programs, business experience, etc. The actual on-the-spot inspections that are done by the RMs mainly focus on business conditions and the credibility of the applicants, etc., which cannot usually be assessed without personal interviews. Before choosing the target, the final interview is done by outside specialists.

Some applicants may feel uncomfortable with the strict procedure, but the majorities are satisfied by the specialists and the commitment to duty of the SSB members. By letting the RMs be involved in choosing the target, they establish good relationships from the first stage of business, and this contributes to finding targets with high probabilities of success.

2.4.2.3 Education for Start-up Businesses

The education of clients of the SSB for start-up businesses is done for a total of 18 hours over three days. The education is done in the form of lectures by outside specialists, who are to convey the basic information intensively in a short period.

The contents of this education are mainly practical business knowledge: the business program and the selection of business locations (the time allotted is four hours), marketing skill (four hours), accounting and finance (3.5 hours), and customer service (four hours).

This education may not be fully effective and may not satisfy the needs of the customers because it is in lecture form and is theory oriented.

2.4.2.4 Money Support

The amounts and conditions of the loans are flexible. For the amount of loans, the median (average) is \$15,000 (\$20,000), but there is a wide range from \$1,500 to \$150,000, depending on the economic situation of the applicants. The interest rates vary widely, ranging from 0% to 6% per annum, which can be adjusted depending on the needs and situations of the applicants.

The management of the repayments is carried out by the RMs, who decide the frequency of client visits to check their economic situation and to handle repayment negotiations, if needed, depending on the applicant's credit rating. Sometimes, a subsidy is given, as an incentive, to clients who have a good repayment history.

For users of this service, the money borrowed from the SSB is very helpful to start up a business. Sometimes, the RMs think that the flexibility of loans should be increased so that additional funds are extended for emergencies, depending on the economic situation. Such options help clients to cope with difficult situations.

2.4.2.5 Services after Loans

The RMs, who are specialists for the services provided after loans are approved, have a close connection with the clients so that they can provide guidance in business management and moral support in times of need. The moral support is provided through regular consultations. The guidance in business management covers such things as: (1) guidance before the start-up: store locations, selection of items, and assessment of the commercial environment; (2) guidance for start-up activities: choice of menus, opening ceremonies of stores, and the design of stationery and signage; and (3) guidance for management skill: checking the outputs, how to increase productivity, and strategies for customer service.

These services are provided during regular visits, which are at least twice a month, and by phone consultation. The outside specialists can be involved if the RMs think this is needed.

The service users revealed very high satisfaction with respect to the expertise and sense of duty of the RMs, and they think that this service is very helpful for the start-up and managing of businesses.

However, the number of the RMs is not sufficient for them to cover numerous enterprises, and they may be unfamiliar with the operation of some business types. This may result in some inefficiency in providing the benefits of the RMs to the clients.

2.5 Conclusion

I suggested that recent phenomena of income polarization and credit rationing in the financial market are evidence that microfinance is needed in Korea. Although the Korean economy has made great strides, the difference in the income between the poor and the rich has gotten much greater. The foreign currency crisis in 1997 deepened income polarization and the impact is continuing. Banks choose to ration credit instead of increasing interest rate (when there was an excess demand for loans) which would lead adverse selection and moral hazards. The poor are in an inferior position when it comes to getting funds when credit ration happens because they cannot offer collateral and they need money urgently.

This chapter reviewed and assessed the impact of microfinance in Korea. This chapter also explained the Use of Financial markets by the Poor. These inspections, together with further methods which will be explained in later chapters, will be used as backgrounds for future plans for the development of microfinance in Korea.

Table 1. Incidence of Poverty in Korea

(Unit: %)

	1965	1970	1976	1980	1991
Urban Households	54.9	16.2	18.1	10.4	8.7
Rural Households	35.8	27.9	11.7	9.0	2.8
All Households	40.9	23.4	14.8	9.8	7.6

Sources: Suh (1985) and Hyun and Na (1993).

Table 2. Reduction in Poverty

	Percent Changes in Reduction in Number of Poor between 1970 & 1990		Absolute Poverty (% of pop.)*		
	(%)	(mil.)	1970	1980	1990
China	64	175	33 (97)	28 (96)	9 (95)
Indonesia	61	43	69 (82)	29 (80)	15 (66)
Korea	71	5	23 (84)	10 (37)	5 (20)**
Malaysia	80	1.6	18 (85)	9 (85)	2 (85)
Philippines	0	0	35 (85)	30 (75)	24 (77)
Thailand	5	0.5	26 (94)	17 (94)	16 (94)
East Asia	60	225	204 (93)	123 (92)	71 (87)

Note: * Figures in parenthesis are percentage of the poor in rural areas.

** For 1985.

Sources: Johansen (1993), and World Bank, *Social Indicators of Development*, 1994.

Table 3. Trends in the Absolute Poverty Rate of Households in Korea

(Unit: %)

1998	1999	2000	2001	2002	2003	2004
23.91	23.78	21.93	16.80	16.92	18.30	16.08

Sources: Korea Labor Institute, KLIPS

Table 4. The Experiencing Poverty Depending on Features of Households

(Unit: %)

		Experience of Poverty		Number of Years in which the Subjects were Below the Poverty Line						
		No	Yes	1	2	3	4	5	6	7
Total		54.6	45.4	14.0	8.5	6.1	4.1	3.4	3.4	5.9
			100.0	30.8	18.7	13.4	9.1	7.5	7.5	13.0
Sex	Male	58.7	41.3	35.9	19.6	13.9	9.1	7.0	5.7	8.7
	Female	26.6	73.4	11.4	14.9	11.4	9.0	9.5	14.4	29.4
Age	20s	79.3	20.7	31.6	36.8	10.5	5.3	5.3	10.5	0.0
	30s	69.1	30.9	43.8	25.5	10.9	7.8	2.6	3.6	5.7
	40s	61.6	38.4	45.7	17.1	14.7	8.2	7.3	2.4	4.5
	50s	53.0	47.0	34.2	28.5	12.7	5.7	10.8	2.5	5.7
	60s ~	21.1	78.9	12.1	10.7	14.3	12.1	9.0	15.2	26.7
Edu- cation Level	Below High school	46.8	53.2	28.7	18.8	13.5	8.9	7.9	8.3	13.9
	Above College	83.6	16.4	52.9	15.7	14.3	11.4	2.9	0.0	2.9

Table 4 (cont.)

(Unit: %)

		Experience of Poverty		Number of Years in which the Subjects were Below the Poverty Line						
		No	Yes	1	2	3	4	5	6	7
Economic Activity	Regular	79.0	21.0	47.4	22.5	12.1	8.1	3.5	2.9	3.5
	Tempo- rary	58.8	41.2	19.0	33.3	9.5	14.3	9.5	4.8	9.5
	Daily	41.6	58.4	25.8	21.2	12.1	10.6	9.1	3.0	18.2
	No Salary	50.6	49.4	39.1	20.2	12.7	8.1	7.2	5.5	7.2
	Un-emp loyed	31.3	68.7	35.0	22.3	15.5	6.8	11.7	4.9	3.9
	Not entering a profession	21.0	79.0	13.4	12.1	14.8	10.4	8.1	14.4	26.8
House hold Type	Only married couple	32.1	67.9	15.2	16.3	15.7	11.8	9.6	11.2	20.2
	Parents & Kid(s)	65.3	34.7	44.3	21.5	12.9	7.9	5.9	3.4	4.1
	Single Parent & Kid(s)	37.4	62.6	23.6	12.5	19.4	13.9	8.3	6.9	15.3
	One man	33.0	67.0	10.9	16.4	4.7	6.3	9.4	19.5	32.8
	Extended Family	49.2	50.8	30.0	18.0	16.7	9.3	8.0	5.3	12.7

Sources: Korea Labor Institute, KLIPS

Table 5. Transition Probability of Economic Activity Status

(Unit: %)

t year \ t+1 year		Employed	Unemployed	Not entering a profession	Total
		The Poor	Employed	88.8	4.2
Unemployed	62.3		11.5	26.2	100.0
Not entering a profession	23.0		4.0	73.0	100.0
Non Poor	Employed	96.2	1.1	2.7	100.0
	Unemployed	74.3	11.0	14.7	100.0
	Not entering a profession	29.4	3.1	67.5	100.0

Sources: Korea Labor Institute, KLIPS

Table 6. Transition Probability of Economic Activity Status of the Employed

(Unit: %)

		t+1 year	Regu	Tempo	Daily	No Pay	Unempl	Not entering	Total
		t year	lar	rary			oyed	a profession	
The	Regular		80.4	1.8	1.8	5.4	3.6	7.1	100.0
Poor	Tempo		3.9	50.0	15.4	7.7	7.7	15.4	100.0
	rary								
	Daily		4.0	2.0	79.8	2.0	4.0	8.1	100.0
	No Pay		5.4	0.7	4.0	81.2	4.0	4.7	100.0
Non	Regular		91.8	0.9	0.7	3.1	1.3	2.2	100.0
Poor	Tempo		20.0	56.2	6.0	6.0	2.6	9.4	100.0
	rary								
	Daily		7.5	2.8	79.2	4.3	1.3	5.1	100.0
	No pay		3.4	0.7	1.1	91.9	0.6	2.4	100.0

Sources: Korea Labor Institute, KLIPS

Table 7. The Transition Probability of the Level of Household Wealth

(Unit: %)

t year \ t+1 year	Poor	Less Poor	Non Poor	Total
	Poor	46.8	12.6	40.6
Less Poor	19.9	17.7	62.4	100.0
Non Poor	5.6	4.1	90.3	100.0

Sources: Korea Labor Institute, KLIPS

Table 8. Distribution of Non-Poverty and Continuous Poverty Depending on Features of Households

(Unit: %)

		Non Poor	Experience Once	Continuously Poor	Total
Sex	Male	93.8	92.3	53.2	87.2
	Female	6.3	7.7	46.8	12.8
Age	20s	6.3	2.0	0.0	4.3
	30s	36.7	28.1	8.7	29.0
	40s	33.6	37.5	8.7	29.8
	50s	15.2	18.1	7.1	15.7
	60s ~	8.1	14.4	75.4	21.1
Education Level	High School Diploma or Below	69.4	87.6	98.4	80.0
	BA Degree or Above	30.6	12.4	1.6	20.0
Economic Activity	Regular	55.7	27.4	4.8	38.5
	Temporary	2.6	1.3	1.6	2.4
	Daily	4.0	5.7	9.5	5.3
	No Salary	26.9	40.1	17.5	29.1
	Unemployed	4.0	12.0	3.2	7.0
	Not entering a profession	6.8	13.4	63.5	17.7

Table 8 (cont.)

(Unit: %)

		Non Poor	Experience Once	Continuously Poor	Total
Household Type	Only married couple	7.2	9.0	28.6	12.3
	Parents & Kid(s)	71.3	65.6	14.3	59.6
	Single Parent & Kid(s)	3.7	5.7	8.7	5.4
	One Person	5.4	4.7	33.3	8.9
	Extended Family	12.4	15.1	15.1	13.8

Sources: Korea Labor Institute, KLIPS

Table 9. Estimation Result for the Nation

α_0	α_1	α_2	α_3	α_4	likelihood
-0.109	-4.519**	1.287***	0.038	-0.038*	38.795
(0.187)	(1.873)	(0.401)	(0.339)	(0.020)	
β_0	β_1	β_2	β_3	β_4	
0.018	-0.388	-0.000	1.302***	-0.000	
(1.091)	(0.335)	(0.275)	(0.256)	(0.001)	

Notes: Standard errors are in parentheses. * (**, ***) significant at the 10-percent (5-percent, 1-percent) level.

Table 10. Estimation Result for Seoul Region

α_0	α_1	α_2	α_3	α_4	likelihood
0.739**	-3.546**	0.976***	0.008	-0.008*	35.049
(0.293)	(1.542)	(0.256)	(0.293)	(0.006)	
β_0	β_1	β_2	β_3	β_4	
-1.134	-2.825	-0.018	1.309***	0.018	
(23.185)	(23.063)	(0.151)	(0.222)	(0.025)	

Notes: Standard errors are in parentheses. * (**, ***) significant at the 10-percent (5-percent, 1-percent) level.

Table 11. Financial Institutions Restructuring (Nov. 97 ~ Mar. 07)

(Unit ; %)

classification	Total number	Restructuring					establishment	Current Number
		Decertification	merger	Bankruptcy contract transfer	Sub total (B)	Ratio (B/A)		
Saving bank	231	108	28	1	137	59.3	16	110
Credit union	1,666	2	125	534	661	39.7	15	1,020
Credit cooperative	2,743	-	-	-	1,164	42.4	-	1,579

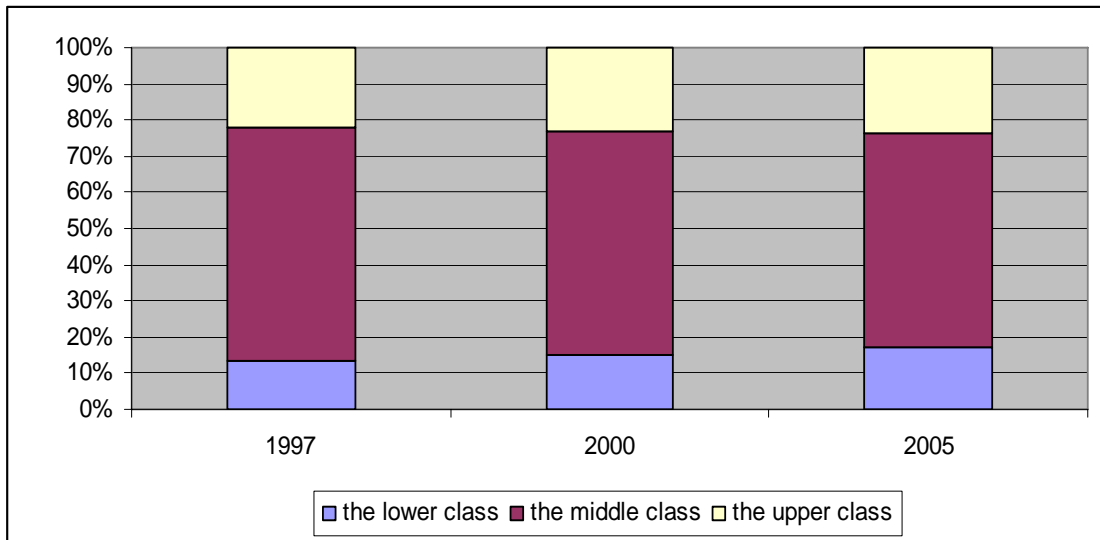
Source: the Ministry of Finance and Economy

Table 12. Current State of Repayment of Fund

(unit: % (number))

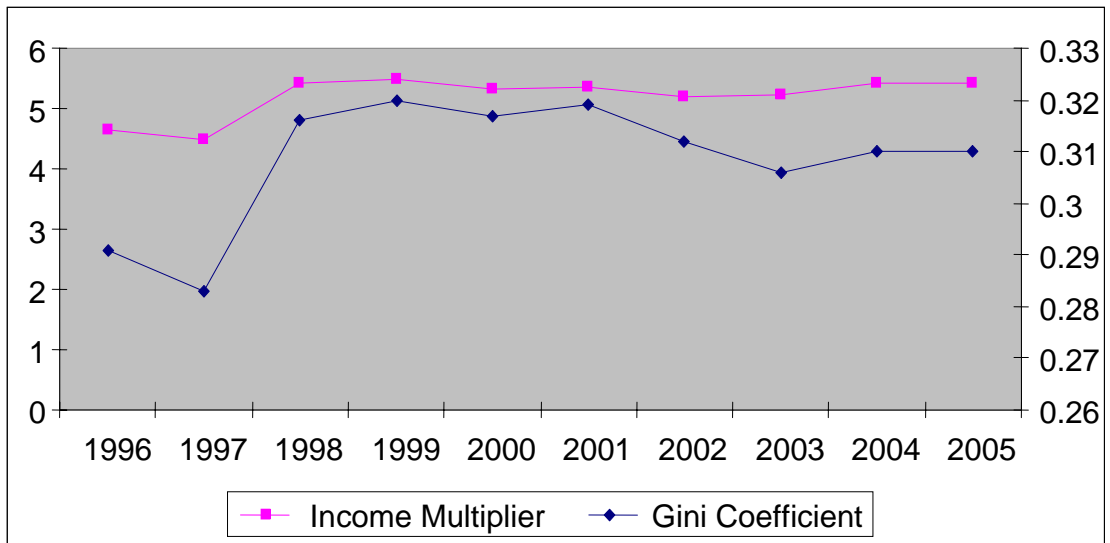
Current status	On operation	Quit / Give up	Number of enterprises	Payment ratio
Total	100 (377)	100 (102)	100 (479)	
Finish repayment	31.6 (119)	32.4 (33)	31.7 (152)	
Managing by Bank	12.5 (47)	-	9.8 (47)	
Unredeemable	19.1 (72)	-	15.0 (72)	
Repaying	35.5 (134)	4.3 (2)	28.4 (136)	85.0 %
Encouraging	1.1 (4)	63.7 (65)	14.4 (69)	99.6 %
No repayment	0.3 (1)	2.0 (2)	0.6 (3)	0.6 %

