

# FREEDOM FROM HUNGER

RESEARCH  
PAPER NO. 5

*Impact of Credit with Education on Mothers and  
Their Young Children's Nutrition:  
CRECER Credit with Education Program in Bolivia*

Barbara MckNelly and Christopher Dunford  
in collaboration with the Program in International Nutrition,  
University of California, Davis, California

*December 1999*

## Contents

Executive Summary .....	1
1.0 Introduction .....	7
2.0 Impact Evaluation	
Design and Methods .....	11
3.0 Survey Results:	
Characteristics of the Respondent	
Sample Groups .....	16
4.0 Intermediate Benefits:	
Women's Economic Capacity .....	20
5.0 Intermediate Benefits:	
Women's Health/Nutrition	
Knowledge and Practice .....	41
6.0 Intermediate Benefits:	
Women's Empowerment .....	62
7.0 Ultimate Impact:	
Nutritional Status and	
Food Security .....	72
Résumé Analytique .....	91
Resumen Ejecutivo .....	98
Bibliography .....	105
Index of Figures and	
Tables .....	106
Appendix A .....	111

This evaluation research was conducted with the support of the Thrasher Research Fund Innovation Grant Award #02902-5. Additional support was received from the Nutrition Division of UNICEF/New York and PLAN International.

© 1999 Freedom from Hunger.  
No part of this document may be reproduced without the express written permission of Freedom from Hunger.

*Credit with Education* is a  
service mark of  
Freedom from Hunger.

## *Freedom from Hunger's Mission*

Founded in 1946, Freedom from Hunger promotes "Self-Help for a Hungry World." Freedom from Hunger brings innovative and sustainable self-help solutions to the fight against chronic hunger and poverty. Together with local partners, we equip families with resources they need to build futures of health, hope and dignity.

### *Credits*

Design  
Michael Curry/  
Donna Justice

*Freedom*  
from **Hunger**

1644 DAVINCI COURT  
DAVIS, CA 95617  
(530) 758-6200  
FAX (530) 758-6241  
info@freedomhunger.org

## Acknowledgements

The authors would like to thank the many people who made this multi-year research evaluation effort possible. In Bolivia, the authors are grateful to Robert Ridgley, Isabel Rueda and Isabel Huanca as well as many other CRECER field staff for helping to coordinate these evaluation activities within the context of very busy and ambitious program operations. Dr. Enriqueta Valdez did a tremendous job training and supporting teams of very dedicated and hardworking interviewers in both the baseline and follow-up periods. Staff and community health volunteers working with PLAN/Bolivia also played critical supportive roles that included a house-by-house census of all young children in the study communities.

Special thanks and acknowledgement also go to our collaborators at the Program in International Nutrition (PIN) at the University of California, Davis. Drs. Kay Dewey and Ken Brown provided excellent suggestions and guidance on design methodologies and instrument development. PIN statistician Jan Peerson offered invaluable assistance with the data analysis.

This report also benefited greatly from the excellent editing of Christine M. Dodson and Wava Haggard as well as the tireless word processing and formatting by Julie Uejio.

The authors would also like to thank the Freedom from Hunger translation team led by Sonia Reed, with a special thanks to Diana Salazar Lowe, Paul Salazar and Laura Gonzáles Fierro.

This research was made possible through support provided by the Thrasher Research Fund's Innovation Grant Award #02902-5, the Nutrition Division of UNICEF/New York and PLAN/International. The authors appreciate the spirit of collaborative questioning and investigation by certain key individuals within these organizations such as Delores McLaughlin at PLAN/International and Urban Jonsson, formerly of UNICEF/New York.

# IMPACT OF *CREDIT WITH EDUCATION* ON MOTHERS AND THEIR YOUNG CHILDREN'S NUTRITION: CRECER *CREDIT WITH EDUCATION* PROGRAM IN BOLIVIA

BARBARA MCKNELLY AND CHRISTOPHER DUNFORD  
IN COLLABORATION WITH THE PROGRAM IN INTERNATIONAL NUTRITION,  
UNIVERSITY OF CALIFORNIA, DAVIS

## EXECUTIVE SUMMARY

Since 1989, Freedom from Hunger has worked with local partners to develop and disseminate a cost-effective integrated program strategy called *Credit with Education*.<sup>1</sup> The goal of *Credit with Education* is to improve the nutritional status and food security of poor households in rural areas of Africa, Latin America and Asia. In collaboration with the Program in International Nutrition at the University of California, Davis, Freedom from Hunger undertook a multi-year study of *Credit with Education* program sites in Bolivia and Ghana. Financial support for this collaborative research was provided by an Innovation Grant (#02902-5) from the Thrasher Research Fund, with supplemental funding from the Nutrition Division of UNICEF/New York. PLAN International provided additional support for the research conducted at the Bolivia site.

As of June 1999, *Credit with Education* services were being provided to more than 15,500 women in four departments of Bolivia—La Paz, Cocha-bamba, Potosi and Oruro.

The evaluation research was designed to test hypotheses of positive program impact on children's nutritional status and on their mothers' economic capacity, empowerment and adoption of key child survival health/nutrition practices.

This report presents the results from the impact evaluation study of the CRECER (Crédito con Educación Rural) *Credit with Education* program. CRECER's mission is to enhance the food security and well-being of its clients, their families and their communities by providing high-quality, affordable financial and educational services primarily to women living in rural areas. The evaluation research was conducted in 28 communities located in five provinces (Aroma, Ingavi, Los Andes, Omasuyos and Pacajes) on the Altiplano in the Department of La Paz.

