

# REACHING THE POOR WITH EFFECTIVE MICROCREDIT: EVALUATION OF A GRAMEEN BANK REPLICATION IN THE PHILIPPINES<sup>1</sup>

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## **Abstract**

*The Grameen Bank in Bangladesh has developed a successful model of reaching credit to resource poor households that are generally bypassed by Government financial institutions. This paper evaluates the experience of the replication of the model in the Philippines by the Center for Agriculture and Rural Development (CARD), an NGO which has disbursed P82 million to 8000 borrowers since 1990, and has succeeded in recovering the entire amount. Analysis of the data collected from 133 sample household borrowers suggests that for the enterprises financed with credit, the productivity of labor was higher than the wage rate and the rate of return was higher than the interest charged on the loan. The credit contributed to 25 percent increase in household incomes. The institution however is not yet financially viable, as the cost of operation is about 54 percent of the amount of outstanding loan. Without high rates of interest, the microcredit operations will not be able to expand*

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*their operations on a large enough scale to have a significant impact on poverty alleviation.*

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## **I. Introduction**

### **Background**

Providing credit and organizational support to the poor who do not have assets to use as collateral to formal financial institutions have been the key elements of the non-government organization's (NGO) approach to alleviation of poverty and improving livelihood in many developing countries. Although governments realize that resource-poor rural households need affordable credit to enhance household incomes, the formal financial institutions failed to reach the poor because they adhere to stringent collateral requirements, and the credit disbursement and recovery procedures are not suitable for their economic environment (Baker 1968; Adams and Vogel 1986).

The Grameen Bank in Bangladesh has developed a successful model of reaching credit to the resource poor households that are generally bypassed by government financial institutions (Hossain 1988; Khandaker 1996). The model is now being replicated in a large number of countries. The fundamental features of the Grameen Bank model are (Fuglesang and Chandler 1988,1993):

- An organizational structure that ensures that clients belong to the bottom half of the socioeconomic hierarchy.
- A credit system that is designed to be simple and adaptable to cater to the needs of the clients.

- A built-in savings mobilization component that enhances self-reliance and provides cover against business risks and natural calamities.
- A self-empowerment mechanism that provides women an opportunity to assert themselves in the households and the society.

The Center for Agriculture and Rural Development (CARD), a non-government organization has been implementing a replication of the Grameen Bank model in the Philippines, known as the Landless People's Development Fund (LPDF). CARD was organized in December 1986, with its headquarters located in San Pablo City, Laguna in Southern Luzon.

### **The scope of the study**

The main objective of the LPDF is to extend credit facilities to resource poor households for creating opportunities for productive self-employment for the vast underutilized human resource. The credit program is thus targeted to the poor for improvement of their living conditions. So, any evaluation study must investigate the extent to which the credit has reached the target group, and analyze the impact of credit on employment generation and improvement in the level of living of the borrower household.

The economic viability of the credit program from the borrowers' side depends on the rate of return of the activities that CARD members are financing with the loan. If the rate of return of capital is not high enough to cover the cost of the loan plus a premium for the risk borne in undertaking the activities, the client may not continue association with CARD and take a repeat loan, even if credit is offered to them. So it would be useful to estimate the labor productivity and profitability of the major enterprises that are financed with the loan. The rate of return on investment may also be used as a criterion for selecting enterprises that have potential for growth and or judging the absorptive capacity of the member-borrowers.

From the lender's side, the economic viability of the credit program depends on the capacity to recover the cost of operation from the interest earnings. As the clientele come from a very poor economic background, the size of the loan is typically small, and the repayments are collected in weekly installments. In addition, the Grameen Bank model follows a program of intensive training for staff and the clientele for ensuring credit discipline and promoting a social development program. All this means that the paper work and the personnel needed for servicing a given amount of loan would be substantially higher for this model of credit than under normal credit programs. So the study should analyze the cost of operation of the bank branches and relate to the size of business and the age of the bank, and estimate the start-up cost and the time required to be self-sufficient. This information may be useful to study the financial viability and the scope of expansion of the credit program.

This evaluation will mainly address the issues raised above.

### **Sources of data**

The study utilizes secondary data on financial operations provided by CARD as well as primary data collected by the authors through a survey of randomly selected borrower households.

In the absence of benchmark information on economic conditions of the borrowers, we decided to assess the economic impact by comparing situations of the old and new borrowers. Thus, the study required that the sample have representations of different age of membership with the CARD and the number of loans taken. For geographical representation we considered the intensity of poverty for selecting the branches from which to draw the sample respondents, since the objective of the credit program is to improve the livelihood of the low-income households. Considering these two factors, we selected Masbate and Laguna area for generating primary information for the borrowers. Laguna represents the old

branches and the economically better-off area, and Masbate represents the new branches and the economically depressed area. In Laguna, four centers from San Pablo and Bay branches were selected to represent different ages of the centers. In the Masbate area an old center was selected from the Masbate branch and a new center, from the Milagros branch. Thus, the primary data were generated from 133 member households belonging to six centers and four branch offices of CARD. Table 1 shows that the sample households do represent different ages of membership with CARD and the cross-section of borrowers classified by the number of loans taken.

The survey was conducted during February to April 1997. The data were collected by interviewing respondents with a structured questionnaire finalized after a pre-testing in the Bay area. It contains information on credit history of the borrowers, their socioeconomic background and asset holding, costs and returns on enterprises financed with the loan, employment and incomes generated from CARD-financed and other economic activities of the household.

## **II. Organization and Progress of the LPDF project**

### **Background to the Project**

The CARD started its operation in April 1988 with a training-focused community and livelihood assistance program for landless coconut workers (CARD 1995). It organized them into associations of more than 15 members each, assisted them in formulating systems and procedures for savings and capital build-up schemes and provided loans based on the outcome of project management training. It undertook other development activities in coordination with various agencies. These included installing deep tubewell pumps, organizing credit and multi-purpose cooperatives, and experimenting with demonstration farms for extending improved agricultural technologies to small farmers, marginal fishermen and landless workers.

The initial results on credit operation was not encouraging. Members were not able to repay the loan in time and mobilization of savings was marginal to have any

meaningful impact on the life of the members. Recognizing the weakness of the traditional scheme, CARD decided to test on a pilot basis a modified Grameen Bank model in four villages in San Pablo. Management staff and technical officers were sent for training to Grameen Bank in Bangladesh to familiarize themselves with the essential features of the Grameen. Encouraged by the successful outcome of the pilot scheme, CARD launched in January 1990 the LPDF project, adopting the essential features of Grameen, modifying some to suit the unique lifestyle and economic conditions of the Filipino landless poor. Within April 1993 it set up five branches in Laguna, Quezon, Marinduque and Masbate provinces.

### **Organization**

The following elements of the Grameen Bank model has been taken up by CARD:

- Targeting women from the low-income households as the clientele.
- Taking the bank services to the village in place of the normal practice of asking people to come to the bank to avail of the credit facilities.
- Organizing the prospective borrowers into groups of 5 like minded persons with a number of Groups (5 to 8) being federated into a Center. The Center holds a meeting on a fixed day of the week which is attended by the Field Staff of the Bank to conduct the credit business.
- Group solidarity and peer pressure are used to oversee proper utilization of the credit, which are used as the substitute for the collateral taken in normal credit programs. Group members take responsibility for repaying the loan of a defaulting member. Members are given training to ensure strict credit discipline.
- Credit is given in small sizes with progressively higher amounts for repeat loans as members gain confidence in utilizing the previous loan. The loan is repaid within a year, in weekly installments of two percent of the loan amount, so that the

repayment does not constitute a burden on the economic condition of the borrowing household.