Figure 1. Trend in the percentages of different income classes



Source: Korea National Statistical office

Figure 2. Trend in Indexes for Measuring the Inequality in Income Distribution



Source: Korea National Statistical office

Figure 3. Trend in the Poverty Ratio

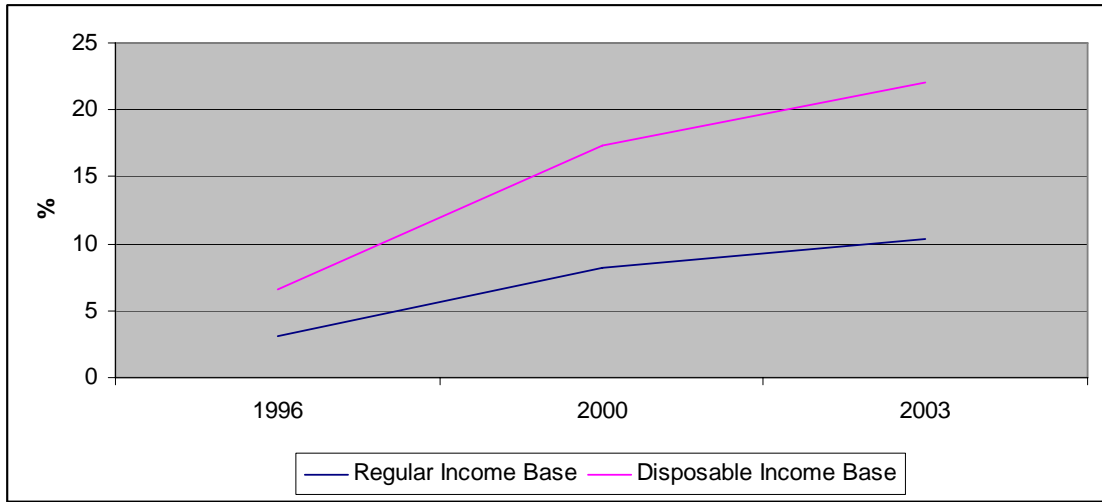


Figure 4. Estimated Oversupply of Fund



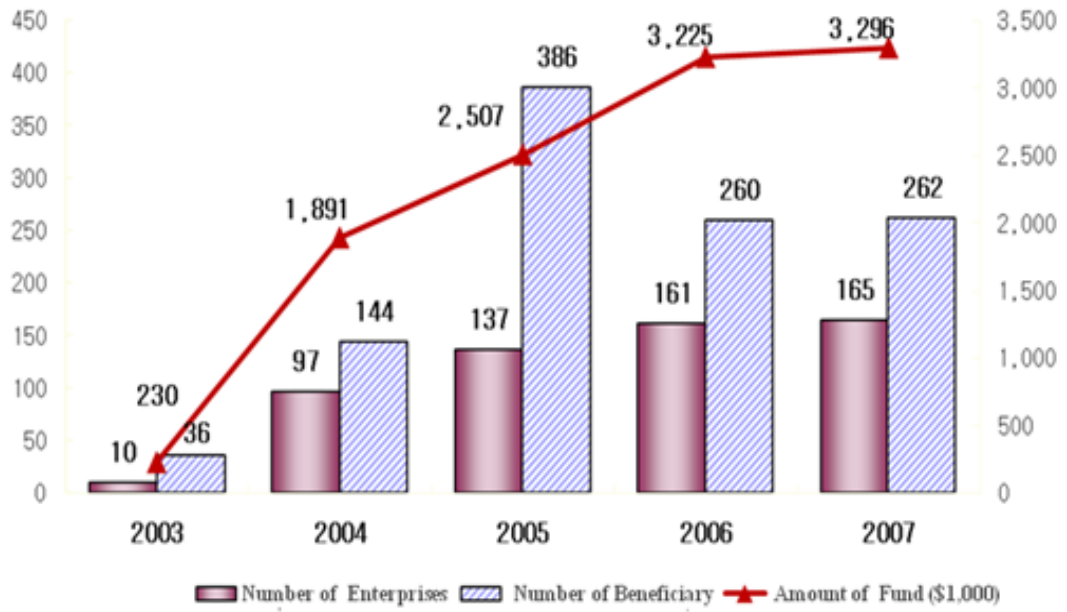
Figure 5. Classification of Financial Institutions available depending on Credit

Range

Credit Range	Number (Portion)	Financial Institutions available
1 ~ 6	26.9 million (78.8%)	General Commercial Banks
1 ~ 7	28.4 million (83.4%)	Small-size Financial Institution
8 ~ 10	5.6 million (16.6%)	Private Money Lending including Local Money Lender

Source: the Ministry of Finance and Economy

Figure 6. The Transition of Fund and the number of Microenterprises



Chapter 3

An Exploratory Study of the Survival of Microenterprises

3.1 Introduction

Microfinance has played a key role in helping poor people out of poverty in the past 25 years. There is widespread enthusiasm around the world for microfinance. Korea is not an exception. Recently government circles as well as the academic world have shown a fierce interest in microfinance. For microfinance to function in helping microenterprises, microenterprises must get a good start and there must be helpful services to maintain them. From the experience of other countries which have long history in microfinance, we expect that microenterprises can enjoy increased profits once they succeed. Table 13 shows the expected profit rates for microenterprises in Bangladesh.

In this sense finding the reasons why microenterprises succeed and analyzing how to maintain their good performance are essential elements in planning a successful future for microenterprises. Unfortunately there has not been enough investigation of these issues in Korea, because the history of microfinance, in practice as well as in theory, is

still young². Taking this fact into account, this chapter attempts to discover those sources which have had an impact on the outcome of microenterprises and examines what makes for consistently successful outcomes. Two econometric methods (the logit regression model and the Cox proportional hazard model) are used in this investigation in order to provide some robustness to the results.

I chose the survival ratio as the proxy for the outcome of microenterprises. By microenterprise survival I mean that a microenterprise was still in operation at the end of the target period, which was set to be July 2007, the end period for the data set used in this model. There are two reasons why I chose survival as the proxy for the outcome of microenterprises. The first reason is that it is really difficult to gather reliable financial data on the outcomes of microenterprises, such as total sales and net sales. Since microenterprises with microcredit from MFIs are scattered throughout Korea and evaluating systems for their performance are not developed, even MFIs do not have exact information about the economic outcomes of their clients.

Another reason why I chose the survival ratio as the proxy for the outcome is that the economic outcome of the microenterprises does not reflect the true outcome of microcredit lending. The history of microcredit is very short and the coverage that microcredit has provided has been limited³. Thus the current economic status of

² The first microfinance institution in Korea, the Joyful-Union, was established in 2000. Microfinance in Korea is therefore less than 10 years old.

³ The number of individuals who have been excluded from official financial services is estimated to have been 2.8 million, 8.2% of the total, as of December 2006 and the number of those who received microcredit as of July 2007 was just 430.

microfinance does not reveal the potential economic value of microenterprises as a whole in the long run. By choosing microenterprise survival as the variable of interest, we can learn lessons from what has occurred and use these results to plan for the future.

Using data on the survival of microenterprises, I want to check the impact of several business characteristics, such as organizational form, sex of the owner(s), income level of the owner(s), and type of business on the survival of microenterprises. By implementing econometric methods, I tested whether or not these factors have an impact on the survival of microenterprises, in which direction they impacted them, and the relative magnitudes of the impacts of the above features (e.g. the difference between male and female, etc.).

3.2 Data Set

For this analysis, the data as of July 2007 from all the microenterprises which received microcredit from SSB, a major microfinance institution, was used. The number of microenterprises which received microcredit is 430. Each microenterprise data set contains information concerning the organizational form, the sex of the owner(s), the income level of the owner(s), the type of business, and whether or not the business is still operational.

3.3 Logit Regression Model

Logit regression⁴ is a generalized linear model for binomial regression. It is usually used to predict the probability of occurrence of an event. I want to find the effects of microenterprise characteristics on the survival rates of microenterprises after start-up using a logit regression model. The characteristics that were chosen as possible factors affecting the survival ratio of microenterprises were organizational form, sex of the owner(s), income level of the owner(s), and type of business. Each of these is defined in more detail below.

3.3.1 Definition of Variables

The dependent variable in the model is the probability of survival. By microenterprise survival I mean a microenterprise was still in operation at the end of the target period, which was set to be July 2007, the end period for the data set used in this model. The survival status of an enterprise was represented by a binary variable “Live”; the values for the live variable was either 1 if the microenterprise survive through the target period or 0 if the microenterprise failed to survive (or quit). Thus we can denote the probability of survival with a short notation like $\text{Prob}(\text{Live} = 1)$, where $\text{Prob}(\cdot)$ stands for the probability of something (\cdot).

⁴ Logit regression is used with binary data when you want to model the probability that a specified outcome will occur. Specifically, it is aimed at estimating parameters a and b in the following model: $L_i = \log \frac{p_i}{1-p_i} = a + b x_i$, where p_i is the probability of a success for given value x_i of the explanatory variable X . Use of the log of the odds $p/(1-p)$ (the logit) guarantees that the predicted value of p will always be between 0 and 1.

Each microenterprise is defined by its organizational form, sex of the owner(s), income level of the owner(s), and type of business and the variation of these characteristics is taken to define the independent variables for this model.

It would be nice to have a continuous variable for the income level of the owner(s), but the data is not available. Due to the limitation of data, all independent variables are categorical⁵. Thus I need to convert categorical variables into numerical representations using dummy variables. To do this, I chose a subcategory in each variable as the reference. The reference category is coded 0 on all dummy variables.

The variable “organizational form” reflects the effective ownership form of each enterprise. That is, organization form is either sole proprietorship or joint venture. The reference category is the joint venture.

The variable “sex” represents the sex of the owner(s). Enterprises are divided into three groups: male, female, and joint (for ventures which have two owners, one male and one female). The reference is the joint category.

The variable “income level” stands for the income level of the owner(s) of a microenterprise. This variable is divided into four subcategories: poorest, poor, general, and mixture. Those in the poorest have income below the minimum cost of living⁶, those

⁵ A set of data is said to be categorical if the values or observations belonging to it can be sorted according to category.

⁶ The minimum cost of living varies according to the number of household. The minimum cost of living in 2009 for the households with one member is \$ 490/month, with 2 members \$ 830, with 3 members \$ 1,000, and with 4 members \$ 1,300.

in poor have income the same as the minimum cost of living, and those in general have income above the minimum cost of living. The reference category is the general group.

The variable “business type” captures the main business item and sphere which are carried out by the operation of the microenterprise. Although there are many possible ways for grouping types of businesses, I categorized them into eight types, which are the categories used by the Korean Standard Industrial Classification (referred to here as “KSIC”): restaurants, wholesale/retail stores, general services, social services, businesses supporting services, manufacturing enterprises, construction enterprises, and farming/forestry enterprises. These business types are described in more detail in table 14. Social services are considered the reference category.

3.3.1.1 General Characteristics of Microenterprises

The organizational forms of the microenterprises were usually individuals. There were 322 enterprises run by just one individual, which makes 74.9% of the total. The owners of microenterprises were usually females (287 enterprises, 66.7% of the total). The income level of the owners was usually fragile, that is, their income is the same or below the minimum cost of living (375 enterprises, 87.2% of the total). This group included owners in the poorest (138 enterprises, 32.0% of the total), those in a less poor (167 enterprises, 38.8% of the total), and those in a mixed group (70 enterprises, 16.3% of the total). As for the business type, a large portion of the businesses were restaurants (102 enterprises, 23.7% of the total) and wholesale / retail businesses (93, 21.6%). The next in order was general service businesses (70, 16.3%) and then social service businesses (68, 15.8%).

The overall survival ratio of microenterprise in the data set, which is defined as (total number of ongoing microenterprises) / (total number of microenterprises), is around 80%. This number coincides with the overall survival ratio of enterprises in USA. It is, however, unclear that this result comes from microcredit, because we do not know on what point microcredit was given to microenterprises in the Korean data set.

3.3.2 Regression Equation

Using the definitions of the variables in the previous section, I constructed a logit regression model with an intersection;

$$(3. 1) \quad \text{Logit} [\text{Prob} (\text{Live} = 1)] = \beta_0 + \beta_1 \text{Sole} + \beta_2 \text{Male} + \beta_3 \text{Female} + \beta_4 \text{Poorest} + \beta_5 \text{Poor} + \beta_6 \text{Joint} + \beta_7 \text{Food} + \beta_8 \text{Sale} + \beta_9 \text{General} + \beta_{10} \text{Support} + \beta_{11} \text{Manufac} + \beta_{12} \text{Cons} + \beta_{13} \text{Farm}$$

, where Prob (·) stands for the probability of (·), Live is a binary variable for survive or quit, Sole stands for the sole proprietorship form of organizational form, Poorest, Poor, and Joint stand for the poorest, poor, and joint income groups respectively, and Food, Sale, General, Support, Manufac, Cons, Farm stand for the KSIC business types (*i.e.* restaurants, wholesale/retail stores, general services, social services, businesses supporting services, manufacturing enterprises, construction enterprises, and farming/forestry enterprises).

3.3.3 The Result and Implication

Since every requirement was satisfied, I implemented this model using Stata, a statistical package. Table 15 shows the estimation results of the logit model. Note that the

organizational form variable and sex variable are not statistically significant in the probability of survival since the p-values of the coefficients of sole, male, and female are very high. Thus these results have limited significance.

I implemented another logit regression model after I removed statistically insignificant variables (i.e. organizational form and sex). Table 16 shows the estimation results of this logit model. We can see that the impacts of subcategories of independent variables on the probability of survival vary.

The estimation results for independent variables give us information about the relative magnitude of impact as well as the direction of impact. The negative signs of the estimated coefficients for the subcategories of the income level of the owner(s) indicated that the poorest, the poor, and the mixture microenterprises have less probability of surviving than the general enterprises. According to the size of the absolute values of the estimated coefficient for each subcategory, the negative impact is the biggest for the poorest enterprises, and a little smaller for the poor enterprises, and finally the least for the mixture enterprises.

Compared to the standard, which are the social service enterprises, the other business type enterprises are less likely to survive. For the other enterprises, the order of negative impact starting from the least to the most are manufacturing enterprises, general services, businesses supporting services, whole sale/retail stores, farming/forestry enterprises, and restaurants.

From the above results, I can find a policy implication for microcredit to help more microenterprise survive in the market. The estimation result shows that the

enterprise was the less likely to survive as the income level of the owner(s) became less. Thus as the level of the owner(s) became less, more support with the goal of increasing microenterprises survival ratio (e.g. expert consultations, regular operation outcome monitoring, and additional loans, if needed) should be provided.

3.4 Cox Proportional Hazard Model

Several factors should be controlled to increase the survival rate of ongoing business enterprises. I used the Cox model with proportional hazard⁷ to discover which factors should be controlled. The hazard in the model is the probability that an enterprise will fail. Organizational form, sex of the owner(s), income level of the owner(s), and business types are independent variables in this model.

3.4.1 Model

Using the same definition of the variables in the previous section, I constructed the following Cox Hazard Model,

$$(3. 2) \quad \lambda(t | x) = \text{Exp} \{x' \beta\} = \text{Exp} \{ \beta_1 \text{ Sole} + \beta_2 \text{ Male} + \beta_3 \text{ Female} + \beta_4 \text{ Poorest} + \beta_5 \text{ Poor} + \beta_6 \text{ Mix} + \beta_7 \text{ Food} + \beta_8 \text{ Sale} + \beta_9 \text{ General} + \beta_{10} \text{ Support} + \beta_{11} \text{ Manufac} + \beta_{12} \text{ Cons} + \beta_{13} \text{ Farm} \}$$

⁷ Proportional hazards models are a sub-class of survival models in statistics, in which the effect of a treatment under study has a multiplicative effect on the subject's hazard rate. For example, a drug may halve one's immediate probability of stroke. This is in contrast to additive hazards models, wherein a treatment may increase one's hazard by a fixed amount which is independent of other covariates.

, where $\lambda(t | x)$ is a hazard function and the notation for the other variables are the same as before; Sole stands for the sole proprietorship form of organizational form, Poorest, Poor, and Mix stand for the poorest, poor, and mixture economic situation groups respectively, and Food, Sale, General, Support, Manufac, Cons, Farm stand for the KSIC business types (restaurants, wholesale/retail stores, general services, social services, businesses supporting services, manufacturing enterprises, and construction enterprises, and farming/forestry enterprises).

3.4.2 The Result and Implication

I used Stata to implement this model. Table 17 shows the estimation results of the Cox proportional hazard model. In the estimation results, a hazard ratio equals one is standard. That is, if the hazard ratio is higher than one, the variable makes the probability of survival less than the standard category does. In other case, i.e. if the hazard ratio is less than one, the variable makes the probability of survival more than the standard category does. Note that the sex variable is not statistically significant in the hazard ratio since the p-values of the coefficients of male and female are very high. Thus we can say that these results have limited significance.

I implemented another Cox proportional hazard model after I removed statistically insignificant variable (i.e. sex variable). Table 18 shows the estimation results of this Cox proportional hazard model.

There are several results which stand out. The impact of subcategories of independent variables on the hazard (the probability of quit) vary. Sole proprietorships

have higher hazard rate (which implies that they are less likely to survive) than joint ventures, because the estimated hazard ratio for sole proprietorships is greater than 1.

The estimation results for the other independent variables give us information about the relative magnitude of impact as well as the direction of impact. From the fact that the estimated hazard ratio for the subcategories of the economic situations are higher than 1, we can conclude that the poorest, the poor, and the mixed microenterprises have higher hazard rates (which implies that they are less likely to survive) than the general enterprises. The positive impact on hazard is the biggest for the mixture cases, then the poorest cases, and finally the least for the poor cases, according to the size of the relative magnitudes of estimated hazard ratios.

Compared to the standard, which are the social service enterprises, the other businesses have higher hazard rate (which implies that they are less likely to survive). For the other enterprises, the order of the magnitudes of hazard from the least to the most are wholesale/retail stores, general services, manufacturing enterprises, construction enterprises, businesses supporting services, restaurants, and farming/forestry enterprises.

Those business types with high hazard rate (farming/forestry enterprises, restaurants, and business supporting services) are usually labor intensive and don't require professional techniques or huge amount of capital. Low entry barriers, however, accelerate competition among enterprises, which results in a low survival ratio. Microenterprises in construction and manufacturing cannot efficiently cope with the change of the market, because their capital is usually small and they lack the expertise.

The above results have some policy implications for microcredit. In each variable group, there are subcategories which have the least hazard (for example, in the organizational form joint ventures and in the business group social services). MFIs should encourage new business microenterprises which have a less hazard.

3.5 Interviews with the Clients of SSB

The evidence on the effectiveness of microfinance institution is limited, because the data on the performances of microenterprises are not enough to carry out thorough econometric tests. The results from econometric models are indicative but incomplete, because the categorical variables are chosen as independent variables, the numbers available are limited, and the time period is short. Thus we need to supplement existing data with field work including interviews of the clients of SSB.

I had interviews with several clients of SSB in Korea for three times on November and December 2009. My overall impression was that they were very happy to (re)start their businesses thanks to microcredit and they had strong plans for bright future. (See figure 7 for the pictures of the enterprises which I had interviews)

First, I had interviews with two microenterprises with male owner(s) and the same business type (manufacturing enterprises). The only difference lies in the organizational form. That is, one enterprise is run by the owner himself and the other one has two owners. In the previous concept, one is a sole proprietorship enterprise and the other is a joint venture enterprise. It seemed to me that both enterprises had a promising business plan, although their specific business spheres are different; i.e. one manufactured red pepper powder and the other manufactured interior lights. Since the sole proprietorship

enterprise don't have an employee, he should cover every stages of business, such as buying raw materials, making red pepper powder, and managing repayment. So he was really busy and at times his business became out of control. More over this situation made it difficult for him to find time which he can spend with his family members. The partners in the other joint venture are brothers. The older brother has an expertise in manufacturing lights, especially decorative interior lights using LED, and the younger brother has an expertise in marketing and sales. They divide their role in their businesses, which is a quite different from the proprietorship case. Based on efficient division of labor, I think they can co-operate each other and make their business more profitable.

Next, I had an interview with a woman who runs a Korean restaurant. I could feel that she had a lot of burdens. Besides her being suffered from arthritis, she should take care of her husband, who was a disabled veteran from the Vietnam War. Without professional knowledge, she started to run a restaurant 10 years ago. She used to try to overcome her economic difficulty by borrowing loans from local money lenders. She said that she got tough treatment from local money lenders when they forced her to repay the loan without considering her economic situation. She could reopen her restaurant with microcredit and she hoped that she succeed in her business and can buy a house in which all her family live together.

Another interview with a woman who was running a laundry reveals the difficulties of women businessman in Korea. She led her family by herself by running a laundry business after her husband died 20 years ago. She was over sixty in 2009 and she felt at times that it was too hard for her to continue running laundry, because her eye sight became weaker and weaker and her business lost competitiveness to other laundries

which were run by the young. She moved into the neighbor of her daughter and opened a new laundry there. She was satisfied with the support from a relationship manager (RM), who is a staff in SSB. She got both mental support and business support during the regular visit by a RM.

The interviews with the clients of SSB gave me clear impression of the current state of microfinance in Korea. There are a lot of things to be done to make microfinance put down roots in Korea. But I could also see the potentials of microfinance. The clients have strong willingness to support themselves and look forward to becoming successful entrepreneurs. They already had a promising business plans and started to accumulate marketing skills, which are inevitable assets to survive in market competitions. If provided appropriate supports both from MFIs and from the Korean government, the microenterprises can bring remarkable progress on businesses, help the poor overcome their state of poverty, and result in social integration.

3.6 Microcredit in Korea History and Culture

As I explained in previous chapters, microfinance has been played both as finance and as empowerment. Recently Chung Youngsoon (2008) used path analysis to examine how a microenterprise support program impacts participants' psychological and financial improvements as interim outcomes and also their increased income and economic independence from public assistance as final outcomes. The path analysis demonstrated that perceived assistance from the support program directly impacted their self-esteem and net-income as psychological and financial outcomes, and that through a mediation of

these outcomes, the support contributed to increased income and independence from public assistance as final results.

It is interesting to note that there was a social reform movement in Korea history to pursue the similar idea as microfinance. It was Sirhak, the School of Practical Learning, in the middle of the 17th century. Yu Hyong-won was one of the greatest Sirhak philosophers. He saw that the wealthy people at his time had too much land whereas the poor had too little. According to him, all farmers should be granted at least a minimum amount of land to support a good living for the entire family. His analysis for the wealth concentration phenomenon exactly coincides with my explanation why microfinance is needed in Korea in the second chapter. The idea of giving a means of production (land at his times) to the poor is basically the same idea as giving small amount of money in microfinance these days.

The emergence of the Sirhak expanded the ideology of human rights and equality irrespective of social classes and gender. For example, Chung Yak-Yong, another great thinker of Sirhak, advised that men and women, old and young, each must possess professions fitting to their abilities. His philosophy incurred gradual changes in traditional norms and the woman's role in late Chosun Dynasty in Korea history. We have currently witnessed the similar phenomenon in microfinance. That is, microfinance has been praised as empowerment for the poor and women in society.

The relative magnitude between the role of finance and empowerment, however, depends on the country and its culture. According to the results from econometric models and interviews, female enterprises show lower survive ratios than male enterprises. This

result is quite different from the results in other countries. In other countries women are usually the main targets for the microfinance due to high probability of success.

The reasons for the Korean result are as follows. First, women have to carry out both enterprise and household chores even after they start the business. Due to authoritarian tradition which has deep roots in society, husband is reluctant to share household chores. It is usually women or mother who will usually take care of the kids in the case of the divorce. In the interviews, both women have taken care of their families for a long time. Next is women's inferior social status in Korea. The human capital for female is usually lower than it is for male. It has been a long culture since ancient times that family favored male offspring. This attitude results in offering better education opportunity for son than for daughter. Also there exist social prejudice against women and the favor forward men in business world. Additionally women usually have deficient careers in labor market and insufficient experiences in business. Thus women tend to choose labor intensive business types (e.g. cleaning, sewing, and cooking), which are less profitable than those chosen by male enterprises.

We need to notice that even those who did not fulfill the financial obligation can get microcredit in Korea. This is quite different from the practices in other countries. Social shock from the foreign currency crises has been casting deep impacts on the whole economy and many laid off still suffer economic difficulties. Oversupply of the credit card in the early 1990's produced a lot of people with bad credit. It has been social consensus that they should be given opportunities to overcome difficulties from their mismanaging financial decisions. They are different in economic ability from those who are excluded from the financial institutions continuously. That is, they have more

experience, human capital, and social networks. The relative proportion of men in this group is higher than that of women, because men usually more actively involved in occupation and thus suffer more from the economic shock impacts than women did. In brief, using their high human capital, business experience, and social networks, male microenterprises (which once failed but were given another opportunity) have shown better results than female microenterprises in Korea.

3.7 Survival of New Business in U.S.A

I implemented the same econometric models for USA data to compare the results with what I found from the Korea data.

3.7.1 Data Set

For this analysis, I used the public use file of the Kauffman Firm Survey (referred to here as “KF Survey”). The target population of KF Survey was all new businesses that were started in the 2004 calendar year in the United States (the 50 states plus the District of Columbia). The KF Survey has a lot of information, including organizational form, the sex of the owner(s) on each new enterprise. This is the reason why I chose KF Survey as the data set for this analysis. But the data in KF Survey is not restricted to small business, which make KF Survey different from the Korea data on microenterprises.

From the enormous information in KF Survey, I extracted corresponding USA variables (organizational form, sex of the owner(s), income level of the owner(s), type of business) to compare with the Korea variables. For organizational form, I used the data under the code of c2_owners. The explanation for this code at KF Survey code book is

the number of individuals or entities who owned the business. The businesses with values bigger than 1 in the KF Survey are considered to be joint ventures, which is standard category. Enterprises with a value of 1 are considered to be the sole proprietorship form. If the recent survey did not have any data, I used data from a previous survey⁸.

The data under the code name g10_gender_owner_01⁹ were used for sex variable. Male is the standard category. If the recent survey did not have any data on sex, I used data from a previous survey.

To find data from the KF Survey to match the income level of the owner(s) in Korea, I supposed that education levels of owners are closely correlated with their income level. Under this assumption, I used the data for owner education level, which can be found under the code name g9_education_owner-01, as a proxy for the income level of the owner(s) in Korea. I divide education levels into 4 sublevels; the lowest level for education level of less than 9th grade, low level for either no high school diploma or possessing a graduate diploma, high level for possessing a vocational education degree or a BA degree, and the highest level for education beyond a BA degree.

To get the data for business type for each enterprise, I modify the NAICS code for the KF Survey into KSIC code, using social service as the standard. The detailed code for

⁸ The baseline survey ended on July 2006 and the first follow-up was finished on January 2007, whose date is denoted by the suffix form, _1 after the code number. Then Second follow-up was done on December 2007, denoted by _2, and the third follow-up with notation of _3, which is the most recent survey, was finished on April 2009.

⁹ The explanation for this code at KF Survey code book is “is owner male of female”.

each business type is the same as that in the Korea data. As for the business failure variable, the data under the code of a5_actively_involved¹⁰ was used.

If any data with respect to organizational form, sex of the owner(s), income level of the owner(s), business type, and business failure is incomplete, I remove the enterprise from the data set.

After carrying out all the previously mentioned procedures, I got data set for 4,258 new enterprises. This is the data set which is used to carry out the following analysis.

3.7.2 Logit Regression and Cox Proportional Hazard Model for USA Data

I implemented the same logit regression model in equation (3.1) and the same Cox proportional hazard model in equation (3.2) using the KF Survey. Table 19 shows the estimation results of the logit regression model and table 20 shows the estimation results of the Cox proportional hazard model respectively.

The results from the US data were compared to the results from the Korea data¹¹. According to US results for organizational forms both from the logit regression model and the Cox proportional hazard model, sole proprietorship enterprises showed a higher probability of survival than the joint ventures. This result is opposite what it was for the

¹⁰ The explanation for this code at KF Survey code book is “actively involved in running the business”.

¹¹ The results from the US data on sex variables are excluded in comparison, because the sex variable is statistically insignificant in both models.

Korea results. The reasons for this are as follows. (1) The data for the USA is not restricted to small business, while the data from Korea is only from microenterprises. (2) Sole proprietorship enterprises have a comparative advantage in managing economic change in the US, because their decision making is quick and thus efficient.

Comparing education level, the probability of survival increased as the education level went up both in the logit regression model and in the Cox proportional hazard model. This was the same result for Korea data using the income level of the owner(s).

Concerning business types in the US, the logit regression model shows that several businesses (e.g. construction enterprises, general services, and manufacturing enterprises) were expected to have a higher probability of survival rate than the social services. The Cox proportional hazard model shows that the social services in the US according to KF Survey are expected to survive the shortest. The economic surroundings in US which put emphasis on free competition in the market favor other businesses which actively operate in the market place than social services which lie under the protection of the government. The different economic circumstances in US lead to the different results on the survival ratio among business types in US from the Korea results, which predicted that the social services in Korea were expected to have the highest survival probability.

3.8 Conclusion

Based on the history on microfinance in other countries, microenterprise can be competitive in the market if they overcome obstacles in their first stages. This chapter analyzes the factors which impact up on the survival of microenterprises using two econometric methods (the logit regression model and the Cox proportional hazard model).

Attributes of microenterprises, such as organizational form, sex of the owner(s), income level of the owner(s), and types of business are chosen as independent variables which may have impact on the survival. The results from the econometric models indicate that more support should be provided when the income level of the owner(s) became less if we want to make more microenterprises survive. Table 21 summarizes the results. The direction of impact or the relative magnitudes of impact is not exactly the same between two econometric methods. Therefore, proper interpretation and fine tuning are needed in applying the results into the real microcredit world.

Microfinance has been praised both as finance and as empowerment. The specific role of microfinance depends on the country and its culture. Due to this, the same econometric models using the US KF Survey lead to the different results from the Korea results. In Korea history, Sirhak pursued the similar idea as microfinance by insisting on giving land to the poor (comparable to finance these days) and emphasizing the ideology of human rights and equality (comparable to empowerment in microfinance). The impact of microfinance for the poor, especially poor women, in Korean culture is still weak, which is confirmed by the results from econometric models and interviews. Now is the time for Korean society to put in a lot of effort to enhance the role of microenterprise and I hope that my exploratory study of the survival of microenterprises contributes a little part of it.

Table 13. Estimates of Potential Profit Rates for Microenterprises in Bangladesh

Potential small business enterprises	Average capital requirement (\$)	Average estimated profit/month (\$)	Average estimated profit/Year (\$)	Profit Rate per Year (%)	Average Person Requirement
Advertisement business	1,440	1,008	12,096	840.00	5
Cosmetics business	1,224	187	2,246	183.53	2
Electric shop	1,015	192	2,300	226.38	2
Fruits business	677	197	2,372	350.43	1
Furniture shop	954	194	2,333	244.53	3
Grocery shop	903	155	1,863	206.34	1
Jewelry shop	1,440	288	3,456	240.00	3
Laundry shop	1,440	173	2,076	144.00	2
Pharmacy	612	108	1,296	211.76	2
Raw material business	654	110	1,320	201.30	2

Table 14. Description on Business Types

Classification	Classes
Restaurant	Korean-style food, flour based meals, pizza, chicken, bakery, etc.
wholesale / retail	textile, clothing, electronics, cosmetics, shoes, groceries, etc.
General service	Beauty salon, fixing personnel/home material, laundry, etc.
Social service	Educational institute, nursing, child care, sports facility, etc
Business supporting service	Cleaning building, commercial, transportation, lease, communication, etc.
Manufacturing	manufacture food stuff, plastic and metal, wood stuff, and clothing, printing, etc.
Construction	Public works, pipe laying, heating/cooling, painting, papering walls, interior, etc.
farming / forestry	Agriculture, crop cultivating, stock breeding, forestry, logging, etc.

Table 15. Estimation Results by Logit Regression Model (1)

quit	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
sole	-.3056788	.5492445	-0.56	0.578	-1.382178	.7708207
male	-.0199471	.7538187	-0.03	0.979	-1.497404	1.45751
female	-.5439272	.6987416	-0.78	0.436	-1.913436	.8255811
poorest	-1.20559	.5523717	-2.18	0.029	-2.288219	-.1229617
poor	-1.09117	.5315769	-2.05	0.040	-2.133041	-.0492983
mix	-.4100586	.837419	-0.49	0.624	-2.05137	1.231252
food	-1.561784	.488428	-3.20	0.001	-2.519086	-.604483
sale	-1.304711	.498062	-2.62	0.009	-2.280895	-.3285273
general	-.2046318	.5667589	-0.36	0.718	-1.315459	.9061953
support	-1.246647	.6277853	-1.99	0.047	-2.477083	-.0162102
manufac	-.3005015	.7566556	-0.40	0.691	-1.783519	1.182516
farm	-1.903415	.993946	-1.92	0.055	-3.851513	.0446836
_cons	3.953713	.9724948	4.07	0.000	2.047658	5.859768

Table 16. Estimation Results by Logit Regression Model (2)

quit	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
poorest	-1.244926	.530984	-2.34	0.019	-2.285635	-.2042165
poor	-1.138717	.5249323	-2.17	0.030	-2.167565	-.1098681
mix	-.0673855	.6657794	-0.10	0.919	-1.372289	1.237518
food	-1.56428	.4840874	-3.23	0.001	-2.513074	-.6154861
sale	-1.267997	.494481	-2.56	0.010	-2.237162	-.2988323
general	-.2590695	.5633018	-0.46	0.646	-1.363121	.8449818
support	-1.063573	.6133356	-1.73	0.083	-2.265689	.1385426
manufac	-.1746248	.7498597	-0.23	0.816	-1.644323	1.295073
farm	-1.545623	.9614662	-1.61	0.108	-3.430062	.3388163
_cons	3.266202	.6508319	5.02	0.000	1.990594	4.541809

Table 17. Estimation Results by Cox Proportional Hazard Model (1)

_t	Haz. Ratio	Std. Err.	z	P> z	[95% Conf. Interval]	
sole	2.536184	.6618097	3.57	0.000	1.520766	4.2296
male	.81637	.3035041	-0.55	0.585	.3939431	1.691767
female	1.088263	.3895788	0.24	0.813	.5395337	2.195072
poorest	4.485976	1.049906	6.41	0.000	2.83557	7.096981
poor	3.848038	.8282217	6.26	0.000	2.523674	5.867395
mix	5.269211	1.962709	4.46	0.000	2.539129	10.93469
food	1.572047	.3532557	2.01	0.044	1.012026	2.441966
sale	1.049628	.2351443	0.22	0.829	.676618	1.628272
general	1.074105	.2648888	0.29	0.772	.6624135	1.741665
support	1.745088	.5194525	1.87	0.061	.9737422	3.127452
manufac	1.249942	.3653086	0.76	0.445	.7048838	2.216473
cons	1.702966	.6998802	1.30	0.195	.7609945	3.810925
farm	1.733413	1.368477	0.70	0.486	.3688963	8.145167

Table 18. Estimation Results by Cox Proportional Hazard Model (2)