- Developing collective funds with compulsory weekly savings of the members and five percent of the loan amount deducted upfront, for mutual benefits of the members.
- Using credit as an entry point for social development promoted by the institution among members with active involvement of the field staff.

The major differences with the Grameen model are in selecting the target group, organization of the training program, and in operation of the collective funds. CARD provides more intensive training on project management and credit disciplines to the prospective borrowers than the Grameen Bank does. In Bangladesh Grameen Bank uses the ownership of land (up to 0.2 ha) as the main criterion for selecting the target group. CARD identifies its target group on the basis of housing and marketable assets (up to ₱25,000) determined on the basis of means tests on prospective members. In Grameen the collective funds is managed by the Group while in CARD it is managed by the Center. A mutual fund is developed to provide insurance against accidents, limited old age pensions and supporting burial expenses.

### **Progress of operations**

The cumulative achievement of LPDF is shown in Tables 2 & 3. By end of March 1997, CARD has organized 9968 members into 259 Centers under 13 branches. It now serves 7324 active members, as 22% of the members initially recognized have dropped out over time (Table 3). The loans disbursed have reached ₱82.3 million of which 62.4 million have already been recovered. The loan outstanding with the borrowers have reached ₱1.94 million. The savings accumulated in the Center Fund have grown to 11.05 million which is about 55% of the loans outstanding with the borrowers.

Although CARD started the Grameen replication in 1990 most of the expansion took place over the last three years after it was able to receive a sizeable soft loan from the Grameen Trust in August 1993. By the end of 1993 it mobilized only about 1711 active members into 97 Centers through six branches. The number of outstanding loans with the members increased from ₱2.3 million in 1993 to 19.9 million by the end of March 1997. Four of the old branches now disburse over six million pesos in a year to over 800 active members, with five field staff per branch.

### **Size and type of loan**

Table 4 shows the distribution of borrowers by the number of loans taken and the expansion of the average size of loan with successive repeat loans, as estimated from the survey. Nearly 25% of the borrowers have already taken five or more loans with an average size of loan of more than ₱15,000. The first two loans are typically small, because the institution does not want to take risks with new and inexperienced borrowers. The small size of loan also allow new members to gather confidence in handling credit and explore markets. The size of loan grows fast after two years, as the members could also access loans for housing improvement.

Table 5 provides information on the distribution of current loans by the type of loans. The financial loan is the credit line that is used for undertaking economic enterprises and earns income. But members also take loans for housing improvement, financing educational cost for the children, tiding over financial crisis due to natural disasters and health-related emergencies, improving sanitary conditions, etc. These loans also have to be paid in weekly installments and bear the same rate of interest as the financial loan. The financial loan accounts for only 53% of the total loan, and hence the rate of return from investment on the credit-financed enterprises has to be substantially higher than the rate of interest in order to have the capacity to repay the other loans. Otherwise, the borrower would have to draw on the income of the other members. The emergency loans are taken mainly by the new



borrowers as they find it difficult to cope with financial crises at the low level of income. As the income generated from successive loans improves the economic capacity of the households, the need for emergency loans is reduced substantially. The older borrowers however, draw on the housing loan which is available in large sizes.

### **III. Success in Reaching the Poor with Credit**

The Grameen regards credit as a key development input and access to credit as the basic human right (Yunus 1986, 1995). It attempts to empower the poor by providing them collateral-free loans so they could generate productive self-employment by organizing economic enterprises. The success of the Grameen was in developing an appropriate credit delivery mechanism to reach the bottom 50% of the household in the socioeconomic ladder. Any evaluation of the micro-credit program should therefore first assess the extent to which the target group has been reached.

The Grameen Bank defines the target group as households owning less than 0.20 ha of land, who constitute the bottom 50% of the rural households in Bangladesh (Hossain 1988). Table 6 provides information obtained from the survey of the borrowers regarding their distribution with respect to landholding and the share of credit received by various group. It will be seen that 70% of the CARD members are completely landless and they received 63% of the financial loans and 73% of the housing loan provided by CARD. Only 24% of the CARD members have landholdings of over 0.2 ha, and 9% above one hectare. In many target group-oriented programs, the economically well-off out-of-target members influence the management of the program to have a proportionately much larger share of the resources available under the program. In CARD, the off-target group households according to the Grameen standard, however, could not monopolize the credit; their share of loans was proportional to their numbers.

CARD defines its target group with respect to the value of the house and marketable assets. Only households who have assets not exceeding ₱25,000 are eligible to become members of CARD.

Table 7 provides information on the distribution of CARD members with respect to the value of housing and their financial and housing loans. Only 29% of the households reported a value of housing over ₱25,000 and they had a share of 34% of financial loans and 39% of housing loans. It thus appears that a sizeable proportion of CARD loans go to households who are not eligible to be the members of the institution. It is not clear however whether member-households have invested in housing after becoming members of CARD which contributed to the accumulation of value above the eligibility limit. This possibility cannot be ruled out since CARD also provide loans for housing improvement.

An important factor that would affect the income earning capacity of the individual is the level of education. Table 8 provides information obtained from the survey on the distribution of the CARD members with respect to the completed year of schooling. About 42% of the members have only primary level education, and these 'human resource' poor households had a share of 33% of financial loans, and 40% of the housing loan. At the other end, 13% of members had college level education. These members should have better opportunities of finding a job in the market and higher opportunity cost of using labor in CARD financed activities. They tapped 17% of the financial loans, and 21% of housing loans, which is proportionately much higher than their numbers.

It appears from the above evidence that CARD has not been 100% successful in limiting the credit services to the extreme poor. This might have resulted from the difficulty of assessing the economic situation of the household through the means test.

#### **IV. Financial Viability at the Borrower Level**

##### **Cost of credit**

The cost of loan is fairly high in Grameen type microcredit program because of the high cost of operation (see later) arising from the highly intensive supervision required for its success. CARD charges 20% rate of interest per annum on the amount of loans disbursed and deducts upfront 4% of the loan amount as a service fee. Since the principal is repaid in 50 weekly installments starting immediately after the disbursement of the loan, the amount of outstanding loan with the borrower is less than half of the amount disbursed. Thus, the effective rate of interest comes to about 44% of the amount available for investment by the borrower (outstanding loan). The credit will contribute to increasing income of the borrowing household only if the rate of return on capital in the enterprise financed with CARD credit is higher than this effective rate of interest (Baker 1968). To assess the financial viability of the credit program at the member level, it is therefore necessary to estimate the rate of return on investment in enterprises financed with the loan.

##### **Repayment of loan**

The rate of recovery of credit and the demand for repeat loans are indirect indicators of the financial viability at the borrower level. If the member incurs loss in the business enterprise, she would not have capacity to repay the loan. If she had been forced to repay the loan from incomes of other household enterprises, she would not demand a repeat loan and would drop out from the organization, unless, of course, she finds other benefits from the association with the organization. The CARD reports an average drop-out rate of 23% (Table 3) but this occurs mostly in the first year after the members are recognized. The drop-out rate was unusually high in Marinduque branch, moderate in Masbate, Mindoro and Palanas branch and fairly low in San Pablo, Bay, Dolores and Milagros branch. The drop-out rates drop substantially after the members have taken the second loan.

CARD reports a recovery of credit within due time at over 98%. During the course of the survey the investigators were asked to check the passbook of the borrower and record the number of overdue installments not repaid at the time of the survey. No overdue installment on the financial loan was found in any of the cases. Our field investigation thus supports the CARD report on the recovery of loans.

The rate of recovery of interest charged on the loan is another indirect indicator of the financial viability of the enterprise. This information can be seen from Table 9. It will be seen that 89% of the interest due on the first loan and 84% for the repeat loans have already been recovered for housing loan, however, the repayment rate was 68%.