_t	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
sole	2.449097	.6257387	3.51	0.000	1.484315	4.040974
poorest	4.846489	1.110348	6.89	0.000	3.093242	7.593475
poor	4.021449	.850728	6.58	0.000	2.656519	6.087686
mix	5.604438	2.019829	4.78	0.000	2.765417	11.35804
food	1.636319	.3637735	2.22	0.027	1.058365	2.529882
sale	1.031912	.2300938	0.14	0.888	.6665663	1.597504
general	1.103513	.2715645	0.40	0.689	.6812468	1.787518
support	1.608377	.4684823	1.63	0.103	.9087681	2.846576
manufac	1.146871	.3257104	0.48	0.629	.6573154	2.001036
cons	1.545589	.5642816	1.19	0.233	.7556614	3.161262
farm	1.638303	1.244476	0.65	0.516	.3696668	7.260691

Table 19. Estimation Results by Logit Regression Models for USA KF Survey

quit	Coef.	Std. Err.	z	P> z	95% Conf. Interval	
sole	1.623786	.2772954	5.86	0.000	1.080297	2.167275
female	-.0900873	.2745312	-0.33	0.743	-.6281585	.4479839
low	-.7015426	.4586148	-1.53	0.126	-1.600411	.1973258
high	-.6629636	.3091701	-2.14	0.032	-1.268926	-.0570014
food	.2777984	.7848871	0.35	0.723	-1.260552	1.816149
sale	.4069404	.6652858	0.61	0.541	-.8969958	1.710877
general	.8059807	.7823731	1.03	0.303	-.7274424	2.339404
support	.3965382	.6209277	0.64	0.523	-.8204577	1.613534
manufac	.4071071	.661165	0.62	0.538	-.8887524	1.702967
cons	1.269782	.8381402	1.51	0.130	-.3729431	2.912506
_cons	3.421996	.6380305	5.36	0.000	2.171479	4.672513

Table 20. Estimation Results by Cox Proportional Hazard Model for USA KF**Survey**

<u>t</u>	Haz. Ratio	Std. Err.	z	P> z	[95% Conf. Interval]	
sole	.984563	.0315702	-0.49	0.628	.9245908	1.048425
female	.9986932	.0358554	-0.04	0.971	.9308335	1.0715
lowest	1.00101	.2798317	0.00	0.997	.5787426	1.731375
low	1.006764	.055988	0.12	0.904	.9027987	1.122702
high	1.009391	.0362671	0.26	0.795	.9407535	1.083035
food	.9736227	.1127821	-0.23	0.817	.7758711	1.221777
sale	.9886326	.0927423	-0.12	0.903	.8225927	1.188188
general	.9814193	.0980877	-0.19	0.851	.806829	1.193789
support	.9862984	.0867363	-0.16	0.875	.8301424	1.171828
manufac	.9879938	.0938674	-0.13	0.899	.8201309	1.190214
cons	.9769099	.0987283	-0.23	0.817	.8013652	1.190909
farm	.9743442	.1768402	-0.14	0.886	.6826878	1.390601

Table 21. The Relative Magnitudes of Impacts

Classification	Logit Regression Model	Cox Proportional Hazard Model
Organizational Form	Sole <* Joint	Sole < Joint
Sex	Female < Male < joint	Female < Joint < Male
Income Level	the Poorest < Poor < Mixture < General	Mixture < the Poorest < Poor < General
Business Types	Farm < Food < Sale < Support < Manufacture < General < Social	Support < Farm < Construction < Food < Manufacture < General < Social

Notes: * < stands for the higher probability of survival.

Figure 7. The Pictures of the Microenterprises in Korea



Figure 7 (cont.)



Chapter 4

Agent Based Model of the Impact of Microfinance

4.1 Introduction

This chapter outlines the impact of microfinance on the income level of the poor and the repayment ratio of microcredit. This task is carried out by a simulation which is an agent based model. To implement this model, I used the NetLogo, which is an agent based modeling toolkit.

To examine the impact of microfinance, analytical models incorporating so many situation variables are not tractable. Analytical models require simultaneous equation systems with difference, double difference to find the equilibriums for each market in the system. But there are many unobservable factors in the system, which makes the construction of a consistent system almost impossible. Thus a new analytical method was implemented. That is, an agent based model is an appropriate tool for studying the impact of microfinance, because it models the structures and procedures of microfinance in a real economy. First, it took some time for the agents who received microcredit from MFIs to start a microenterprise and acquire the fruits of their activity. To start their businesses, the agents had to prepare for start up by buying raw materials, renting a building and so forth. After producing a product, the agents need to sell their product in the market place and repay the microcredit. Modeling these procedures requires laws of motion for the system.

The agent's wealth, the remaining loan, the number of production items, and the volume of sales are among the variables that have to be updated and adapted as the procedure repeats. Agent based modeling make it possible to build a macro model based on micro models of process and not an equilibrium values alone.

Secondly, there are several heterogeneous agents and thus interactions among agents are an essential feature of the model. The whole population is composed of two kinds of groups, the poor and others. As lending agents, there are a microfinance institution (referred to here as "MFI") and local money lenders. Each agent group is heterogeneous, because they face different situations and have different roles in the model. By resorting to agent based modeling, the model can reflect various aspects of the real world, make updates, and get results at various stages after the microfinance procedures start.

To make an agent based model of microfinance, I carried out several processes. I need first to set several agent types and the environment for the model. Then I determined the laws of motion of each agent and how to update situation variables from the interactions among agents. The ways how to gather information should be also considered. In the following sections, I will explain in detail for these processes.

4.2 Agents

There are 5 types of agents¹² in the model; the poor in the population, the other people in the population, a MFI, local money lenders, and suppliers of raw materials.

¹² The groups of the same types of agents are called "turtles" in the NetLogo.

The poor are defined as those in the population who have a relatively low level of wealth. Since the purpose of this model is to predict the impact of microcredit on the wealth level of the poor, the poor are the major targets who are supposed to receive continuous focus throughout all of the procedures.

The other people in the population are obviously the individuals with more wealth than the poor. Their economic interactions with the poor are essential in evaluating the impact of microfinance.

In the model, there are two kinds of institutions that lend money to the poor. One is a MFI and the other institution is local money lenders. Although both of these institutions carry out the same loan giving function, there are a lot of differences in the way they manage their loans, which will be explained below.

As noted earlier, suppliers of raw materials are included in this model. Their role is important at the beginning of a new microenterprise. To start up a new business, the poor must acquire raw materials from suppliers.

4.3 Basic Setup of the Model

The agent based model is composed of a lot of variables and procedures. In this section, I will begin by explaining the basic setup of the model.

4.3.1 Environment

The environment is the model context in which agents live and interact with each other. The environment for this model is a virtual economy space where economic

transactions, such as borrowing, repaying, manufacturing, and trading, happen as time goes on. This space mimics economic activities in the actual world and helps us to capture the main feature of outputs as a result of economic transactions. This economy space is represented by a black square called the view, which is composed of a grid of patches on the interface tab¹³ window of the NetLogo program. The agents can move in this spatial environment.

4.3.2 Creation of the Population

Suppose that the number of the whole population of this economy is 300 and the portion of the poor in the population is $1/3$. The number of the poor in the population is, therefore, 100 and the total number of the other people is 200. Individuals in the population are initially scattered randomly throughout the economic space. Every poor individual has his (or her) own characteristic values in terms of wealth, sex, and productivity level. More specifically, each individual has a wealth level which is drawn from a normal distribution $N(50, 15)$. An individual's sex index is of course either male or female. Suppose that the overall productivity of males is higher than it is for females¹⁴. The productivity level for a man is derived from a normal distribution of $N(4, 1.5)$, while that for a woman is derived from $N(3, 1)$. Note that the variance of productivity for males is bigger than it is for females, while the average productivity for males is higher

¹³ The NetLogo program presents three tabs; an interface tab, an information tab, and a procedure tab. The interface tab window visualizes the result of the simulation and has several keys to control it.

¹⁴ The rationale for this possibility is that the overall education level for men is higher than it is for women and consequently women have lower human capital, which leads to a lower level of productivity.

than the average for females. The relative proportion of a sex is assumed to be half, but the exact number may not be exactly 1/2, because the allotment process utilizes a function which generates a random number. In the NetLogo program interface window, every individual has a human shape. In the interface window, the color of individuals in the poor group is yellow and the color of the others is pink. The parameter settings and the conditions for the model are listed in table 22.

4.3.3 MFI and Local Money Lenders

In this model, there is only one MFI. When I made the interface window, I put the MFI in the center of the economy space to emphasize its major role in the process of magnifying wealth for the poor. The MFI distributes microcredit which is a loan of small amounts of money to help the poor start a microenterprise. To simulate the impact of microcredit, I selected the following parameters for the MFI loans. (1) The total amount of fund available for loaning is set to be 1,000. The users of this model can manipulate this amount by controlling the microcredit-available slider¹⁵. (2) The maximum amount of money for each loan is set to be 10. Users can manipulate this value by controlling the credit-limit slider. (3) The interest rate charged by the MFI is set to be 10% a year. This level can be changeable by the interest-rate slider, if users want to analyze the impact of different interest rates.

There are other lenders in this model. They are local money lenders. The number of these is set to be 4 to reflect the fact that in the real world there are far more local

¹⁵ In the interface window of a NetLogo program, there is a slider which can control level by dragging (sliding) the bar.

money lenders than there are MFIs. To capture the exploitative aspects of loans made by local money lenders, I selected red faces to represent these institutions. In the real economy, the interest rates charged by local lenders are usually much higher than those charged by MFIs. In the model, the local lenders' interest rate is 3 times higher than that of the MFI. But the amount the local lenders provide for each loan is set to be 5, which is only half of the amount that the MFI provides.

4.3.4 Raw Material Suppliers

After getting a loan either from the MFI or from local money lenders, the individual has to get ready to start the business. For this purpose, he needs to buy raw materials, rent a store, and so forth. Because of the expense and the time required to start the business, I decided to have only 4 suppliers. Since there are so few suppliers, the individual(s) with money to invest have to spend a lot of time locating and traveling to see suppliers in order to buy raw materials from them. Time invested is in effect money spent, because the wealth level decreases as the poor spend time moving around. I will explain this in more detail later. For visual impact, I used grey trucks to represent the raw material suppliers.

4.4 Interaction and Updating

When the “go” button¹⁶ is pushed, the model starts and the agents act according to the laws of motion defined in the procedure window. This will be explained in detail

¹⁶ Clicking the “go” button starts the program and a series of procedures, which are composed of sub procedures which execute the simulation, over and over again.

below. The parameter settings and the conditions for the model are listed in table 22. Figure 8 shows the flow chart for this model.

4.4.1 Population Movement

If the model starts to run, the poor and the other individuals in the model move randomly around the economic space. This movement represents everyday transactions that are carried out by individuals. The wealth levels of individuals in the poor group decrease as they move around. I set the amount of decrease of wealth at 0.05 per day¹⁷, which is the amount that is spent by each individual in the model each day.

4.4.2 Borrowing Activities

In the model the poor with a promising business plan, i.e. those who have productivity level of 5 or above, directly apply as individuals for microcredit from the MFI. Note that I assume there is no depreciation in the process of turning their productivity to an actual plan. For example, individuals with productivity level higher than the threshold, 5, are able to make plausible business plans that have a high enough rate of return to convince the MFI executes to lend them microcredit. If a poor individual's productivity is greater than 5, he will be able to have a high yield business project and consequently will be able to go directly to the MFI to get the money to invest in the project and will not have to consider participating in a joint business venture with other individuals. But in the following procedures, the realized rate of return is set to be

¹⁷ This functioning can be easily calculated by using the Netlogo "tick" command. A tick in the model stands for a completed day. The tick command in the program code calculates the number of days that have transpired in running the program.

the same across individuals. In this scenario, the productivity level plays a role in accessibility to microcredit in the process of getting loan. After microcredit is given to one of the poor, the amount of funds the MFI has to offer as microcredit is decreased and the debt of the poor is increased. When an individual borrows, his debt status will change. All of these changes are automatically updated by the NetLogo program.

When an individual's productivity is less than 5, his project is not promising so he will need to find a partner in order to pool resources to make the microenterprise possible. Thus, an individual with poor productivity moves around to find another individual. In the model, two individuals with limited productivity form joint ventures and pool their resources. When their combined productivity is 6 or above, they will be able to get microcredit from the MFI. I require the joint ventures to have a higher productivity level to reflect what occurs in the real world. If there are more than two candidates for a joint venture, the individuals who live close each other are assumed to be chosen.

There are two cases in which individuals have to borrow money from local lenders. Sometimes the MFI does not have enough funds to lend to those poor who qualify for microcredit. When an individual has limited productivity and he is not able to find a suitable person with whom to form a joint venture, he becomes terribly poor. If his wealth level drops below 20, he will have to give up the idea of borrowing from the MFI and will go to local money lenders. The disadvantage in doing this is that he will only be able to borrow 1/2 the credit that the MFI generally offers and at an interest rate which is 3 times as high.

4.4.3 Production Activities

After the individual gets a loan either from the MFI or from a local lender (or lenders), he (or in cases of a joint loan “they”) get ready to start the business. He needs to buy raw materials. The purchase of raw materials is possible only when he meets a raw material supplier. Let’s suppose he can buy 1 unit of raw materials with 2 units of wealth and he buys 2 units of raw materials in each transaction.

Instead of buying raw materials, the individual can hire a poor person who lives in the neighborhood to produce the goods. The individual(s) in the poor group with a severely low level of wealth (in the model, I set the severely low at below 20) who fails to get a loan may give up starting his own business and choose instead to be an employee. From the perspective of the employee, the earnings from employment (which in the model is 4 units) are a source of income for overcoming difficult economic situations. Remember these employees are in the severely poor wealth level group and that they failed to get a loan.

Several additional assumptions in modeling the production procedure were made. (1) That inputs for the production are only raw materials and labor. (2) That 2 units of raw materials or 1 unit of labor will produce 1 unit of output. (3) That raw materials and labor are perfect substitutes. And finally, (4) that production is possible only after he accumulates raw materials to produce two units of products, i.e. 4 units of raw materials or 2 units of labors.

After products are produced in the model, the output and inventory numbers are calculated and updated systematically, based on the progress of production and trading, using the NetLogo program.

4.4.4 Trading Activities

If a poor individual succeeds in producing products and thus has inventory, the poor individual sells the product to other people in the population. Suppose that the individual can only sell the product if he has an inventory ≥ 2 and that the price of the product is 10 units of wealth. If this is the case, the seller get 6 units of wealth by selling 1 unit of the product whose variable cost is 4 units (the price for 2 units of raw materials or 1 unit of labor).

Of course, the individual sell the product to one of the poor. But this transaction is just transition of wealth from one of the poor to another. Thus it has no impact on the aggregate wealth level of the poor, which is the main focus of this model. In this sense, I assumed that transactions occur only between one of the poor and someone else that is in another group.

4.4.5 Repayment Activities

Using the profit from trading, the individuals can repay the loan to the MFI or to local money lenders. More specifically, the borrowers repay the microcredit only after they sell 5 units of products, by which they get 30 units of profit. But they repay the loans from local money lenders sooner, after they trade 4 units of products for 24 units of profit, due to the harder loan conditions compared to microcredit. The amount of repayment is

principal plus the daily interest total. The passing of time is calculated exactly using the tick¹⁸ function of the NetLogo program.

4.4.6 Updating and Colors

As I already explained earlier, the amount and status of debts are constantly updated, based on the results from each transaction. For example, no individual in the poor group is a borrower at the beginning. Thus the amount of debt starts off as zero and the status of debt is non-borrower. But if the individual gets a loan from the MFI or from a local money lender (or lenders), then the amount of debt increases and the status of debt changes to borrower. To carry out this updating, I had to define relevant variables and procedures¹⁹ in the NetLogo program, which are listed in table 23.

To give a clear visual effect, I used 12 colors to indicate various changes in the status of the agents and their activities. The color notations are summarized in table 24.

4.5 Special Features of the Model

I designed this model to be versatile and to represent different real world microfinance situations.

¹⁸ In this program, each tick stands for one day and tick number increases by 1 as a day passes due to the “go” procedure.

¹⁹ The details of all of the procedures are found in the procedure tab window in the NetLogo program.

4.5.1 Time Span

This model was designed to analyze the impact of microfinance in economic periods chosen by the user(s), either policy makers or researchers. During the setup phase, a user can choose a time span by controlling the time-span-years slider. I set 5 years as the default (how many loan periods). Putting the command “tick” in the go procedure makes it possible for the tick to increase as time goes on. Each tick in this model stands for a day. Thus we can get income level of the poor and the repayment ratio of microcredit for any time during the 5 years, by entering relevant commands²⁰ into the NetLogo program.

4.5.2 Idiosyncratic Disaster

In the real world, there are many idiosyncratic disasters, for example natural disasters and abrupt declines in market demand, which cannot be covered by insurance or other protective actions. I included the category, idiosyncratic disaster, in the model to represent these phenomena in the real world. In this model, the average probability of an idiosyncratic occurrence is set to be 5% of the running time. If an idiosyncratic disaster does occur, it affects the income of individuals with loan in such a way that there is no gain from trade while the seller normally get 6 units of profit from each trade without a disaster. To encode a disaster, the switch, “idiosyncratic disaster”, is used. The simulation produces result from a disaster if this switch is turned on, which make it possible to

²⁰ The commands getting this information for a particular time are

set periods time-span-years (in setup procedure)

*if ticks >= 365 * periods [stop]* (in go procedure).

compare the result that occurs when there is a disaster with the result that occurs (all other things being equal) when there is not a disaster.

4.5.3 Gathering Information

The Netlogo program updates the result of outcome variables in the monitors and shows dynamically changing plots in the interface window. I incorporate a lot of monitors and plots to show progression. In the NetLogo program, the monitors show number results and the plots show the graphs. The monitors and graphs update the results while the procedure is ongoing.

I showed several results from the monitors. (1) The repayment ratio by the poor to the MFI, (2) the total amount of the loans from the MFI, (3) the total amount of the loans from the local money lenders, (4) the number of repayments to the MFI, and (5) the number of repayments to the local money lenders.

I also showed several results from the plots. (1) The average wealth level for males and for females which are found in the *Average Wealth* plot. (2) The total amount of the loans from the MFI and from the local money lenders which are found in the *Total Loan* plot. (3) The number of repayments to the MFI and to the local money lenders which are found in the *Payment* plot. (4) The total amount of trade which is found in the *Trade* plot. (5) Finally, the number of producers which is found in the *Producers* plot. All of the plots from one simulation are listed in figure 9.

4.6 Results from the Simulation and Conclusion

The simulation results of this model give ground for an optimistic view of microfinance. Figure 9 shows an example plot on the average wealth level for males and for females and an example monitor on the repayment ratio. The average wealth level of the poor decreased for a while, because it took some time to make products, trade, and gain the fruit of microenterprise. But after a certain period of time, the wealth level of the poor changed, increased, and then maintained a high level of rate of increase. The repayment rate results are very good, no lower than 90% and at times above 99%. These two results together suggest microfinance has a bright future, especially for increasing the wealth of the poor.

The simulation of the agent based model shows that two different policy directions are needed to guarantee the success of microfinance. First, it is necessary to magnify positive impacts. There are at least two ways this can be done. You can increase the amount of microcredit to make it easier to start businesses and you can support an increase in the yield rate of return. Minimizing negative impacts is also important. This can be done by decreasing the interest rate charged by local money lenders and closely monitoring their behavior to see if they obey the usury law.

I made the model flexible that is to be applicable to various setups. By designing the model to also include more complex issues, such as diffusion of information across agents, various grouping methods, and competition among lenders, I think it captures the real world interactions of microfinance with society. Since the model has these potentials,

it could be used in future researches by those who are interested in agent based modeling and microfinance.

Table 22. The Parameter Settings and the Conditions for the Model

Classification	Agents / Procedure	Variable	Settings
go	move	forward	4 per each movement (poors, abovemiddles)
		Wealth decrease	0.05 per each movement
	borrow	productivity requirement	productivity ≥ 5
		Group formation requirement	sum of productivities ≥ 6
		Condition to loan from local lenders	wealth < 20
	buy raw materials	Condition after repayment	wealth ≥ 60
		bargaining condition	4 wealth : 2 material
	employ	precondition	raw material ≥ 1
		Employee requirement	wealth < 20 , no loan either from MFI or from local lenders
		bargaining condition	1 labor : 4 wealth
	produce	precondition	raw material ≥ 4 or labor ≥ 2
		production transformation	(2 raw material or 1 labor) \rightarrow 1 output
	trade	precondition	inventory ≥ 2
		Bargaining condition	1 output : 10 wealth i.e. profit 6 wealth with marginal cost 4 (2 raw materials or 1 labor)
	idiosyncratic	probability	5 %
disaster	loss when idiosyncratic happens	0 gain from trade (actually loss)	

Table 22 (cont.)

Classification	Agents / Procedure	Variable	Settings
Setup	General	periods	5 years <i>i.e.</i> 365 * 5 days
	MFI	number	1
		fund	200
		interest rate for microcredit	10% / year
		maximum amount of microcredit	10
	raw material supplier	number	4
	local money lender	number	4
	poors	number	100
		Wealth distribution	$N(50, 15)$
		Productivity for woman	$N(3, 1)$
		Productivity for man	$N(4, 1.5)$
	abovemiddles	number	200

Table 23. Variables for the Amount and the Status

Classification	Variables	Implication
Global variables ²¹	periods	The time span we consider. Number represents the year after the starting time.
	prob-disaster	The probability of idiosyncratic disaster which give the seller loss from trade.
	loan-limit	the limit of each microcredit
	fund	Total microcredit amount that the MFI can provide to the poor.
	interestrate	interest rate for the microcredit charged by the MFI.
	lender-interest	interest rate for the loan charged by the local money lender.
poors-own	wealth	each individual's wealth level
	sex	each individual's sex
	productivity	each individual's productivity level
	borrower-mfi?	If true, the turtle has got a microcredit from the MFI.
	borrower-lenders?	if true, the turtle has got a microcredit from local money lenders
	debts-from-mfi	the total amount of loan from the MFI
	debts-from-lenders	the total amount of loan from local money lenders
	repayment-for-mfi	indicates the number of how many times poors have repaid the debt for the MFI
	repayment-for-lenders	indicates the number of how many times poors have repaid the debt for local money lenders
raw-materials	amount of raw material bought by the poor to start up microenterprise	

²¹ These variables will be available to all agents, while patches-own variables and poors-own variables will be available only to patches and the agents whose name is “poors” respectively.

Table 23 (cont.)

Classification	Variables	Implication
poors-own	producer?	true if turtle has produced at least one production
	labor	the amount of labor supply by employee or labor hired by the microenterprise
	employed?	true if one of poors has worked at least once
	grouped?	If true, the individual gets microcredit as a group
	joint	The person that is our current joint in a group to get the microcredit for the MFI
	employee	those who choose to work as an employee
	productions	the amount of productions by poors
	inventory	number of productions which are still in the hand of producer
	borrowingdate	the date when one of poors get a loan from the MFI
	borrowingdate-lenders	the date when one of poors get a loan from local money lenders
	everpay?	if true, a poor has repaid loan from the MFI.
	number-good-pay	the number of payment which is paid before maturity
	seller	poors who sell production to the above-middles.
amount-of-trade	number of sold productions from the poor to the abovemiddles.	

Table 24. Summary of Colors for the Status of Agents

Classification	Color	Notations
patches	black	background
	yellow	MFI
	grey	raw material supplier
	red	Local money lender
turtles	yellow	The poor
	pink	The other in the population
	green	The poor with microcredit
	red	The poor with loan from local money lenders
	violet	The poor after pay
	blue	The poor in producing
	brown	The poor who is an employee
	orange	The poor in trading

Figure 8. Flow Chart for the Model

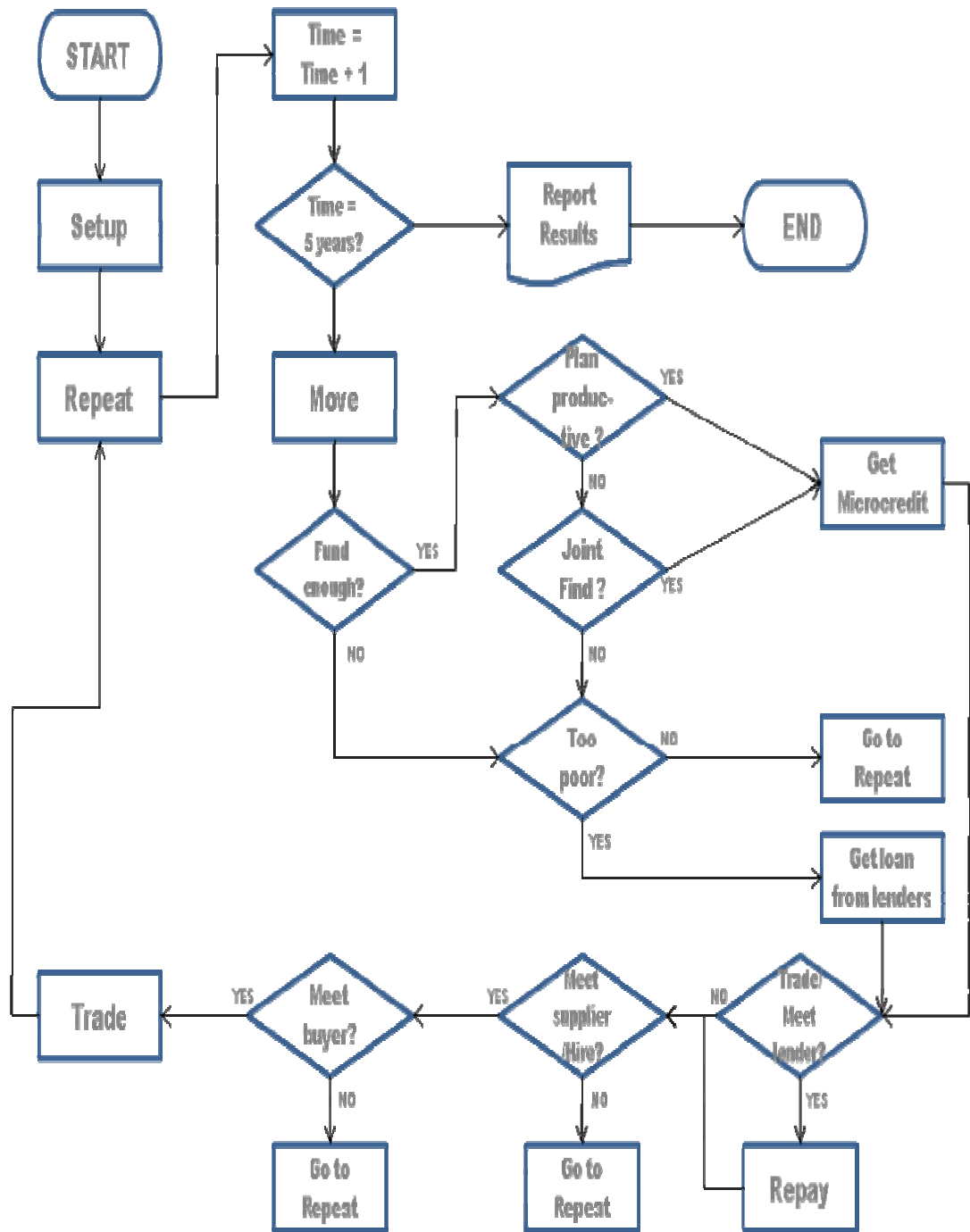
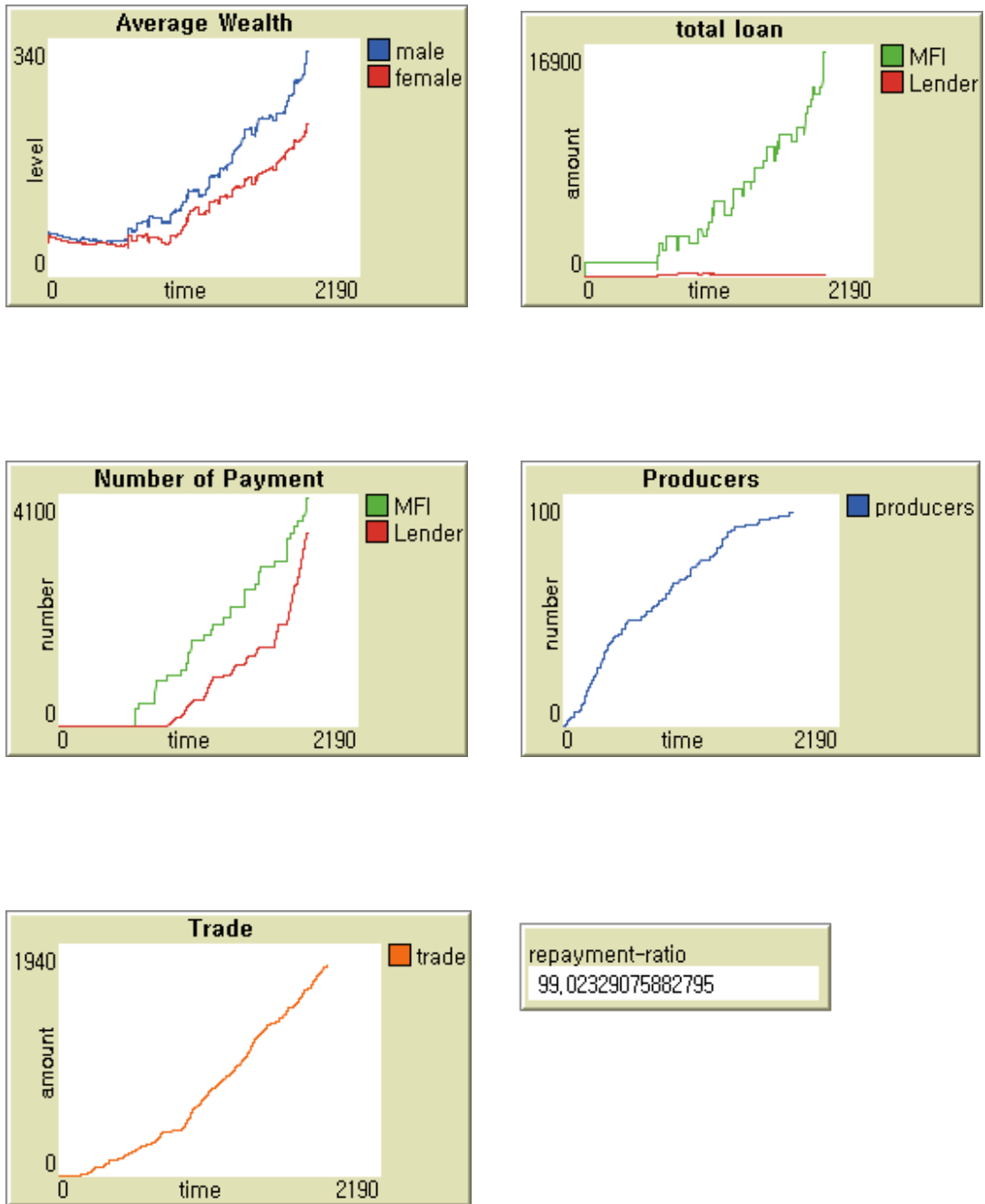


Figure 9. Example Plots and a Monitor from One Simulation



Chapter 5

Various Proposals for the Development of Microfinance in Korea

5.1 Introduction

Korean society in the 1970s successfully implemented Saemaul Undong, a community-based integrated rural development program, which contributed to narrowing the developmental gap between urban cities and rural communities over a decade. Its success came from the adaptation of basic strategies of poverty reduction in the Korean context, which is to promote opportunities and facilitating empowerment for rural people.

The matter in hand in Korea is to find optimal strategies to get the best result of microfinance in society and economy. That is, how to maximize the role of microfinance, both as finance and as empowerment, in the Korean context. Having made the case for microfinance in Korea plausible on both empirical and theoretical grounds so far, the floor is open to examine specific and practicable institutional changes.

In this chapter, I suggest several strategies for the development of microfinance in Korea. The strategies are classified into three categories: rearrangement of the legal–

economic system, expansion of the outreach of microfinance, and the welfare aspect of microfinance.

5.2 Rearrangement of the Legal–Economic System

In this section, I explain three topics that require amendments to the legal–economic system to implement them: group lending, the legal status of the MFIs, and the use of arbitration committees.

5.2.1 Introduction and Enforcement of Group Lending

Group lending is one of the most original notions in microfinance and serves as an efficient method to make microfinance show good outcomes in repayments. I suggest that MFIs in Korea adopt this feature to maintain microcredit strategically.

5.2.1.1 Current Status of Group Lending

As explained above, MFIs in Korea focus mainly on individual lending. Even when a group loan is given, the members in that group usually engage in the same business, and the number of members is less than three. In short, the MFIs in Korea so far do not utilize group-lending in the traditional sense, which has the following features: (1) the number of members in a group is frequently more than five; (2) group members are responsible for their peers' debt; and (3) the provision of loans in the future will be refused if the group defaults.

Group lending can help solve two major problems that the MFIs must face due to asymmetric information; namely, adverse selection and moral hazard. Without these

skills, the Korean MFIs expend huge amounts of time and money to monitor the performance of microenterprises. In the following two sections, I explain how group lending helps to solve these problems. In the final sections, I mention several principles and suggest specific ideas on introducing and enforcing group-lending skills in Korea.

5.2.1.2 Group Lending and Adverse Selection

Group liability caused by group lending induces borrowers to engage in matching behavior. Suppose there are two types of borrowers: safe borrowers, who are more likely to repay the debts of their peers as well as their own; and risky borrowers, who are less likely to repay. Safe borrowers tend to pay more to match with safe borrowers than would risky borrowers. Thus, safe borrowers tend to group together, while risky borrowers tend to group together.

Note that other group incentive mechanisms also contribute to solve adverse selection. Group members are responsible for their peers' debt due to group liability in group lending. The provision of loans in the future will be refused if the group defaults. That is, risk pooling and peer pressure among group members are made through these group incentive mechanisms, which also help solve adverse selection.

Above mentioned self-sorting of borrowers depends on the fact that individuals know each other and can assess the type of potential group members. Thus, this scheme is more appropriate in the rural areas in Korea, where people who live close together tend to know the characteristics of their neighbors. This grouping behavior is feasible only when group formation should be the result of choice by group members, and not as the result of selection by the MFIs.

5.2.1.3 Group Lending and Moral Hazard

Suppose that borrowers are of the same type but each borrower can choose to invest funds from a loan in either a safe or a risky project. Then because of the absence of collateral the borrower tends to invest in a risky project. The borrower can shift the risk to the lender by investing in a risky project, because the lender has no recourse to recover the loss in the case of failure.

However, group liability cannot be the solution for the moral hazard problem without monitoring. In fact, the group liability itself would make the problem even worse. Suppose that there are two borrowers, A and B, in the group. If A decides to select a risky project because he can shift risk to B, then B also would choose a risky project. Group liability, together with mutual monitoring, is a solution for the moral hazard problem.

Consider a monitoring game in group lending (Guttman, 2006) to analyze moral hazard problem in more detail. This game captures the strategic situation and interaction between borrowers and can find the solution in the repeated lending. Figure 10 shows the payoff matrix for this game.