### **Conceptual issues in estimating rate of return for informal enterprises**

A direct indicator of the financial viability is obviously the rate of return on investment. It is difficult however to estimate the rate of return on investment fairly accurately for the informal activities financed with micro-credit for a number of reasons (Hossain 1984). First is the problem of identification of labor associated with the activity. It is usual to find a person in rural area to be engaged in more than one activity, often on the same day. To get an accurate estimate of employment, it is necessary to generate data on the allocation of labor time to these various activities. Collection of information on time allocation needs weekly surveys throughout the year, which is costly and time consuming. The problem is compounded by the fact that a household would often have more than one working members who are engaged in different activities and may be helping each other in their works. The second problem is to identify actual investment on the activity when the household is engaged in multi-enterprises. Money is fungible. The full amount of loan may not be used for the activity for which the loan is taken. It is very likely that household members would pool the available resources (from whatever source they are obtained) for operating them on the household basis.

The activities financed by micro-credit are run mostly with family labor. We need to deduct the cost of family labor from household income to estimate 'profits' and the rate of return on capital. An important conceptual problem here is how to impute the cost of family labor. Since labor market hardly exists for most of these activities, it is difficult to get information on the wage rate that could be used to impute the opportunity cost of family labor. Even if it is available, it may not approximate the opportunity cost, as the family labor utilized in these activities might not get equal employment at that wage in alternative occupations. The wage rate would have been depressed if the labor market had to absorb all the surplus labor available in the locality.

In view of the above problems the findings on rates of return reported below have to be interpreted carefully.

### **Methodology**

We collected information from respondents on the number of months different household members worked for CARD financed and other economic activities, the number of days employed in a month, and the average number of hours employed in a day, which was the basis for estimating standard eight-hour days of labor used in the enterprises. The respondents also reported average weekly income accruing to the household from CARD financed and other economic activities, which was blown up (multiplied by 52) to get yearly income. The income from land and livestock holding was estimated from input data collected on a seasonal basis.

Three alternative measures of the return from investment has been estimated, (a) net household income,  $I$ , (b) net income per unit of labor, ie, labor productivity,  $R_L$ , and (c) rate of return on capital,  $R_k$ . These have been estimated as follows:

$$I = Y - rk - L \quad (1)$$

$$R_L = I/N \quad (2)$$

$$R_k = (Y - wN)/K \quad (3)$$

where,  $Y$  = annual gross household income from the activity.

$N$  = number of standard eight-hour days of employment in the activity for all household members.

$L$  = the amount of financial loan obtained from CARD.

$K$  = own and borrowed capital used in the enterprise.

$r$  = the rate of interest on the loan (40% per year).

$w$  = wage rate or the opportunity cost of labor (₱80 per day).

The net income of the household would be the most appropriate measure of the return on micro-credit if the labor employed in the activity would have remained idle in the absence of the access to credit. At the other end,  $(I-WN)$  is the most appropriate measure of net income, if all the labor employed in the micro-credit financed enterprises could be alternatively employed in agriculture or other economic activities at the market wage rate. The actual position regarding the operation of informal enterprise is somewhere in the range depending on the economic situation in the locality. For this reason, we have estimated the net return per labor so one can compare it with one's notion of the opportunity cost of labor to make a judgment about the desirability of the investment.

The rate of return on capital would have been the most appropriate indicator for the viability of investment with micro-credit when the entrepreneur runs the activity with hired labor (a capitalist enterprise). If the rate of return were higher than the cost of investment (the rate of interest plus a risk premium), it would be profitable to make that investment. But the target group for micro-credit run the activities mostly with family labor that face inadequate and uncertain employment opportunities in the market. Hence, the rate of return on capital should not be used as an appropriate guide for the borrowers' investment decision and the latent demand for credit. Also, since the amount of investment is very small,  $R_k$  would be highly sensitive to the

assumption of the wage rate and the error of measurement on employment of labor, for which accurate information is difficult to collect.

### **Results and discussions**

The estimates of the returns from microcredit for the sample respondents, as well as for different branches are reported in Table 10. It will be seen that nearly 97% of the financial loan has been reportedly invested in the enterprise, which generated 163 days of employment during a year for the CARD member, and another 84 days for other members of the households, generating a yearly gross income of ₱34,550 (₱2,879 per month). The contribution of the credit-financed activity to net household income is estimated at ₱26,884 per annum. The labor productivity is ₱109 per day, about 36% higher than the wage rate prevailing in the market. The rate of return on investment is estimated at 117%, which is substantially higher than the effective rate of interest (46%) charged by CARD on the loan outstanding with the member. Thus, the enterprise financed with micro-credit is highly financially viable whatever indicator we use.

The rate of return varies significantly across the branches under study (Table 10). The return is the lowest for the center in the Milagros branch in Masbate. The labor productivity estimated for this branch is lower than the wage rate and the rate of return on capital is negative. But the activity adds ₱15,803 to the household income. Milagros is a new branch, and as such the amount of financial loan and the capital employed in the enterprise is small. This is a highly poverty stricken area and the CARD members have very little employment opportunities in the labor market in the locality. In spite of the low return, the members value the CARD credit highly, because it helps them increase household income by reducing underemployment of family workers. During the course of our investigation we found the members of this center highly motivated and interested in participating in the credit program.

The rate of return is found to be the highest for the center studied for the Masbate branch (Table 10). The size of financial loan is the highest for the center, and the borrowers have put up large amount of their own fund in the enterprises financed with CARD credit. An average enterprise generated 249 days of employment for the borrower, and another 91 days of employment for the husband and/or other family members, and contributed ₱46,000 additional income for the household. The labor productivity is almost 68% higher than the wage rate and the rate of return of capital is 210%. Obviously the borrowers in this Center should have no difficulty in repaying the loan. The economic performance of the members in the Masbate Center is better compared to the respondents under San Pablo and Bay branches, although the latter are older members of CARD and have taken more loans (Table 1). This is presumably because of the higher incidence of poverty and the lack of alternative employment and income earning opportunities in Masbate compared to San Pablo and Bay which have well-developed infrastructure facilities and are near to Metro Manila. It will be noted from Table 10 that for San Pablo, the share of equity in total capital employed in the enterprise is very low. The number of days labor used in the enterprise is substantially lower for both San Pablo and Bay compared to the centers in Masbate and Milagros.

Table 11 reports the estimates of the rate of return for borrowers classified on the basis of the number of loans taken. The findings show that in general the financial viability of the enterprises gets stronger with longer association of the members with the credit program. The labor productivity in enterprises run by the new borrowers (P62 per day) is, in fact, lower than the wage rate, and the rate of return on capital is negative when the cost of family labor is imputed by the market wage rate. The members who have received more than two loans have had substantially higher levels of income and employment from the CARD-financed activity. The rate of return



on capital is 117% for members who have already taken 3 to 4 loans, and 144% for those with more than 4 loans.

Table 12 reports estimates of the return from investment in specific activities undertaken with the loan. The most common activities financed with the credit are trading agricultural produce, hog raising, retail (sari-sari) store, fish drying and trading, food vending and fishing. Although hog raising is the most popular activity undertaken with the credit, the capital used was typically small and hence the contribution to household income was low, although labor productivity is substantially high. It is often undertaken as a secondary activity using only a part of the loan. The low absorptive capacity of capital in this activity may be due to the problem of marketing of the produce. The trading activities generate very high returns to both labor and capital and contributes substantially to raising household incomes. Fish drying, sari-sari store and trading agricultural produce generate a net return to capital at more than 250%.