There are two stages in this game. At the first stage, each borrower, A and B, chooses whether to monitor. At the second stage, each member chooses one of following two projects: Project 1 with return H that can be observed by the lender; and Project 2 with a return b that cannot be observed by the lender. I need several further assumptions: (1) $H > r$ (principal and interest), i.e., Project 1 is profitable if chosen; (2) $b > H - r$, i.e., the borrower prefers Project 2 to Project 1, which is a kind of “moral hazard”; and (3) $b - S < H - r$, i.e., if monitored with monitoring cost m , each borrower chooses to invest in

Project 1 and to repay the loan, rather than to invest and to cheat in Project 2 and to suffer social sanctions, whose value is $-S$.

There are two pure strategy Nash equilibria in this game: (1) (Does Not Monitor, Does Not Monitor); and (2) (Monitor, Monitor) if $m \leq c$; i.e., monitoring is not too costly. To analyze the case of repeat lending, I need simply to add V , the present value of future loans, to all the payoffs except (Does Not Monitor, Does Not Monitor). Then (Monitor, Monitor) is the only pure strategy Nash equilibrium under normal conditions, which are $H > r + c$ and $V > m$.

To magnify the effect of group lending to solve the moral hazard problem, monitoring costs, c , are required to be not too high. In practice, this can be achieved by grouping together members with the same business types or with the same residential area.

Note that the solution to the moral hazard problem, the (Monitor, Monitor) strategy, is the only Nash equilibrium outcome in the repeated lending game. Considering the normal conditions under normal conditions ($H > r + c$ and $V > m$), progressive lending (which refers to the practice of promising larger amount of future loans) and the group lending scheme are required to guarantee this solution.

5.2.1.4 Introduction and Enforcement of Group Lending

In previous sections, I outlined four principles for introducing and enforcing group lending skills to guarantee group matching: (1) this scheme is more applicable in rural areas; (2) group formation should be the result of choice by group members, and not

as the result of selection by the MFIs; (3) it is desirable to group members who have the same business type or the same residence area to lower monitoring costs; and (4) it is necessary to carry out progressive lending with additional loan amounts as well as the group lending scheme.

Mass lending can be one possible application of group lending skills in microcredit. Mass lending is to lend money to all individuals who meet the requirements such as membership and/or residence in the same building without individual examination. It is widely carried out in Korea. One example of mass lending is a loan by banks for removal expenses for every resident in an apartment complex when it is scheduled for reconstruction.

There are many traditional markets that should be restructured and modernized. According to the report by the Financial Service Commission (September 2008), there are at least 80 traditional markets in Korea which need to be modernized. The minimum capital required for this task is \$ 100,000 per market and \$ 3,000 per vendor. The Microfinance Foundation among MFIs in Korea with large source of fund to target public project may launch this project. Vendors in these markets are usually poor and so are targets for microfinance. Because they interact closely for a long time, they meet all four principles outlined above. Thus, by combining group lending skills through peer monitoring and group pressure, in addition to mass lending skills, the borrowers can make investments more efficient and can enjoy the economy of scale.

5.2.2 Microsaving, Microinsurance, and Modification of the Legal Entity of Microfinance Institutions

Up to this time, the MFIs have not carried out microsaving and microinsurance. The MFIs have mainly focused on microcredit and depended on outside funds from the public sector and donors plus repayments from microenterprises as their microcredit sources. They should not carry out these projects under Korean law regulating financial sectors (the Banking Act and the Insurance Business Act); i.e., without appropriate permission, businesses cannot accept deposits or offer insurance. The legal entities of the SSB and other MFIs in Korea are not financial companies but foundations. As long as the MFIs maintain current legal forms, it is illegal for them to offer microsaving or microinsurance.

The situation of microsaving and microinsurance in Korea are the same as that in India in the sense that the impacts of microsaving and microinsurance are still weak. But the reason for the weak impacts is different. It is illegal in Korea for MFIs to offer microsaving or microinsurance, whereas in India microsaving and microinsurance have not widely used by MFIs due to several practical reasons²².

Therefore, I need to consider whether it is a good idea for the MFIs to expand their projects to include microsaving and microinsurance. If it is desirable, then it is necessary to work out how to bring this about.

²² For example, Ito and Kono (2009) suggest 3 reasons for this; (1) low take-up rates, (2) high claim rates, and (3) low renewal rates.

I first consider microsaving. Because there are many alternative types of saving, it could be thought not important or urgent to offer an additional way of saving. However, for the MFIs to be sustainable without subsidy from the government and donors, they should have their own resources for loans.

MFIs need to consider securitization as another funding method. The basic procedures of securitization are as follows; (1) MFIs transfer their portfolio to a special purpose vehicle (referred to here as “SPV”), which is an independent legal entity for a securitization purpose. (2) The SPV issues special securities which are to be sold to investors in capital markets. The holder of these can enjoy money streams from the underlying assets held by the SPV. If MFIs guarantee loss default for the securities, it makes credit on the securities enhanced. Notice that securitization is a great help both to the MFIs and to investors. Securitization allows the MFIs to liquidate their assets before they mature. Investors can improve the quality of their investment portfolios through securitization which offers an opportunity to diversify.

Microsaving has positive effects on the behavior of lenders, which ultimately mitigate the moral hazard problem that has deep negative roots in microfinance. The MFIs may require borrowers to show that they can save regularly for a period before they become eligible to borrow. By saving even before getting loans, they can accumulate discipline and money management skills that are essential for being a good borrower. By requiring participants to start saving regularly after getting loans, the MFIs can help the borrowers to build discipline and to have an initial capital base.

Equity is increased by microsaving. In general, collecting small deposits requires more transaction costs than those from collecting larger amounts of money. This may be the reason why banks often exclude poorer depositors by setting minimum balances or increasing service fees if their balances fall below a critical level. If the MFIs can handle microsaving, the transaction costs would be lower by managing loans together with deposits. Furthermore, considering the overall effects mentioned above, microsaving is a very lucrative project for the MFIs.

However, in managing the microsaving, the MFIs need to note that low-income depositors usually want liquidity. Thus, they need more variety of funding sources to get a stable source for microcredit. MFIs can also handle liquidity problem by designing microsaving products in which there is a trade-off between liquidity and convenience. For example, MFIs can prevent liquidity problems from happening by offering access to a loan in an emergency. The poor usually may prefer to take a loan rather than draw money from their microsaving accounts. Thus the poor may sacrifice the convenience (which is compensated by an emergency loan), but the MFIs can solve the liquidity problem.

I now consider microinsurance. Recently, one of the MFIs, MIF, has offered a microinsurance program jointly with insurance companies. If the poor purchase this microinsurance product, they can get an insurance benefit in cases such as death, casualty or hospitalization. Because 95% of the premium is supported by the MIF, the contractor only needs to pay 5% of the total.

I believe that the MFIs also need to provide for microinsurance to cover the microcredit problem. In cases such as death, casualty or hospitalization during the repayment period, the borrower should be protected by the insurance. By doing so, the MFIs can save the management cost and give an on-the-spot service to the poor. If buying insurance is mandatory, we can escape the adverse selection problem, resulting in decreases in the premiums. To protect the risk for the MFIs, they can reinsure with insurance companies, and the MFIs and insurance companies can cooperate with each other in dealing with the technical side of the provision of insurance.

To make it possible for the MFIs to manage microsaving and microinsurance, it is necessary to enact an appropriate law that enables the MFIs as special financial organizations to cover both microsaving and microinsurance. In the law some restrictions should be levied on the products, because in other financial institutions, it is prohibited to cover both savings and insurance under the specialization requirement in the financial sector (which is based on the Banking Act and the Insurance Business Act). Thus, the MFIs' products should be confined only to the poor so that they do not affect the normal financial markets. If the MFIs manage deposits, they should be under prudential regulations. However, if the usage of savings is restricted to safe and socially acceptable projects, the prudential regulation could be waived for this special organization.

To carry out microsaving and microinsurance, the MFIs would need more branches as contact points for customers. Note that post offices that are branches of Korea Post also offer finance products including savings and insurance. Besides the main offices and eight local branches in big cities, there were a total of 3,669 post offices as of 2007. The amount of financial services has steadily increased (see table 35 for detail).

Perhaps the postal finance service could be changed to permit microfinance services, or the MFIs could use nationwide postal offices as their branches. I will discuss later this topic in more detail.

If the MFIs can engage in microsaving and microinsurance together, a mixed product is also possible, which can be considered another advantage. This could involve a microinsurance program with a savings component. If no accident covered by insurance occurs, then the customer would get the amount with interest. In this sense, it is same as the usual savings situation. However, if an accident occurs, the customer gets compensation from the insurance. If we design the maturities of these products in the schedule of the education of children and insure events such as death, casualty and hospitalization, this product could alleviate the expense of education and health care of children. Under the current law regulating compulsory education until middle school, the tuition waiver for middle school is applied nationwide. Thus, the whole cost for education in high school and above should be covered by the parents. The parents should also cover the expenses in private tutoring. Thus the compensation for each maturity (such as primary school graduation, middle school graduation, high school graduation, and so on) from this program should be increased as the children move into higher education. The result from the microinsurance by MIF and statistical data from the National Health Insurance can be used as a guideline data on accident occurrence in designing this program.

In short, better service could be given to the poor by letting the MFIs to engage in both microsaving and microinsurance.

5.2.3 Establishment of Independent Committee to Mediate the Microcredit Issues

Microcredit is carried out under a situation of asymmetric information. Thus, there is the possibility of the participation of borrowers in a more risky project than was approved, which is the “moral hazard” problem. If borrowers could commit to not undertaking the risky project credibly, the lenders—the MFIs—would readily lend them larger amounts at given interest rates. In reality, however, it is very hard to make the borrowers commit to contracts, because of huge judicial costs for trials if the borrowers fail to satisfy them.

This commitment problem, however, could be solved by the establishment of an independent committee²³ to mediate disputes regarding the microcredit issues. Specific schemes for this committee could be the following. (1) Procedures could be based on regular mediation so that the persons concerned could manage the situation without the help of lawyers. (2) By setting a time limit, say 90 days, after the dispute happens, there is pressure to compromise quickly, because if the borrowers and the MFIs failed in mediation, then they would need to have regular legal trials that require lots of time and money. (3) If a decision is made to follow the original contract or a new compromise is made, it has the same effect as the final judicial judgment. This is to prevent additional legal procedures. Because this procedure could be used in cases of dispute, the

²³ The national tax tribunal (NTT) is an example of independent committee in Korea. NTT mediate the dispute regarding tax issue and if the decision to lower or cancel the tax was made, the tax authorities cannot appeal the decision. The committee members should have special knowledge on tax or enough experience on financial administration.

commitment problem at the contract stage would become less burdensome, so that transactions would happen more frequently.

I consider the possible effects of the establishment of an independent committee in the following game. Figure 11 shows the situation without mediation, where the commitment problem happens. There are two stages in this game. At the first stage, a borrower chooses whether to commit to the contract. At the second stage, the MFI chooses whether to commence a lawsuit against the borrower in case the borrower does not commit to the contract. The payoff is given inside the brackets, where the first number is for the borrower and the second number is for the MFI. That is, if the borrower commits to the contract, each gets 75. If the borrower fails in committing to the contract and the MFI does not commence a lawsuit, the borrower obtains an additional payoff that is taken from the MFI, say 25. The resulting payoff for the borrower is 100, and that for the MFI is just 50. If the MFI chooses to commence a lawsuit, however, not only the payoff for the borrower but that for the MFI diminishes compared with the case of commitment. The payoff for the borrower decreases from 75 to 50 because of a penalty imposed by the court. The payoff for the MFI also decreases, from 75 to 50, which reflects the cost of the lawsuit in terms of time and money. There is no pure strategy Nash equilibrium for this game. However, it can be shown that, for any α and $\beta = 1/2$, there is a mixed-strategy Nash equilibrium for this game, where α (β) is the probability of commitment by the borrower (the probability of no trial by the MFI). Thus, there is no deterministic law of action for the MFI, and the uncertainty of the borrower's commitment (which is represented by arbitrary α) may shrink transactions.

Now, consider the case where a mediation procedure by an independent committee is introduced. Figure 12 shows the game tree for this case. The other payoffs at the first and second stages but the (not commitment, mediation) combination of strategies are the same as before. Now that the mediation procedure is possible, the lender can choose the mediation procedure if the borrower does not commit to the contract. Because the mediation procedure is designed to save time and money, the payoff for the borrower and the MFI in the case of accepting the mediation suggested by the committee is (70, 70), which is much higher than the case with the lawsuit. In the case of rejection of mediation, the payoff, (45, 45), becomes a little less than the case with the lawsuit, because of the cost of the mediation procedure. It can be shown by backward induction that (commit, mediation, accept) is a pure-strategy Nash equilibrium, and the resulting payoff for this would be (75, 75). In brief, by establishment of an independent committee to mediate the dispute regarding the microcredit issues, the commitment problem could be solved and both the borrower and the MFI could enjoy higher benefits.

5.3 Expansion of the Outreach of Microfinance

To extend the role of microfinance in Korea, it is necessary to expand the projects that are covered by the MFIs. Besides microsaving and microinsurance, which are explained above, it is desirable that the MFIs cover housing microfinance, and loans for the expenses of education and health care. The expansion of branches of the MFIs and the issue of economy of scale are discussed in the last section.

5.3.1 Housing Microfinance

5.3.1.1 Necessities of Housing Microfinance

The stability and quality of houses for the poor are very important for their everyday lives. Traditional mortgage finance, however, cannot satisfy the needs of the poor. Traditional mortgage loans are mainly to buy new houses, resulting in larger loans than the poor households can afford, while the poor usually need loans to renovate or rebuild their houses. Furthermore, traditional loans require collateral and have long-term repayment conditions with maturity of more than 10 years, which is opposed to the realities of life for the poor. Table 25 shows the maturity structure of mortgage loans from commercial banks, showing that the maturity of loans continuously increases.

Housing microfinance around the world has recently drawn attention, especially in Asia, Africa, Latin America, and the Caribbean. This project is mostly carried out by non-governmental organizations (NGOs). The Habitat International Coalition has the most members among them. Not only MFIs but also financial companies, property developers, and construction suppliers involved in housing finance.

MFIs in Korea accumulated practical experiences of microcredit and need to expand their outreach to help the poor more intensively. Although traditional mortgage finance was introduced in Korea in 2004 and established in Korean society, but there are many limitations for it to cover the need of the poor. Thus I believe that housing microfinance, which is a mixture of traditional mortgage loans and microcredit, should be included as a project of the MFIs in Korea to ensure high-quality residences for the poor.

5.3.1.2 Specific Housing Needs

The specific structure of housing microfinance should reflect the real conditions and needs of the poor. There are spectacular differences in housing between different income levels. These conditions are also different depending on whether people live in big cities, small towns, or rural areas.

First, I consider the living conditions in the big cities: Seoul, Pusan, Taegu, Incheon, Kwangju, Daejeon, and Woolsan. I mainly focus on the living conditions of the poor. The percentage of people with lower levels of income who own their own houses is very low, and the percentage of those who are forced to move is high. As a result, housing conditions are not stable for people with lower incomes. For people in Seoul, the percentage of people who own their houses is the lowest (31.8%), and the percentage of people who are forced to move is the highest (15.9%), as shown in table 26.

Because the prices of houses in Seoul are so high, the housing expense burden is also high in Seoul. Thus, the housing burden for people with lower incomes in Seoul is expected to be much higher. Using the ratio, $PIR \equiv (\text{the house price}) / (\text{annual income})$, as an index for the housing expense burden, that for those with low income is 13.8 in Seoul. Considering the ratio, $RIR \equiv [(\text{rent charged})/(\text{monthly income})] \times 100$, which is another index for the housing expense burden for renters, that for low-income households is higher than 20%.

Next, I consider housing conditions for the poor in small towns. The main problem for the low-income households in these regions is that they live in old houses that have high housing expenses. Most of the poor live in houses built more than 20 years

ago, and the RIR ratio is higher than 20%. These characteristics are spectacular in the region whose main income is from agriculture, the Province of Chunnam and Chunbuk.

Finally, I consider the housing conditions in rural areas. The main characteristic of houses in rural areas is that they are spacious but old. They need to be renovated or rebuilt, but the householders do not have sufficient money to do it.

We need to notice that the effect of housing microfinance in rural areas has two different directions. First, the size of money, which is needed to carry out housing finance in rural area, is much smaller than that that in urban area. In this sense, the housing finance in rural areas can bear fruit without investing a lot of fund. On the contrary, there is not much business opportunity in rural area. This makes the income of the residence in rural areas unstable, which makes the financial status of the MFIs to offer housing microfinance to them also unstable. This is the reason why we need to consider carefully on the structures of housing microfinance.

5.3.1.3 Suggestions on Structures of Housing Microfinance

First, the terms and amount of housing finance should be adjusted to the needs of the poor. As mentioned in the previous section, this project is mainly targeted to renovate or rebuild the houses of the poor rather than to buy houses. Considering the relatively small amounts of money, the loans should be shorter and smaller than traditional mortgage loans. It is recommended that the terms of loans should be from one to three years maturity and that the amount of the loans should be below \$10,000. The actual terms of the loans should reflect the conditions of the clients as well as the demand for rebuilding projects. To calculate exact terms with respect to maturity and amount of loan,

we need to use the data in table 26 ~ 29. But we need to wait some time until enough data to be accumulated and these data should be updated to consider the economic situation.

Second, the MFIs should maintain a risk management system, because housing finance increases risk for the MFIs. The Korean MFIs have no experience of housing finance so far, implying that they do not have actual data from which they calculate rational interest rates and loan amounts. In these circumstances, it is better to start on a conservative basis and then make terms more flexible after acquiring some good results and acquiring skills from it. In this sense, I recommend that the MFIs give loans for houses only for those who have shown good outcomes in their enterprises at the first stage. By following this theme, this project can enhance the quality of life for the poor, while the risk related to this project can be maintained within controllable levels.

The MFIs can manage risks by introducing insurance programs. Microinsurance programs to cover the microcredit problem can play a role as a risk management system. That is, in cases such as death, casualty or hospitalization during the repayment period for housing finance, the lenders should be protected by insurance. Mortgage insurance that is attached to the normal mortgage loans can be adjusted to housing finance with low premiums, and low coverage can also be utilized to make housing finance a promising project that is free from the detrimental effects of falls in the prices of houses.

Finally, I need to consider the source of this project, because it requires substantial funds for housing finance. I believe that the MFIs can use policy funds for housing acquisition loans from the Ministry of Land, Transport, and Maritime Affairs, because the purpose of this fund is to help the poor to buy houses and to renovate or

rebuild houses. The MFIs can also carry out the role of assignee for commercial banks that carry out mortgage loans. As lenders reveal good results in their businesses, they can pay market interest rates. The percentage of short-term sources in banks has increased steadily over recent years (42.6% in 2001 to 52.0% in 2006). Thus, housing microfinance is a good option for banks in view of this phenomenon. However, banks do not have well-developed skills for dealing with the poor. Thus, by cooperating with the MFIs, both parties could benefit substantially.

5.3.2 Supports for Education and Health Care of the Poor

5.3.2.1 Supports for Education of the Poor

As already stated above for the SSB, the MFIs in Korea offer education for starting businesses after clients are accepted as beneficiaries of microcredit. That is, it is the responsibility of applicants to propose business ideas and to be ready to start them. The MFIs then assess the business plans. It is not enough, however, to get basic business knowledge. To select an appropriate business type and to get proper skill to do it is also—maybe more—important. Thus, the MFIs need to take part in vocational training for the poor.

However, the MFIs do not need to establish independent vocational training programs, because there are already lots of training programs in Korea (see table 30). What the MFIs need to do is to try to link the training programs and microcredit, by opening classes to give information about microfinance and its supply and demand in the real world. After knowing all the aspects of microenterprises, trainees can build sturdy

and specific business plans that result in high probabilities of success and, thus, high repayment ratios.

Thus far, education has had a crucial role in achieving rapid economic growth in Korea with a huge contribution to improving human capital. Thus, more investment in education is necessary to accelerate economic growth. From a social welfare viewpoint, we need to introduce public welfare projects to relieve the burden of tuition for the children of low-income families. Under the current law regulating compulsory education until middle school, the tuition waiver for middle school is applied nationwide. Thus, the whole cost for education in high school and above should be covered by the parents. If the poor are not given money for education, then their poverty will continue in the lives of their children.

The MFIs need to provide loans to improve the education of the poor. Considering that the heaviest burden in education is tuition at university, loans for this should be urgently introduced by the MFIs. I believe that such loans should be provided without collateral and with sufficiently long maturities that extend until the students get jobs. The interest rates charged for these loans should be lower than the market rate. This would make the cost of learning cheaper and would give incentives for the poor to get higher education. Similar loans for higher education are provided through the Korean Housing Finance Corporation (KHFC), which is an affiliated organization of the Financial Services Commission. However, these loans are not restricted to the poor, and the lending terms²⁴ are not flexible. If the MFIs want to offer student loans, they should

²⁴ The interest rate is around the market rate, 7.65% for 2008, and the maximum maturity is 20

establish more flexible conditions than those offered by the KHFC. The MFIs need to have a strategic cooperation with the KHFC, because they have knowledge on how to treat the poor, while the KHFC has experience in managing long-term loans. Through this, the MFIs could either carry out the role of assignee for the KHFC in the field of education loans for the poor or let the KHFC issue student loan-based securities using these student loans as underlying assets that facilitate the MFIs' student loans.

The loans for education are a starting point to secure the education of the poor. More favorable policies for the poor by the government and society are also needed. I suggest preferential treatment by universities in granting admission to students from poor families. This can be rationalized by the fact that the poor cannot get enough opportunities to develop their potential and support for study places. Other students can utilize private institutions in Korea, where they can get private tutoring and advice from specialists in education. The cost of private education is much greater than the tuition because of fierce competition, and it acts as an impediment to proceeding into good universities. This inequality in private education could be lessened if the NGOs and volunteer groups provided the poor with study programs together with places of study.

It is also suggested that poor students, after gaining admission, should be treated preferentially when allotting dormitories, which are limited and cover only a small proportion of registering students. In cases where there is no dormitory available at all, local governments should let them use cheap residential houses that local governments manage.

years, depending on various product designs.

5.3.2.2 Supports for the Expenditure of Health Care

5.3.2.2.1 The Current Health Care System in Korea

The Korean health care system is composed of the National Health Insurance system (NHI) and Medical Aid. People who use the services of the NHI have to pay, but those who use the services of Medical Aid do not. Enrollment for the NHI is required by law for all Koreans residing in Korea, except for Medical Aid beneficiaries. For the percentages of each type, see table 31.

The payment of contributions to the NHI is the responsibility of employers and all members of households. The contributions of employees who are insured are based on their salaries. The current contribution rate for insured employees is 5.08% of their average monthly salary. The contributions of the insured employees are paid by both employees and employers. For the self-employed, the contributions for an insured person are calculated by using a formula that takes account of the person's property, income, motor vehicles, age, and gender; i.e., $\text{monthly contribution} = \text{contribution points} \times \text{value per point}$ (around \$1,500).

Persons with the NHI who receive health care treatments pay certain portions of the health care costs as co-payments. In order to curtail overuse of health care services, and to lessen the concentration of medical services in large urban hospitals, the co-payments for outpatient and inpatient services have been set differently according to the level and type of medical institutions (see table 32 for details).

Persons who receive services from Medical Aid are separated into two types. Type 1 is the group with poorer economic circumstances than Type 2, and there is no co-payment for inpatients except for pharmacy, \$0.50 each. The payments are made by the Medical Aid Fund, which is managed by the Ministry of Health, Welfare, and Family Affairs. For outpatients, a small co-payment, from \$1 to \$2, is charged. There is a co-payment ceiling, which is \$50 per month. When individuals of Type 1 reach the ceiling threshold, they are exempted from any further payments. This is to alleviate the financial burden on households of catastrophic or high-cost diseases and, thus, to help prevent them from falling into bankruptcy. However, even Type 1 individuals pay the full expenses for treatment of uninsured diseases with the NHI.

The Type 2 group consists of individuals with slightly better but still poor economic circumstances. The co-payment rate for these individuals is generally 15%, and the ceiling is \$1,200 per six months. The Type 2 individuals also pay the full expenses for treatment of uninsured diseases with the NHI, as do Type 1 individuals.

5.3.2.2.2 Problems with the Current System and Suggestions

Although the current system seems comprehensive, it has some problems. I suggest several policy changes to prevent illness from having serious effects on poor households.

First, it is not so easy for the poor to pay the premiums of the NHI. The rate of delinquency in payments of the NHI premiums, as of July 2009, was 10%. That is, 1,992,798 households among the 19,005,339 total households failed to pay for three

consecutive months. The amount of nonpayments was \$1,655 million. The households who do not pay are not covered by the NHI.

Table 33 shows the composition of nonpayments to the NHI. The percentages for the no-wealth category in number were 14.5% and 9.4% for the number and amount, respectively, while the corresponding percentages for the little-wealth category were 75.0% and 75.9%. These numbers imply that the nonpayment of the no-wealth group is not very great. Perhaps these households cannot pay the NHI premiums because they have more urgent commitments. However, this can lead to serious results if they suffer illnesses or accidents that require medical treatment.

To keep the poor covered by the NHI, the government needs to lower the premiums for the poorest group among the NHI payers, because the NHI is for public insurance and, thus, this should also play a role as a social safety net. Together with this policy, I suggest that the MFIs offer loans to cover the NHI premiums. The amounts of these loans do not need to be huge, but the conditions of repayment should be flexible to help the poor manage their everyday spending.

Second, the amounts of co-payment required for both the NHI and the Medical Aid are at times burdensome for the poor. The co-payment percentages under the NHI are 20% for catastrophic or high-cost diseases and 20% (inpatient) or 30% to 50% (outpatient). Even people with Type 2 Medical Aid cover are liable for co-payment, and the ceiling of this is \$1,200 per six months. This can be disastrous if a patient has catastrophic or high-cost diseases such as chronic dysfunction of the kidneys, bleeder's

disease or cancer. The number of catastrophic or high-cost diseases in 2008 was 630,000 and that for cancer was 670,000.

In this sense, there is urgent need for a public welfare project to relieve the burden of medical expenses for the members of low-income households. This can be done by microinsurance and/or loans for health care together with continuous efforts by the government to lower the burden of co-payment for the poor.

In December 2008, the MFI and insurance companies decided to launch the microinsurance product. By purchasing microinsurance, it is claimed that, with a premium of less than \$180, the contractor can get a benefit of \$5,000 to \$10,000 in case of death, casualty or hospitalization. In addition, a contractor from low-income families does not need to pay the whole premium but only 5% because the Microfinance Foundation pays the remaining 95%.

Loans for medical expenses are listed as projects offered by the MIF, which was established as a public foundation in March 2008. The project is, however, under construction. I think the main strategies to develop this project should be as follows. First, the repayment schedule should be flexible and take account of the economic and health conditions of the individuals involved. Second, standardized small amounts of money should be given to needy individuals without collateral at first, and then progressive loans can be given based on their previous repayment history. The reasons for giving small amounts of money are to cover a larger number of the poor and to provide incentives to induce repayments for larger loans later. In designing this project, we should not neglect

the typical problem with respect to health insurance, which is moral hazard. Thus, a check system should be established for the appropriateness of medical treatments.

Note that the current health care system mainly focuses on cure after the diagnosis of a disease, and it mainly supports Western medicine for treatments. The NHI favors covering the expense of treatment by Western medicine rather than by traditional Oriental medicine. For example, the NHI does not cover the expense of physical therapy by traditional Oriental medicine. It is desirable, however, that more concern be given to prevention and traditional herbal medicine to keep society healthy and, thus, to lower the cost of health care.

Finally, there should be efforts by both the public and the private sectors to improve the everyday life of the population so that they can live in a clean and healthy environment. The major environmental projects should be water supply and satisfactory toilets in rural areas, considering their effects on the environment and health. The government can give some subsidies. This can be carried out under the social enterprise schemes that are discussed later.

5.3.3 Expansion of Branches

Note that post offices that are branches of Korea Post, which is under the control of the Ministry of Knowledge Economy, also offer finance products including savings and insurance. Besides the main offices and eight local branches in big cities, there were a total of 3,669 post offices as of 2007. The amount of financial services has steadily increased because there are several benefits from them including exemption from the deposit insurance and less regulation in designing their product compared with the

normal financial companies. They do not use their deposits to provide loans to the account holders, but they use them to invest in financial assets, etc. (see tables 34 and 35 for details).

To carry out the microsaving, microinsurance, and other projects that are suggested in the previous sections, the MFIs need more branches as contact points for customers. If the postal finance service could be changed into microfinance services or even if they did not change, the MFIs could use the nationally distributed post offices as their branches.

5.3.4 Economy of Scale

In Korea, many public policies are carried out by the government or by assignees using government funds to help the poor for various purposes (see table 36 for the amount of current public financial service projects targeting the poor). If those kinds of tasks could be carried out by the MFI, which is the transformation of the postal finance service, then efficiency could be improved through economy of scale so that transaction costs would be reduced. Therefore, the effects for the poor and for society would be improved, compared with the current situation, even if the same amount of funds were invested.

5.4 Welfare Aspects of Microfinance

If microenterprises by the poor produce externalities that produce additional benefits for society, it is appropriate for social planners to give them additional favors.

The basic notion of social enterprise has roots in this idea, and I suggest several ideas based on this concept in the following sections.

5.4.1 Social Enterprise Policies in Korea

Although microcredit from the MFIs can help the poor to overcome their poverty, the project has some limitations: the microenterprise should compete in the market to survive; and its success is for those who operate it, not for the whole society. The way to overcome these limitations is for the poor to target social enterprises.

Social enterprises perform business activities such as production and sales of goods or services while working toward a social objective of helping local residents to lead a life of better quality by offering social services or jobs to disadvantaged people. In short, they are enterprises that do something good for society while making a profit. In other words, Social Enterprises an enterprise that is based on business and market principles, but is dedicated to using its resources to helping disadvantaged populations and society in general. The demand for social services in Korea is increasing as manufacturing industries have dwindled away, society is aging, and the number of couples where both must work is increasing. I listed examples of social enterprises in table 37.

As an effort to foster social enterprises, the Ministry of Labor of the Korean Government enacted the Social Enterprise Promotion Act in April 2007. In a bid to nurture growth and good performance of social enterprises, the Government gives social enterprises strong support in several ways. First, there is financial assistance. When a person specializing in accounting or marketing is newly hired, a subsidy of \$1,200 per

month per person is granted for up to three persons. In addition, for a business project that is chosen to be performed for a social enterprise, a subsidy of \$7,900 per month per person and social insurance premiums (8.5% of the labor cost) are granted for those who participate in the project. Furthermore, loans for facilities and leases for the place of business are available.

Second, the Government provides services for the establishment and operation of social enterprises. At present, there are three specialized agencies for assisting with the establishment of businesses, four specialized consulting firms for business operations, and one accounting agency offering assistance to existing or would-be social enterprises. Moreover, the Government supports the establishment of regional or occupational networks and the creation of training/education programs for future social entrepreneurs.

Third, there are tax incentives. The Government revised the Special Tax Treatment Control Act in December 2007 to reduce the corporate and income taxes imposed on social enterprises by 50% and to treat all donations by a private company as a financial loss within the limit of 5% of the corporate income. Additionally, the Government encourages the ministries and agencies of the local governments and other public organizations to purchase goods and services from social enterprises.

To foster social enterprises in a short period, based on the trust of society, the Ministry of Labor certified social enterprises. The requirements of certification are as follows: (1) the enterprise should have the proper organization, as listed in the Law; (2) the enterprise should employ salaried employees; (3) the enterprise should pursue social

purposes; (4) the enterprise should have democratic decision processes; and (5) the enterprise should make a positive profit.

In October 2007, the Ministry of Labor certified social enterprises for the first time. As of September 2008, there were 108 social enterprises. When these certified social enterprises are broken down into categories of occupation, 21 of the certified social enterprises are engaged in environmental projects; 13 are in nursing or domestic service; 14 are in social welfare; five are in culture; five are in education; five are in child care; four are in health care; and 36 are in other occupations. By types of organization, 43 are classified as companies under the Commercial Law; 21 are corporations under the Civil Law; 21 are nonprofit organizations; 13 are social welfare organizations; nine are consumers' cooperatives; and one is an agricultural cooperative.

In conclusion, if social objectives were combined with energetic and forward-looking entrepreneurship and support from the MFIs, the social enterprise should result in remarkable progress in social integration. The social enterprises will bring fundamental changes to the society, help solve serious social problems, and activate the creative energies of a lot of people.

5.4.2 For the Poor by the Poor

Usually the poor who reside in rural areas do not have enough business opportunities, and it is difficult to be competitive even if they start new microenterprises because of deficiencies in marketing skills and social networks. However, based on the protection of social enterprises, there are a lot of business activities that target the poor and that can be done by the poor, including those who live in rural areas. There has been

a steady increase in state spending in the public service sector, which may be the main field of action of social enterprises (see table 38 for details). Thus, the opportunities for microenterprises to gain opportunities through targeting the poor are likely to be increased. The business concept for this can be called *for the poor by the poor*. By focusing on this kind of approach, microfinance can have broader effects on society, accomplishing social equity and performing customized services for the poor.

One of these examples is the serving of food for schools. In Korea, education in elementary and middle school is mandatory, and the food service is usually provided either by the school or by a company chosen and paid by each student. For students in the low-income group, the payments are covered by the government or meals are delivered to them by the companies assigned. The statistics for these students are not released. Based on the total number of students under age of 18 (11 million) and the absolute poverty ratio in 2006 (5.7%), the estimated number of poorly-fed children is 620 thousand. There are catering companies that target students from the low-income group or that target schools whose percentage of poor students is high in big cities. These companies obtain certification as social enterprises and can have some protection until they can compete in the market. If these companies have a continuous market, they can easily extend the scope of their businesses by serving food for the army or other companies in the neighborhood. In turn, other types of social enterprises may supply raw foodstuff to these catering companies. A chain of social enterprises can result if there is policy guidance, incentive, and education for them.

Another example of this scheme is the provision of insurance agents for the MFIs. It has been suggested in previous sections that the MFIs should provide microinsurance

and that the postal finance services should be turned into MFIs. In those cases, not only the demand for insurance but also insurance agents could be increased. The role of insurance agents is to sell microinsurance products, to advise, and to help clients when accidents occur. The poor can play useful roles as sellers as well as buyers, because they know what the poor need. The current number of life insurance agents is 215,000. If MFIs will carry out microinsurance, job creation and employment effect from it will be huge and the income from the job will be valuable aid to overcome the status of poverty.

The applicants for microcredit and the MFIs together can find many of these kinds of business opportunities which can be done for the poor by social enterprises. By focusing on this approach (for the poor by the poor), microenterprises can achieve remarkable success in their businesses and MFIs will be able to give more help for the poor.

5.5 Conclusion

Although the history of microfinance in Korea is less than 10 years, but government circles as well as the academic world have an enthusiastic interest in microfinance. If Korean society can successfully adapt basic principles and techniques of microfinance in the Korean context, it will contribute to promote business opportunities and facilitating empowerment of the poor.