### **The justification of the Grameen model**

The findings presented above amply demonstrates that if the micro-credit is properly utilized, the financial viability of the enterprise poses no problem. The challenge is how to ensure proper utilization of the loan and recovering the credit from the additional income accruing to the borrowers. The Grameen model of intensive interactions of the bank workers with the borrowers and developing group solidarity and exerting peer pressure through informal organization of the members are appropriate institutional innovations in this context. The Group and the Center function as an institution to ensure mutual accountability. The credibility of the Group and Center as a whole and future benefits in terms of new loans of a larger size are in jeopardy if one member breaks the credit discipline, does not properly utilize the loan and defaults on loan repayments. So, the individual is kept in line by a considerable

amount of pressure from other members of the organization. The existence of a well functioning organization thus acts as the collateral for the bank loan.

The recovery of the loan is facilitated by another institutional innovation of the Grameen, the procedure of collecting the repayments in large numbers of small regular installments. In a poor household there is always a compulsion of utilizing whatever additional income is generated to satisfy the unmet basic needs. It is difficult for such households to accumulate savings for repaying the loan at large-size installments. The key to ensuring almost 100% recovery of loans lies in collecting repayments in weekly installments.

Finally, we should not undermine the importance the Grameen model attaches to appropriate training and orientation to both prospective borrowers and the bank worker for the successful implementation of the micro-credit program. The key to the success of the Grameen model is the orientation, approach and human qualities inculcated in the bank workers through a training program based largely on 'learning by doing', that is, through the observation of and participation in the on-going activities. This helps them understand the philosophy and approach of the Grameen model of empowering the poor women through access to credit, to develop qualities required for inspiring trust and confidence in the target group, and to derive satisfaction in serving the cause of the distressed humanity. The bank worker in turn motivates the target group, earns their confidence through the hard work devoted to their service, and convinces them of the need to follow credit discipline. The intensive training before conducting bank business with the borrowers contributes to achieving this objective.

## **V. Economic Impact**

In the absence of comparable bench-mark data, the effect of the micro-credit provided by CARD on the economy of the borrower household has been estimated by classifying the respondents according to the number of loans taken and comparing

the means of the criterion variables for the old and the new borrowers. The null hypothesis of 'no difference' in the values of the variables for different groups has been tested by 't'-statistics of the equality of the arithmetic mean of the criterion variable, using the SPSS statistical package. The hypothesis will be rejected if the micro-credit leads to improvement in economic conditions of the borrowing households.

### **Capital accumulation**

The most direct effect of the micro-credit is on accumulation of capital, both working and fixed. As the loan is repaid in small installments every week, it is easy for a borrower to pay the installment from the income leaving the capital intact. A member is expected to have a larger amount of capital when taking a repeat loan than at the time of becoming a member. Table 4 shows that CARD provides a repeat loan in substantially larger amounts. Thus, it is possible for the borrower to divert some credit or incremental income for making medium and long-term investments, such as purchase of cattle or acquisition of machinery, tools and equipment. The accumulation of these assets will contribute to increasing productivity of enterprises other than those financed with the CARD loan.

The findings of the borrower survey on investment in CARD financed activity and accumulation capital in other household enterprises can be seen from Table 13. Since the borrower gets larger amount with every repeat loan, the borrowed capital was higher for longtime borrowers compared to the newer ones. But more significantly, the contribution from own sources was also substantially higher for the older borrowers. The value of livestock holding and the accumulation of capital in machinery, tools equipment went up substantially as the number of loans taken from CARD increased. The difference is found highly statistically significant, except for the value of livestock holding. The investment for improvement in housing did not increase much with larger loans for borrowers who contracted up to four loans.

However, longtime borrowers are inclined to invest substantially higher amount for housing improvements.

### **Employment generation**

The main objective of the micro-credit program is to create employment opportunities for a vast under utilized labor resource by undertaking economic activities on a self- employed basis. Any evaluation of the micro-credit program should thus quantify its impact on employment generation. However, as mentioned earlier, the effect of CARD loans on generating new employment is difficult to quantify accurately without conducting a costly and time-consuming regular employment survey throughout the year for the CARD members and a comparable control group. Instead, we asked respondents in the borrower survey to report for each family worker the number of months employed during the year, the number of days employed in a month and the number of hours employed in a day, for both credit financed and other economic activities. From this somewhat imprecise information it is possible to estimate standard eight-hour days of employment for different members of the household. Table 14 compares this information for respondents classified by the number of loans taken for the CARD member (the wife) and the spouse (the husband). The figures show large increase in employment for both wife and the husband in the credit financed activity and the difference is found statistically significant. The increase in employment for the wife in other economic activities was only marginal, and statistically insignificant. For the husband the employment effect was in fact negative. It seems that in poor households the husband is forced to overwork in low-productive activities under the pressure to earn a subsistence income. With additional income earned by the wife from the credit financed activity, he can afford to enjoy some leisure. This is the classic example of the backward bending supply curve of labor mentioned in economics literature.

The positive effect of higher employment and capital accumulated would obviously be reflected in higher incomes. The annual income from loan financed activity was 1.9 times higher for households who already contracted three to four loans, and 3.5 times higher for older borrowers compared to new borrowers (Table 15). There was also a significant increase in income from other economic activities with the increase in the number of loans.

To analyze the impact of micro-credit on income, we also fitted a multiple regression model on determinants of income and included loan taken from CARD as one of the explanatory variables. The findings are presented in Table 16. Nearly 61% of the variation in income from the credit financed activity among the respondents is explained by the investment of owned and borrowed capital, and labor provided by the CARD member and the spouse. The value of the regression coefficients indicate that the marginal productivity of labor in the credit financed activity was ₱87 per day for the CARD member and ₱87 for the spouse. The level of education had a positive effect on income only for the spouse, but the impact is not statistically significant. The older members earned higher incomes (the effect of experience) but the association is not statistically significant.

The positive impact of credit on income is shown by the statistically significant regression coefficient of borrowed capital. The value of the coefficient suggest that one peso of CARD loan generates a gross income of 3.03 pesos, that is, a rate of return of more than 200%. The results of the econometric analysis confirms the conclusion that the micro-credit provided by CARD has had a positive impact on income of the borrowing households.

## **VI. Sustainability of the Institution**

The distinguishing characteristics of the Grameen model of credit delivery is that it takes banking services to the doorsteps of the clientele for both disbursement

of loans and collection of repayments. The paper work and the staff time needed for servicing a given amount of loan are higher for Grameen compared to a normal rural credit program. The sustainability of the credit institution therefore depends on recovering the cost of administration and services from the borrowers. This section will evaluate how CARD has been coping with this problem.

### **Sources and utilization of fund**

CARD has been looking for relatively low-cost loan funds which has remained a major constraint to the expansion of the credit program (Table 17). In October 1990 it received from the Department of Agrarian Reforms a soft loan amounting to ₱262,500 to be repaid in quarterly installments over a period of seven years. The loan was free of interest. The amount was meagre in relation to the needs. CARD also mobilized a number of low-cost credit facility with a rate of interest varying from 6 to 8%, using the window of the micro-credit for the bottom poor under the Land Bank of the Philippines and the Livelihood Program Fund of the Catholic Relief Services. Again, the amount was a meagre ₱3.37 million. In 1993, the Grameen Trust of Bangladesh provided another soft loan of ₱3.81 million which carries a rate of interest of 2% and a repayment period of 10 years. These funds were inadequate in relation to CARD's capacity to lend. CARD experienced a high drop-out rate (53%) in 1995 because of its failure to serve the prospective borrowers, due to lack of loanable funds. The constraint was eased in December 1995 when CARD decided to tap a high-cost revolving loan fund from the People's Credit and Finance Corporation. An amount of P20.5 million was available from this window but it carries a rate of interest of 12% to be repaid in quarterly installments. The experience suggests that the supply of fund will remain rationed if Grameen replicators want to depend on low-cost sources, which would constrain their capacity for expansion.

Table 17 provided information on the sources of funds mobilized by CARD so far and their costs. Nearly 62% of the funds are from the high cost source. The average cost of the loanable fund was 8.3%.

Table 18 shows the trend in the utilization of fund. Total assets reached P44.3 million by March 1997. It has grown at a rate of 62% per year since 1994. The amount of income earning assets is indicated by loans and advances, which amounts to about 60% of the total assets. Interests receivable from the borrowers remained at a low level of about 6% of total assets and has declined over time because of the success of CARD in recovering in due time not only the principal but also the interest charged on the loans. As noted earlier CARD was able to recover 86% of the interest due on the loan.

### **Cost of administration**

Total operating expenses of CARD increased from P5.8 million in 1994 to P10.4 million in 1996. As a ratio of total assets, the expenses declined from 39% in 1994 to 32% in 1996. The decline in cost is the result of improvement in operation efficiency over time. The number of active borrower per bank worker increased from 148 in 1994 to 179 by March 1997, and the amount of loans and savings per bank worker increased from P327,000 to P800,000 during this period.

For 1996, the detailed structure of the cost of administering the loan operation in 1996 can be seen from Table 19. The personnel cost account for 61% of the total cost and the cost of loan fund, 8.5%. The Grameen model emphasizes heavily on the training of the prospective borrowers and the bank workers. CARD was able to keep the cost of this human resource development activity at a relatively low level of about 5.3% of the total cost. The cost on this account is however expected to go up with the expansion of the program.

Because CARD's activity centers around the mobilization of the poor and the administration of loans to them, the cost of its operation should be related to the

amount of loans and advances rather than to total funds (assets) handled by CARD. This information is also shown in Table 19. In 1996, the personnel cost accounted for 17.6% of the amount of loans disbursed, and the total cost 28.9%. Since CARD charges 24% administrative fee (20% interest on loans and 4% service fee) at a flat rate on the amount of loans disbursed it incurs a financial loss of 17% on the loan operation.

The effective rate of interest to the borrower is the interest charged per unit of outstanding loans, as this is the amount available to supplement the capital employed in the enterprise. The personnel cost accounted for 33% of the amount of outstanding loan, and total cost 54% against the 46% rate of interest earned on this performing asset. It should be noted here that the cost of funds amounts to only 4.6% of the outstanding loan. For judging economic viability we need to estimate the opportunity cost of the loan fund rather than actual cost which includes grants and concessionary funds (Yaron 1992). If CARD has borrowed the entire loanable fund from the high cost source, this cost would rise to 12%. At this cost of loan fund, the operating expenses would increase to 61.4% of the amount of outstanding loan, and the loss on account of loan operation would increase to 25% of total expenses.

### **Financial viability of the branches**

It should however be recognized that during the expansion phase of the credit program new branches would be opened every year. These branches will take time to reach full operation but have a fixed start up cost. For older branches, the cost of operation may be lower, as these branches should be able to expand their business without adding much to the total cost. Branch level cost function estimated for Grameen Bank branches in Bangladesh suggested existence of economies of scale in the operation of the credit program (Khandaker, Khalilli and Khan 1995).

In order to see the extent to which CARD branches reap economies of scale with age, detailed information on the amount of business and the structure of cost for



the eight branches under operation till the end of 1996 is provided in Table 20. Four old branches - San Pablo, Bay, Dolores and Marinduque has reached an average business size of about ₱3.03 million of outstanding loans. At this size of business, the personnel cost comes to 18.1% of the amount of outstanding loan, cost of fund 8.6%, and other expenses 6.2%. If all branches operated at this level, the overhead cost on account of the head office would come down to 12.3%. The total cost of loan operation thus would be about 45.2%, almost equal to 46% rate of interest earned on the amount of outstanding loan. The loss that CARD incurs is thus on account of branches which are yet to mature.

As mentioned earlier the cost of operation would increase further if CARD had borrowed all of the loan funds from the People's Credit and Finance Corporation at 12% rate of interest. To cover this cost, a branch needs to expand its business (outstanding loan) to P3.5 million, and will have to lend P6.5 million to reach that level. Our perceived characteristics of such a viable branch is shown in Table 21. A viable branch should have at least 30 centers and 900 active members with an average loan size of P8000 per borrower to become financially viable. It takes four to five years for a branch to reach that level. The loss incurred by branches before they reach the break-even level must be covered from some source, in order for the institution to be sustainable.

## VII. Summary and Conclusions

The Center for Agriculture and Rural Development has been implementing since 1990 a slightly modified Grameen approach to delivery of micro-credit for alleviation of poverty. It adopts the essential features of Grameen such as targeting poor women as the clientele; organizing borrowers in small homogeneous groups to develop group solidarity and peer pressure to ensure effective utilization and recovery of loans; collecting the principal in small regular weekly installments so that the repayment does not put pressure on low-income households; developing collective funds with compulsory savings from borrowers for their mutual benefit to cope with financial crisis and saving them from the clutches of usurious moneylenders at times of emergency; and promoting social development of members using credit as an entry point. The modification has been in the area of training of borrowers and bank workers, and in the management and utilization of the collective fund that suit the unique lifestyle and economic conditions in the low-income Filipino.

By March 1997, CARD has mobilized through 13 branches over 7000 members and disbursed ₱82.3 million of which 76% has already been recovered. The amount of outstanding loans with borrowers has reached ₱20 million, and savings in the members' collective funds at ₱11 million. A survey of 133 borrowers selected from four branches, conducted for this evaluation, shows that CARD has largely succeeded in reaching low-income households with credit. Nearly 70% of its borrowers have no access to land and have very poor housing worth less than ₱25,000, and they received a share of loans proportional to their numbers. Only 13% of the CARD borrowers have college level education, and 9% had landholding of over one hectare. The average size of a loan taken by a borrower was ₱9,500 of which ₱4,940 was financial loan used for running enterprises on a self-employed basis. The most common enterprises are trading agricultural produce, hog-raising, retail stores, fishing, fish drying and trading, and food vending.

The average labor productivity in enterprises financed with the loan was ₱107 per day, 34% higher than the market wage rate of ₱80 per day. The rate of return on capital was 117% compared to 46% rate interest charged by CARD on the amount of outstanding loan. These enterprises add ₱2240 per month to household income, which comprise 25% of the total income of the borrowing households. Employment, income and labor productivity increases with the number of repeat loans taken from CARD.

In spite of the high rate of interest charged on the loan CARD has not yet been able to cover its operating expenses, because of the high cost of operation of this intensively supervised credit program. In 1996, the cost of administration was 29% of the amount of loans disbursed, and 54% of the amount of outstanding loans with the borrowers, which led the institution to incur a financial loss of 17% of total expenses. It is however found that a branch that reaches a business size of P3.0 million of outstanding loan can recover its cost from the interest earned. It takes four to five years for a branch to achieve financial viability.

It is natural for any Grameen replication to incur losses during the period of expansion and consolidation, due to the high start-up cost of opening new branches and four to five years taken to reach the break even level. CARD has so far covered the loss by mobilizing small amount of grants from sympathetic donors and drawing on available low-cost sources of fund. But it is a key constraint to the expansion of its operation.

Since the microcredit has been effective in improving the livelihood of the low-income households, the government should mobilize adequate donor support on behalf of the replicators to reduce the cost of loan funds, so they could minimize the financial losses. The micro credit institutions should encourage borrowers to undertake small scale production activities through subcontracting arrangements with large-scale business enterprises who could benefit from the low opportunity cost of

labor for the borrower households. This would help increase absorptive capacity of capital and reduce the time needed by branches to achieve financial viability. The government should not control the rate of interest charged by replicators in microcredit operations. Without high rate of interest the microcredit operators would not be able to expand the operation on a large enough scale to have a significant impact on poverty alleviation.