This chapter focuses on finding optimal strategies for the development of microfinance in Korea. I proposed several optimal strategies for the development of microfinance in the future. (1) Introducing and enforcing group lending, because group lending can solve two major problems in microfinance, adverse selection by assortative

mating and moral hazard by monitoring group members' transactions. (2) Letting MFIs (Microfinance Institutions) carry out both microsaving and microinsurance. (3) Establishing independent committees to mediate disputes regarding microcredit issues, which can solve commitment problem. (4) Expanding microfinance services by letting MFIs handle housing microfinance and loans for education and health care. (5) Encouraging social enterprise to help the poor overcome their state of poverty.

In conclusion, appropriate social objectives and forward looking entrepreneurship when properly supported by MFIs can bring remarkable progress in social integration and help the poor overcome their state of poverty.

Table 25. Maturity Structure of Mortgage Loans from Commercial Banks

(Unit: \$ Billion, (%))

	2003	2004	2005	2006	2007
~ 1 Year	11.4 (7.5)	20.7 (12.2)	29.3 (15.4)	24.1 (11.1)	39.1 - (17.9)
1~3 Year	95.6 (62.3)	81.3 (47.9)	54.0 (28.4)	41.0 (18.9)	
3~10 Year	30.5 (19.9)	32.6 (19.2)	41.5 (21.8)	41.2 (19.0)	58.7 (26.9)
10 Year ~	15.8 (10.3)	35.1 (20.7)	65.5 (34.4)	110.8 (51.0)	120.5 (55.2)
Total	153.0 (100)	169.7 (100)	190.3 (100)	217.1 (100)	218.3 (100)

Source: The Bank of Korea, *Current Status and Future of Mortgage Finance in Korea*, 2007.

Table 26. Ratio for who Owns House and the Ratio for who is Enforced to Move, 2005

(unit : %)

Income classification		Seoul	Pu-san	Tae-gu	In-cheon	Kwang-ju	Dae-jeon	Wool-san
The ratio who owns house	Low* level	31.8	50.8	44.3	55.3	47.8	46.1	45.4
	Middle* level	39.8	54.8	52.0	61.9	52.7	54.1	58.0
	High* level	59.2	52.9	72.7	72.1	67.3	67.8	67.2
The ratio* who is enforced to move	Low level	15.9	10.4	13.8	10.6	8.2	5.3	8.7
	Middle level	10.4	6.2	13.0	11.1	2.5	0.0	0.0
	High level	7.7	0.0	0.0	1.1	0.0	0.0	0.0

Notes: * Low level: 1st Decile ~ 3rd Decile, Middle level: 4th Decile ~ 8th Decile, High level : 9th Decile ~ 10th Decile

** The ratio of households that choose burden of residence is severe/ the landlord told to leave as the reason to move

Source: The Korea Research Institute for Human Settlements, 2005, *Survey on the actual state of residing condition and demand for house.*

Table 27. PIR and RIR for the households in big cities, 2005

(unit : times, %)

Income classification		Seoul	Pu-san	Tae-gu	In-cheon	Kwang-ju	Dae-jeon	Wool-san
PIR	Low level	13.8	9.0	7.0	7.3	8.0	9.0	5.6
	Middle level	6.9	3.5	3.7	3.4	2.6	3.9	3.0
	High level	6.2	2.3	3.1	2.9	1.9	4.1	2.6
RIR	Low level	34.5	31.4	21.7	26.4	31.2	31.9	25.1
	Middle level	21.9	15.1	12.5	17.1	13.8	17.4	15.8
	High level	20.3	15.4	11.7	11.5	9.2	16.4	10.4

Notes: * The number is driven by using the average value, but using median is also possible.

Source: The Korea Research Institute for Human Settlements, 2005, *Survey on the actual state of residing condition and demand for house.*

Table 28. Ages of the House and RIR for the Households in Small Towns, 2005

(unit : year, %)

Income classification		Kyung gi	Kang won	Chung buk	Chung nam	Chun buk	Chun nam	Kyung buk
Age of the house	Low level	11.5	15.6	16.9	18.2	21.7	22.2	17.4
	Middle level	13.3	18.5	19.2	20.8	23.8	24.4	19.0
	High level	9.9	12.7	13.6	13.2	14.6	16.5	13.2
RIR	Low level	31.2	27.6	27.5	26.7	27.1	21.5	22.0
	Middle level	19.7	11.8	12.4	12.3	11.0	11.3	12.0
	High level	13.3	6.5	4.3	11.3	5.0	10.2	13.0

Notes: * I extracted 7 regions among 10 regions based on the distance from Seoul.

Source: same as before

Table 29. Space per Person and the Age of the House in Rural Areas, 2005

(unit : 3.3m², year)

Income classification		Kyung gi	Kang won	Chung buk	Chung nam	Chun buk	Chun nam	Kyung buk
Space per Person	Low level	7.9	7.4	6.7	7.7	9.0	7.7	8.6
	Middle level	6.2	8.2	7.0	8.9	9.6	8.3	9.1
	High level	7.6	6.3	6.4	6.0	7.2	6.3	6.8
Age of the House	Low level	13.0	20.8	19.0	20.2	22.9	22.0	18.2
	Middle level	9.9	13.0	14.2	12.0	14.3	16.6	12.7
	High level	9.7	10.3	10.8	10.7	11.8	15.8	9.9

Notes: * I extracted 7 regions among 10 regions based on the distance from Seoul.

Source: Same as before

Table 30. Vocational Training Programs in Korea

(Unit: Thousand People, \$ Million)

		Trainees*	Budget**
Nurture Training		11	24.6
Government Entrusted Training		16	90.0
Jobless Employment Training		18	52.8
Employment Promotion Training		9	12.6
Employment Insurance	Jobless Reemployment Training	53	124.2

Sources: * Ministry of Labor (2005a). *2005 Labor White Paper*.

** Ministry of Labor (2005b). *Statistics for Vocational Ability Development 2000 ~ 2004*.

Table 31. Number of Covered Population, 2007

Classification		Coverage (10,000)	(%)
Total		4,967	100
NHI	Subtotal	4,782	96.3
	Employee Insured	2,942	59.2
	Self-Employed	1,840	37.1
Medical Aid	Subtotal	185	3.7
	Type 1	106	2.1
	Type 2	79	1.6

Source: National Health Insurance Corporation

Table 32. Co-Payment in NHI

Classification		Co-payment
Inpatient		10~20% of total treatment
out patient	Tertiary care hospital	Per-visit consultation fee + 50% of treatment cost
	General hospital	50% of (treatment cost + Per-visit consultation fee)
	Hospital	40% of (treatment cost + Per-visit consultation fee)
	Clinic	30% of treatment cost
	Pharmacy	30% of total cost

Sources: National Health Insurance Corporation

Table 33. Composition of Non Payment of NHI

(Unit: \$ million, %)

Classification	Number of		Amount	
	Households	Relative Ratio		Relative Ratio
Non Payment	1,992,798	100	1,655	100
No Wealth	288,280	14.5	156	9.4
Little Wealth ²⁵	1,496,181	75.0	1,256	75.9
Others	208,337	10.5	243	14.7

Sources: National Health Corporation.

²⁵ Total wealth of household should be less than \$45,000.

Table 34. The Number of Postal Offices in Nation wide

Total	4 th level	5 th level	6~7 th level	Military Post office	Semi- official Post office	Postal agency licensed postal office	Postal agency Office
3,669	118	129	1,706	25	766	85	840

Source: Korea Post 2007 Annual Report

Table 35. Outcome of Postal Finance

(Unit: \$100,000)

Year	2002	2003	2004	2005	2006	2007
Deposit received (average balance)	300,586	332,507	342,000	365,882	384,479	391,872
Insurance asset (end balance)	195,788	212,959	228,973	200,905	207,929	228,576
Total	496,356	536,943	555,000	559,489	592,408	622,269

Source: Korea Post 2007 Annual Report

Table 36. Current Public Financial Service Projects Targeting the Poor

(Unit: \$ thousands)

Organization Name	Project Name	Funds Use	Budget for 2008
Ministry of Education, Science, and Technology	Loan for school expense	Loan for school expense	2,348,600
	Fellowship for the poorest	Fellowship	59,000
Ministry of Health and Welfare	Loan for the Poor	Self support group	2,000
	Assistance for single parent family	Living expenses	2,000
	Loan for self support for the disabled	Self support for the disabled	16,000
Korea Workers' Compensation and Welfare Service	Employee	Living expenses	34,000
		Loan based on salary	20,000
	Employee with industrial disaster	School expenses	88,900
		Living expenses	11,000
Regional Credit Guarantee Foundation	Guarantee for the microenterprises	School expenses	5,100
		Guarantee for microcredit	961,036
Human Resource Development Service of Korea	School expense loan for employee	Guarantee for liquidity loan	33,552
		School expense support for SMEs worker	88,000
Korea Employment Promotion Agency for the Disabled	School expense support for SMEs worker	School expense	9,500
		Loan for living expenses	4,000

Table 36 (cont.)

(Unit: \$ thousands)

Organization Name	Project Name	Funds Use	Budget for 2008
Korea Asset Management Corporation	Transfer loan	Transfer loan	1,235,294 ²⁶
Microfinance Foundation	Microcredit for traditional market		1,000
Total			4,918,980

Source: Korea Institute of Finance

²⁶ The amount of loan by KAMCO is estimated based on the assurance multiple and assurance ratio; final amount = (actual amount * assurance multiple) / assurance ratio = (\$ 150,000 thousand * 7) / 0.83 = \$ 1,235,294 thousand.

Table 37. Examples of Social Enterprises

Type		Specific examples
Self-reliant project		Project to create social jobs (Ministry of Labor)
Social services	Support for the disabled	Program for teaching assistant for disabled children, Assistance for the severely disabled (Ministry of Health and Welfare)
	Child care & education	Project to operate local child care centers (Ministry of Health and Welfare), Clean schools , After school education (Ministry of Education and Human Resource Development)
	Patient caring	Program to send helpers to the elderly living alone, helpers for new born and their mothers (Ministry of Health and Welfare)
	Environment	Job creation in eco regions (Ministry of Environment), Project to care wood (Forest Service)
	Culture & sports	Pool of part-time instructors in traditional Korean music, Support for elderly people's sports activities (Ministry of Culture and Tourism)
	Support for youth	Support for youth after school, operation of pool of instructors for youth (Commission on Youth Protection)
	Others	Project to innovate local welfare services (Ministry of Health and Welfare)

Table 38. Trend in the State Spending on Public Sector

(Unit : \$ 1 thousand)

Classification	2007	2008	Amount increased	Ratio in increase (%)
Social Welfare	560,956	617,056	56,100	10.0
Health Care	52,892	59,421	6,529	12.3
Culture / Tour	28,619	31,652	3,033	10.6
Environment Protection	40,345	44,674	4,329	10.7
Education	314,074	355,192	41,118	13.1
Community Development	26,715	31,300	4,585	17.2

Source: The National Assembly Budget Office

Figure 10. Monitoring Game in Group Lending

	Monitor	Does Not Monitor
Monitor	H - r - m, H - r - m	b - m, H - r - c
Does Not Monitor	H - r - c, b - m	b, b

Figure 11. Commitment Problem without Meditation Procedure

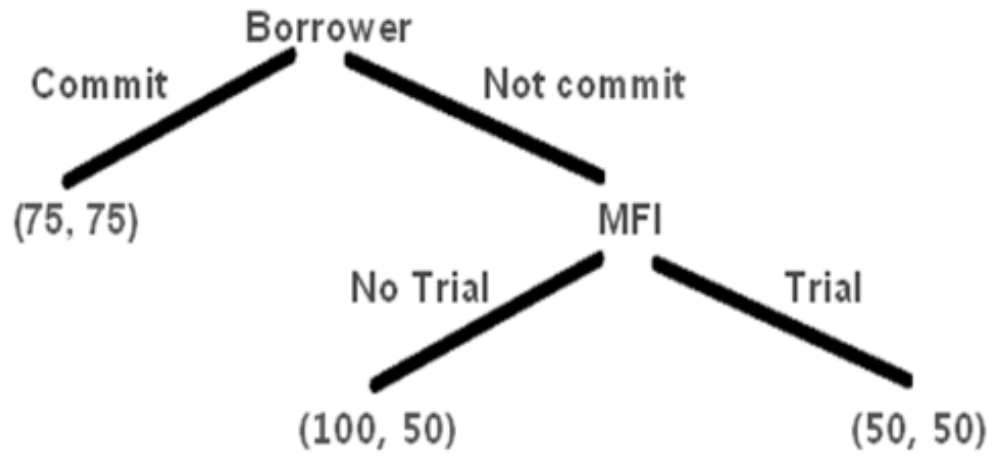
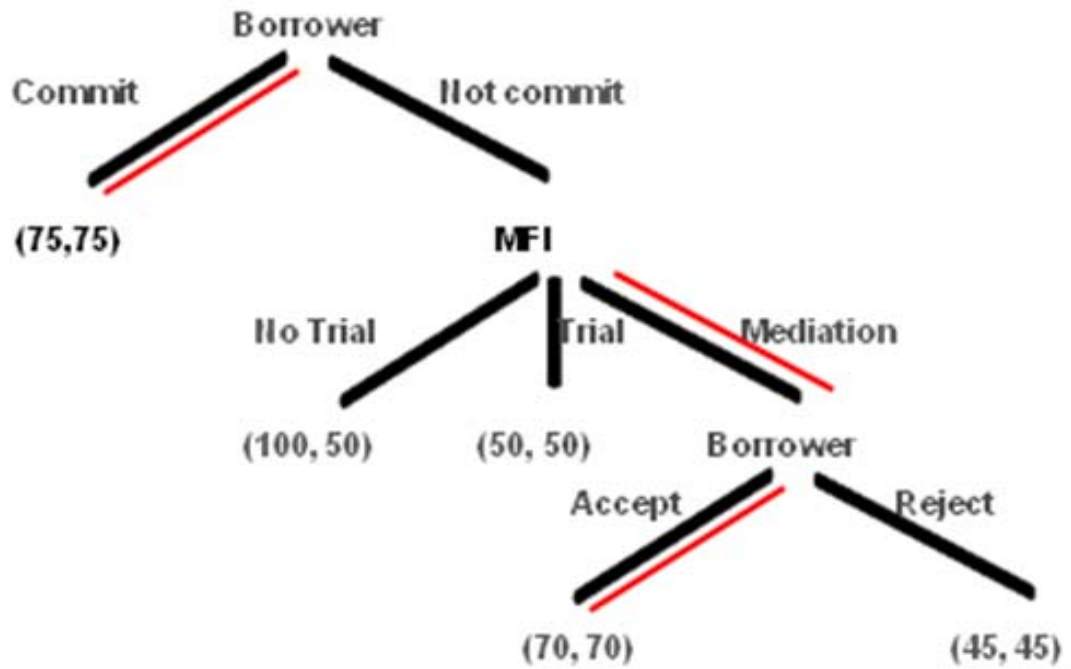


Figure 12. The Effect of the Establishment of Independent Committee



Chapter 6

Conclusion

This paper mainly focuses on finding optimal strategies for the development of microfinance in Korea and on predicting the impact of microfinance in the future.

First, this paper reviews and assesses the impact of microfinance in Korea. I suggested that recent phenomena of income polarization and credit rationing in the financial market are evidence that microfinance is needed in Korea. Although the Korean economy has made great strides, the difference in the income between the poor and the rich has gotten much greater. The foreign currency crisis in 1997 deepened income polarization and the impact is continuing. Banks choose to ration credit instead of increasing interest rate (when there was an excess demand for loans) which would lead adverse selection and moral hazards. The poor are in an inferior position when it comes to getting funds when credit ration happens because they cannot offer collateral and they need money urgently.

This paper analyzes the factors which impact up on the survival of microenterprises using two econometric methods (the logit regression model and the Cox proportional hazard model). Attributes of microenterprises, such as organizational form, sex of the owner(s), income level of the owner(s), and types of business are chosen as

independent variables which may have impact on the survival. The results from the econometric models indicate that more support should be provided when the income level of the owner(s) became less if we want to make more microenterprises survive. The direction of impact or the relative magnitudes of impact is not exactly the same between two econometric methods. Therefore, proper interpretation and fine tuning are needed in applying the results into the real microcredit world.

Next, this paper outlines the impact of microfinance on the income level of the poor and the repayment ratio of microcredit. This task is carried out by a simulation which is an agent based model. The simulation of the agent based model shows that two different policy directions are needed to guarantee the success of microfinance. First, it is necessary to magnify positive impacts. There are at least two ways this can be done. You can increase the amount of microcredit to make it easier to start businesses and you can support an increase in the yield rate of return. Minimizing negative impacts is also important. This can be done by decreasing the interest rate charged by local money lenders and closely monitoring their behavior to see if they obey the usury law.

Finally, I proposed several optimal strategies for the development of microfinance in the future. (1) Introducing and enforcing group lending, because group lending can solve two major problems in microfinance, adverse selection by assortative matching and moral hazard by monitoring group members' transactions. (2) Letting MFIs (Microfinance Institutions) carry out both microsaving and microinsurance. (3) Establishing independent committees to mediate disputes regarding microcredit issues, which can solve commitment problem. (4) Expanding microfinance services by letting

MFIs handle housing microfinance and loans for education and health care. (5)

Encouraging social enterprise to help the poor overcome their state of poverty.

In conclusion, appropriate social objectives and forward looking entrepreneurship when properly supported by MFIs can bring remarkable progress in social integration and help the poor overcome their state of poverty.

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