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Table 1. Age of membership and loans taken for sample respondents: by branch.

| Branches        | No. of members | Year of establishing the branch | No. of years of membership | No. off loans |
|-----------------|----------------|---------------------------------|----------------------------|---------------|
| San Pablo (old) | 29             | Jan. 1990                       | 7.1                        | 4.1           |
| Bay (old)       | 35             | June 1990                       | 6.3                        | 3.6           |
| Masbate (old)   | 39             | April 1991                      | 4.3                        | 3.1           |
| Milagros (new)  | 30             | June 1995                       | 2.5                        | 2.0           |

Source: IRRI field survey.

Table 2. Cumulative achievement of LPDF up to March, 1997.

|                                 | Up to March 1997 | Up to December 1993 |
|---------------------------------|------------------|---------------------|
| No. of branches under operation | 13               | 6                   |
| No. of Centers organized        | 259              | 97                  |
| No. of Groups formed            | 1,654            | 386                 |
| No. of recognized members       | 9,968            | 2,214               |
| No. of active members           | 7,324            | 1,711               |
| Total loans disbursed (000 P)   | 82,266           | 9,076               |
| Total loans recovered           | 62,394           | 6,815               |
| Amount of outstanding loan      | 19,872           | 2,261               |
| Accumulated center fund         | 11,048           | 463                 |

**Source:** CARD.

Table 3. Progress in the operation's of LPDF, 1990-96.

| Year | Loans<br>disbursed     | Loans<br>outstanding | Accumulated<br>Members'<br>savings | Accumulated<br>center<br>fund | No. of<br>member<br>recognized | No. of<br>active<br>members | Drop-out<br>rate<br>(%) |
|------|------------------------|----------------------|------------------------------------|-------------------------------|--------------------------------|-----------------------------|-------------------------|
|      | ------(000 Peso) ----- |                      |                                    |                               |                                |                             |                         |
| 1990 | 1021                   | 506                  | 16                                 | 108                           | 350                            | 307                         | 12.3                    |
| 1991 | 1077                   | 577                  | 38                                 | 229                           | 279                            | 161                         | 42.3                    |
| 1992 | 2905                   | 1509                 | 127                                | 507                           | 598                            | 481                         | 19.6                    |
| 1993 | 4073                   | 2261                 | 292                                | 970                           | 987                            | 762                         | 22.8                    |
| 1994 | 11163                  | 6128                 | 781                                | 2477                          | 2297                           | 1836                        | 20.0                    |
| 1995 | 16930                  | 9626                 | 1401                               | 4982                          | 1482                           | 693                         | 53.3                    |
| 1996 | 35913                  | 19421                | 2372                               | 8715                          | 3275                           | 2604                        | 20.0                    |

Source: CARD, 1997.

Table 4. Distribution of respondents and loans by number of loans taken.

| No. of<br>loans taken | Respondents |              | Ave. size<br>of loan |
|-----------------------|-------------|--------------|----------------------|
|                       | No.         | Percent      |                      |
| Nil                   | 1           | 0.01         | 0                    |
| One                   | 21          | 15.8         | 2157                 |
| Two                   | 28          | 21.1         | 4368                 |
| Three                 | 26          | 19.6         | 8612                 |
| Four                  | 23          | 17.3         | 10543                |
| Five                  | 27          | 20.3         | 17567                |
| Six                   | 6           | 4.5          | 17167                |
| Seven                 | 1           | 0.01         | 37000                |
| <b>Total</b>          | <b>133</b>  | <b>100.0</b> | <b>9386</b>          |

Source: IRRI Field Survey.



Table 5. Distribution of current loans by type and age of membership.

| No. of loans taken | Financial loan  | Housing loan   | Educational loan | Emergency loan | Total loan       |
|--------------------|-----------------|----------------|------------------|----------------|------------------|
| Up to two          | 1640<br>(48.9)  | 840<br>(25.1)  | 202<br>(6.0)     | 670<br>(20.0)  | 3352<br>(100.0)  |
| Three to four      | 4449<br>(46.8)  | 3776<br>(39.7) | 447<br>(4.7)     | 847<br>(8.9)   | 9513<br>(100.0)  |
| Five & more        | 10500<br>(58.1) | 5735<br>(31.7) | 435<br>(2.4)     | 1398<br>(7.7)  | 18068<br>(100.0) |
| Total              | 4940<br>(52.6)  | 3173<br>(33.9) | 352<br>(3.8)     | 921<br>(9.8)   | 9386<br>(100.0)  |

Note: Figures within parentheses are percent of total loans.

Source: IRR I Field Survey.

Table 6. Distribution of borrowers and loans by size of landholding.

| Landholding groups (ha) | Percent of borrowers | Share of financial loan | Share of housing loan |
|-------------------------|----------------------|-------------------------|-----------------------|
| Nil                     | 69.9                 | 63.9                    | 72.8                  |
| Up to 0.20              | 4.5                  | 4.6                     | 2.4                   |
| 0.21-0.50               | 12.0                 | 18.0                    | 15.6                  |
| 0.51-1.00               | 4.5                  | 3.5                     | 4.3                   |
| 1.00 & above            | 9.0                  | 9.7                     | 5.0                   |
|                         | 100.0                | 100.0                   | 100.0                 |

Source: IRR I field survey.

Table 7. Distribution of borrowers and loans by value of housing.

| Value of housing<br>(000 ₪) | Percent of<br>borrowers | Share of<br>financial loan | Share of<br>housing loan |
|-----------------------------|-------------------------|----------------------------|--------------------------|
| Up to 2.0                   | 15.0                    | 22.9                       | 21.3                     |
| 2.01-5.0                    | 11.3                    | 7.2                        | 4.3                      |
| 5.01-10.0                   | 18.8                    | 19.6                       | 13.0                     |
| 10.01-25.0                  | 25.6                    | 16.1                       | 22.0                     |
| 25.01-50.0                  | 21.9                    | 24.2                       | 28.7                     |
| 50.01 & above               | 7.5                     | 9.9                        | 10.7                     |

Source: IRRI field survey.

Table 8. Distribution of borrowers and loans by educational status of the member.

| Educational status<br>(No. of years in schooling) | Percent of<br>borrowers | Share of<br>financial loans | Share of<br>housing loan |
|---|-------------------------|-----------------------------|--------------------------|
| Up to 3   | 7.5                     | 2.4                         | 7.1                      |
| 4-6   | 34.5                    | 31.0                        | 33.4                     |
| 7-10  | 45.1                    | 49.5                        | 38.2                     |
| 11-14   | 12.8                    | 17.0                        | 21.3                     |
| Total   | 100.0                   | 100.0                       | 100.0                    |

Source: IRRI field survey.

Table 9. Repayment of interests on the loan, up to March, 1997.

| Type of loan    | Amount of loan<br>(000 ₱) | Administrative fee charged<br>(000 ₱) | Administrative fee recovered<br>(000 ₱) | Rate of recovery (%) |
|-----------------|---------------------------|---------------------------------------|---|----------------------|
| Financial loan  | 61,935                    | 10,880                                | 9214                                    | 84.6                 |
| First loan      | (12117)                   | (1121)                                | (1000)                                  | 89.2                 |
| 2nd to 5th loan | (49818)                   | (9759)                                | (8214)                                  | 84.2                 |
| Housing loan    | 15430                     | 3087                                  | 2106                                    | 68.2                 |
| Other loans     | 4901                      | 1081                                  | 912                                     | 84.3                 |

Source: CARD.

Table 10. Rate of return on labor and capital: By Branch.

| Items                       | San Pablo    | Bay         | Masbate     | Milagros    | Total       |
|-----------------------------|--------------|-------------|-------------|-------------|-------------|
| (No. of cases)              | (29)         | (35)        | (39)        | (30)        | (133)       |
| Gross income (₱/annum)      | 34,766       | 23,454      | 55,060      | 20,644      | 34,550      |
| <b>Total capital (₱)</b>    | <b>6,776</b> | <b>6703</b> | <b>8983</b> | <b>4227</b> | <b>6814</b> |
| Equity                      | 879          | 2646        | 2985        | 1127        | 2017        |
| Loan                        | 5,897        | 4,057       | 5,948       | 3,100       | 4797        |
| <b>Financial loan (₱)</b>   | <b>5414</b>  | <b>5143</b> | <b>5782</b> | <b>3150</b> | <b>4940</b> |
| <b>Employment (days/yr)</b> | <b>212</b>   | <b>164</b>  | <b>340</b>  | <b>256</b>  | <b>247</b>  |
| Wife                        | 144          | 57          | 249         | 194         | 163         |
| Husband                     | 38           | 63          | 60          | 59          | 56          |
| Other members               | 30           | 44          | 31          | 3           | 28          |
| Household income (₱/annum)  | 26,642       | 15,630      | 45,685      | 15,803      | 26,884      |
| Labor productivity (₱/day)  | 126          | 95          | 134         | 62          | 109         |
| Return on capital (%)       | 162          | 54          | 210         | -96         | 117         |

**Source:** Authors' estimate from IRRRI field survey.

Table 11. Rate of return on labor and capital: By number of loans taken by the borrower.

| Items                          | No. of loans taken |             |              |
|--------------------------------|--------------------|-------------|--------------|
|                                | Up to two          | 3 to 4      | 5 & more     |
| No. of cases                   | 50                 | 49          | 34           |
| Gross income (₱/annum)         | 13382              | 38307       | 60341        |
| <b>Total capital (₱)</b>       | <b>2138</b>        | <b>7508</b> | <b>12691</b> |
| Equity capital                 | 498                | 2671        | 3309         |
| Borrowed capital               | 1640               | 4837        | 9382         |
| <b>CARD loan</b>               | <b>1640</b>        | <b>4449</b> | <b>10500</b> |
| <b>Employment (days/yr)</b>    | <b>176</b>         | <b>275</b>  | <b>366</b>   |
| Wife                           | 127                | 192         | 219          |
| Husband                        | 28                 | 68          | 83           |
| Other members                  | 21                 | 15          | 64           |
| Household income (₱/annum)     | 10837              | 30855       | 44764        |
| Labor productivity (₱/day)     | 62                 | 112         | 122          |
| Capital productivity (Percent) | -135               | 117         | 144          |

**Source:** Authors' estimates from IRRI field survey.

Table 12. Rate of return on labor and capital by activity.

| Activity                     | No. of cases | Total capital invested (₱) | Net household income (₱) | Labor productivity | Return on capital (%) |
|------------------------------|--------------|----------------------------|--------------------------|--------------------|-----------------------|
| Hog raising                  | 24           | 3,000                      | 11,040                   | 197                | 113                   |
| Trading agricultural produce | 25           | 9,000                      | 43,746                   | 160                | 260                   |
| Sari-sari store              | 15           | 6,000                      | 25,238                   | 184                | 248                   |
| Fish drying and trading      | 11           | 8,100                      | 53,468                   | 195                | 383                   |
| Food vending                 | 7            | 5,400                      | 18,483                   | 128                | 137                   |
| Fishing                      | 5            | 6000                       | 16,024                   | 88                 | 26                    |
| Bakery                       | 3            | 34000                      | 30,400                   | 83                 | 3                     |
| Dressmaking                  | 4            | 5000                       | 17,000                   | 93                 | 87                    |
| Transport                    | 2            | 10,000                     | 17,528                   | 162                | 104                   |

**Source:** Authors' estimates based on IRRI field survey.

Table 13. Effect of LPDF operations on investment and fixed assets.

| Items                                      | No. of loans taken |        |          | Difference (Peso)            |                                |
|--|--------------------|--------|----------|------------------------------|--------------------------------|
|  | Up to two          | 3 to 4 | 5 & more | 3 to 4<br>over<br>two & less | 5 & more<br>over<br>two & less |
| Investment in CARD<br>financed activity:   |                    |        |          |                              |                                |
| Own capital                                | 498                | 2671   | 3309     | 2173*<br>(1.81)              | 2811**<br>(3.27)               |
| Borrowed capital                           | 1640               | 4837   | 9382     | 3197**<br>(6.14)             | 7742**<br>(6.31)               |
| Value of livestock<br>holding              | 7945               | 9526   | 10409    | 1581<br>(0.65)               | 2464<br>(0.70)                 |
| Value of machinery,<br>tools and equipment | 943                | 7796   | 14682    | 6853**<br>(2.10)             | 13793**<br>(3.03)              |
| Value of housing                           | 30,250             | 32,562 | 57,863   | 2,312<br>(0.22)              | 27,613**<br>(2.09)             |

Note: Figures within parentheses are estimated 't' values of the difference in means.

\*\* denotes that the hypotheses of equality of means is rejected at 5% error and \*, at 10%.

Source: IRRRI field survey.

Table 14. The effect of LDPF operations on employment of the member and the spouse, 1997.

| Working member<br>of the household | No. of loans taken |        |          | Difference (No. of day)      |                |
|------------------------------------|--------------------|--------|----------|------------------------------|----------------|
|                                    | Up to two          | 3 to 4 | 5 & more | 3 to 4<br>over<br>two & less | 5 & more       |
| LDPF activity (days/yr)            |                    |        |          |                              |                |
| Wife                               | 117                | 184    | 201      | 67**<br>(2.01)               | 84**<br>(2.20) |
| Husband                            | 28                 | 67     | 81       | 39*<br>(1.77)                | 53**<br>(2.16) |
| Other activities (days/yr)         |                    |        |          |                              |                |
| Wife                               | 98                 | 135    | 138      | 37<br>(1.25)                 | 40<br>(1.23)   |
| Husband                            | 308                | 316    | 245      | 8<br>(0.28)                  | -63*<br>(1.89) |

**Note:** Employment is measured in standard eight-hour working days.

Many respondents reported working more than eight hours per day.

Figures within parentheses are estimated 't' values. \*\* denotes that the hypotheses of equality of means rejected at 5% probability error, and \*, at 10%.

Source: IRRl field survey.

Table 15. The effect of LPDF operations on members' income, 1997.

| Source of income                              | No. of loans taken |         |          | Percent difference     |                          |
|---|--------------------|---------|----------|------------------------|--------------------------|
|   | Up to two          | 3 to 4  | 5 & more | 3 to 4 over two & less | 5 & more over two & less |
| Annual income from loan financed activity (₱) | 13,332             | 38,308  | 60,314   | 187**<br>(3.44)        | 352**<br>(4.61)          |
| Annual income from other activity (₱)         | 51,118             | 77,257  | 108,229  | 51*<br>(1.74)          | 112*<br>(3.45)           |
| Total annual income (₱)                       | 64,450             | 115,565 | 159,953  | 79**<br>(3.17)         | 148**<br>(4.83)          |

Note: Figures within parentheses are estimated 't' values of the differences in means.

\*\*denotes that the hypothesis of equality of means is rejected at 5% probability error, and

\*denotes at less than 10%.

Source: IRRRI field survey.

Table 16. The effect of LPDF loan on income: Regression estimates.

| Explanatory variables | Regression coefficient | 't' value |
|-----------------------|------------------------|-----------|
| Members' labor        | 86.6                   | 4.06**    |
| Spouse's labor        | 58.1                   | 1.83*     |
| Other members' labor  | 0.1                    | 0.02      |
| Own capital           | 2.39                   | 4.26**    |
| Borrowed capital      | 3.03                   | 4.16**    |
| Education of member   | -810                   | -0.67     |
| Education of spouse   | 725                    | 0.55      |
| Age of the member     | 125                    | 0.37      |
| Constant term         | -5772                  | -0.29     |
| R square              | 0.61                   |           |
| F-value               | 20.9                   |           |

Note: The dependent variable is annual income from the CARD financed activity.

\*\* denotes that the regression coefficient is statistically significant at 5% error, and

\* at 10%.

Source: IRRRI field survey.

Table 17. Sources and costs of funds, up to March 1997.

| Source of fund                             | Amount received<br>('000 peso) |         | Outstanding balance |              | Rate of interest<br>(% per year) |
|--|--------------------------------|---------|---------------------|--------------|----------------------------------|
|  | Amount                         | % share | Amount              | % share      |                                  |
| Department of Agrarian reforms             | 262.5                          | 0.8     | 37.5                | 0.2          | 0.0                              |
| Catholic relief services                   | 1147.8                         | 3.5     | 697.8               | 3.4          | 6.0                              |
| DTI/Development Bank                       | 2000.0                         | 6.0     | 0.0                 | 0.0          | 12.0                             |
| Landbank of the Philippines                | 2200.0                         | 6.6     | 911.8               | 4.5          | 8.0                              |
| People's credit and<br>Finance Corporation | 20459.5 <sup>a</sup>           | 61.5    | 11460.4             | 56.5         | 12.0                             |
|  | 3241.5 <sup>b</sup>            | 9.7     | 3241.5              | 16.0         | 3.0                              |
| Oxfam America                              | 255.0                          | 0.8     | 255.0               | 1.3          | 10.0                             |
| Grameen Trust                              | 3709.2                         | 11.1    | 3678.3              | 18.1         | 2.0                              |
| <b>Total</b>                               | <b>33275.5</b>                 |         | <b>20282.3</b>      | <b>100.0</b> | <b>8.3</b>                       |

<sup>a</sup>Revolving credit line (available since December, 1995)

<sup>b</sup>Soft loan for administration of program.

Source: CARD.



Table 18. Trends in the utilization of funds (thousand peso), 1994 to 1996.

| Items                         | 1994           | 1995            | 1996            | Up to March 1997 |
|-------------------------------|----------------|-----------------|-----------------|------------------|
| Cash balance                  | 1920           | 1908            | 6720            | 9983             |
| Loans and advances            | 7721<br>(51.8) | 13069<br>(61.6) | 19360<br>(59.0) | 26757<br>(60.5)  |
| Administrative fee receivable | 1146<br>(7.7)  | 1735<br>(8.2)   | 2063<br>(6.3)   | 2466<br>(5.6)    |
| Fixed assets & inventory      | 3932           | 4461            | 4610            | 5046             |
| Others                        | 189            | 39              | 63              | 213              |
| <b>Total assets</b>           | <b>14908</b>   | <b>21212</b>    | <b>32816</b>    | <b>44252</b>     |

Note: Figures within parentheses are percentages of total assets.  
Source: Financial Reports of CARD.

Table 19. The cost structure for LDPF operation, 1996.

| Items   | Costs<br>(000 ₱) | Costs as percent of |                     |                   |
|---|------------------|---------------------|---------------------|-------------------|
|   |                  | Current<br>assets   | Outstanding<br>loan | Loan<br>disbursed |
| Personnel cost                                      | 6331             | 22.5                | 32.9                | 17.6              |
| Training  | 555              | 2.0                 | 2.9                 | 1.6               |
| Maintenance rent &<br>depreciation of capital items | 807              | 2.9                 | 4.2                 | 2.2               |
| Transport, travel & supplies                        | 694              | 2.5                 | 3.6                 | 1.9               |
| Other administrative expenses                       | 1119             | 4.0                 | 5.8                 | 3.1               |
| Cost of fund  | 888              | 3.1                 | 4.6                 | 2.5               |
| <b>Total expenses</b>                               | <b>10394</b>     | <b>36.9</b>         | <b>54.0</b>         | <b>28.9</b>       |

Source: Estimated from CARD Financial Reports.

Table 20. The cost structure of LDF operation at the branch level, 1996.

| Branch              | Loan receivable | Personnel cost | Cost of fund | Other expenses | Cost as % of loan receivable |              |             |             |
|---------------------|-----------------|----------------|--------------|----------------|------------------------------|--------------|-------------|-------------|
|                     |                 |                |              |                | Personnel                    | Cost of fund | Others      | Total       |
| <b>Old branches</b> | <b>3030</b>     | <b>548</b>     | <b>262</b>   | <b>187</b>     | <b>18.1</b>                  | <b>8.6</b>   | <b>6.2</b>  | <b>32.9</b> |
| San Pablo           | 2971            | 494            | 239          | 146            | 16.6                         | 8.0          | 4.9         | 29.6        |
| Dolores             | 3141            | 540            | 278          | 152            | 17.2                         | 8.9          | 4.9         | 30.9        |
| Bay                 | 2903            | 524            | 272          | 213            | 18.1                         | 9.4          | 7.3         | 34.8        |
| Marinduque          | 3104            | 634            | 259          | 238            | 20.4                         | 8.3          | 7.7         | 36.4        |
| <b>New branches</b> | <b>1765</b>     | <b>608</b>     | <b>186</b>   | <b>271</b>     | <b>33.8</b>                  | <b>10.4</b>  | <b>15.1</b> | <b>59.3</b> |
| Palanas             | 1999            | 578            | 136          | 160            | 28.9                         | 6.8          | 8.0         | 43.7        |
| Masbate             | 2543            | 708            | 266          | 415            | 28.9                         | 10.8         | 16.9        | 56.6        |
| Milagros            | 1320            | 530            | 122          | 177            | 40.2                         | 9.2          | 13.4        | 62.8        |
| Mindoro             | 1317            | 617            | 218          | 331            | 46.8                         | 16.6         | 25.1        | 88.5        |
| <b>All branches</b> | <b>19324</b>    | <b>4625</b>    | <b>1790</b>  | <b>1835</b>    | <b>23.9</b>                  | <b>9.3</b>   | <b>9.5</b>  | <b>42.7</b> |
| <b>Head Office</b>  | <b>19421</b>    | <b>1654</b>    | <b>-</b>     | <b>1344</b>    | <b>8.5</b>                   | <b>-</b>     | <b>6.9</b>  | <b>15.4</b> |

Note: Figures within parentheses are Head Office cost at the level of business for viable branches.  
Source: Estimated from CARD Financial Reports.

Table 21. Characterization of a financially viable branch.

| <b>Resources:</b>                 |             |                             |
|-----------------------------------|-------------|-----------------------------|
| No. of field staff                |             | 5                           |
| Amount of outstanding loan (P000) |             | 3500                        |
| Amount of RPA released (P000)     |             | 6500                        |
| No. of active members             |             | 900                         |
| No. of centers                    |             | 30                          |
| Borrowers as % of active member   |             | 90                          |
| Average size of loan (Peso)       |             | 8000                        |
| Cost structure                    | (P000)      | Percent of outstanding loan |
| Branch level                      |             |                             |
| Personnel cost                    | 600         | 17.1                        |
| Other expenses                    | 226         | 6.4                         |
| Cost of fund                      | 420         | 12.0                        |
| Head office overhead              |             |                             |
| Personnel cost                    | 200         | 5.7                         |
| Other expenses                    | 168         | 4.8                         |
| <b>Total cost</b>                 | <b>1614</b> | <b>46.0</b>                 |

Source: Authors' estimates.