The survey and anthropometric (heights and weights) data collection rounds were carried out with different mother-child pairs in the baseline in 1994/1995 and the follow-up in 1997. A quasi-experimental design was applied at the community level to minimize possible bias. Following baseline data collection, study communities were randomly assigned to either a "program" or "control" group, with the latter not to receive *Credit with Education* until after completion of the evaluation research.

Three sample groups of women with at least one child 6-24 months of age were included in the follow-up data collection round: (1) *Credit with Education* program participants of at least one year; (2) nonparticipants in pro-

<sup>1</sup> *Credit with Education* is a service mark protected by Freedom from Hunger for the exclusive use of member organizations of the *Credit with Education* Learning Exchange.

gram communities; and (3) residents in control communities selected not to receive the program for the period of the study. Women for the two nonparticipant groups were randomly selected from comprehensive lists of all women with children from 6-24 months of age. In the smaller communities, it was often necessary to interview all women with children of the desired age.

Program impact is evaluated by comparing the differences between the responses and measurements in the baseline and follow-up periods for program participants versus nonparticipants in program communities and residents in control communities. Different sets of women were included in the two data collection rounds because few women had under-two-year-old children in both the baseline and follow-up periods. Because the baseline surveys were conducted prior to the implementation of *Credit with Education* in the program communities, baseline respondents in the program communities were later reclassified on the basis of whether they ever joined the program when it was later offered in their community. Baseline respondents in the study communities receiving the program are classified either as “baseline participants” or “baseline nonparticipants.” By comparing the baseline measures of individuals who would later join the program (baseline participants) to actual participants in 1997, the difference between the baseline and follow-up periods can better be attributed to the impact of the program and not to inherent differences between women who select to join the *Credit with Education* program and those who decline.

There was no statistically significant difference in the socioeconomic status of households (as measured by assets) or women’s education and literacy levels across the three sample groups in either of the time periods. Participants in the baseline period were significantly more likely to have recently engaged in their own nonfarm income-generating activity than nonparticipants in program communities.

On average, the 1997 participants had taken four loans with a current loan from CRECER of a little more than 1,000 Bolivianos (Bs.) (approximately \$200) and they had on average 281 Bs. (approximately \$50) on deposit with their Credit Association.<sup>2</sup> Eighty-five percent (85%) of the 1997 participants had also taken at least one “internal loan” (loan taken from their borrower group’s savings and/or repayment installments) of, on average, 814 Bs. (approximately \$150). The 1997 participants reported using all or some of their most recent CRECER loan in the following manner (in declining order of frequency): commerce; purchase of animals for the family or for fattening and selling; inputs for agriculture or animal husbandry; and artisan activity.

### **Impact on Women’s Economic Capacity**

The majority of 1997 participants (67%) felt that their incomes had “increased” or “increased greatly” since they joined the *Credit with Education* program. Participants most commonly attributed this improvement to the expansion of their income-generating activity, reduced input costs as a result of buying in bulk or with cash, or the new activities or products made possible by access to credit and selling in new markets. There was no significant difference between the baseline and follow-up periods in participants’ own nonfarm monthly profit when compared to nonparticipants and residents in control communities. However, when pooling women’s own nonfarm income with general household nonfarm income, the 1997 participants’ monthly estimated profit was significantly higher than the pooled nonfarm income earned by residents of control communities.

In 1997, the median monthly nonfarm profit for the participant sample was two-and-a-half times more than the profit earned by the nonparticipants and more than five times the profit earned by the residents in control communities. Overall, the 1997 participants

<sup>2</sup>Dollar equivalencies have been provided using contemporary exchange rates. The exchange rate for the follow-up period was US\$1=Bs. 5.3.

exhibited significant improvement in their nonfarm earnings with a considerable range in monthly profits. While some participants had profits as high as Bs. 800 to Bs. 1,200 per month (approximately \$150-\$225), one-quarter reported profits less than Bs. 500 (approximately \$10). A woman's loan-use strategy and the commercial development of her community influenced the degree of economic benefit she enjoyed.

Perhaps even more than an income effect, clients' diversified loan-use strategies suggest the program allowed participants to augment household assets (chiefly animals), purchase foods in bulk and meet other basic needs.

Participants also demonstrated positive impact on personal savings. Participants were significantly more likely than nonparticipants and residents in control communities to have personal savings and significantly more likely than nonparticipants to have savings in excess of Bs. 200. There was no evidence that program participation was fostering the entrepreneurial skills of participants to consider factors related to demand and profitability when deciding to undertake an income-generating activity.

Forty percent (40%) of the 1997 participants reported that the number of animals their family owned had increased since joining the CRECER program. However, there were no significant differences among the three groups in the mean number of animals (such as sheep/goats or cattle) that participants most commonly reported using their loans to acquire. An increasing tension was evident for borrowers investing in animals for their family. As the loan size grew, many women were eager to purchase milk cows—one of the most important productive assets in the study area. The short loan period and requirement of weekly repayment becomes more arduous for the borrower as loan sizes grow, particularly when repayment is being made at least in part from sources other than the activity in which the loan is invested.

Some differences were seen in expenditures across the three groups. Participants in 1997 were significantly more likely than residents in control communities to have spent money

on medical costs during the last year. Participants also spent a significantly greater per capita amount on clothing than controls ( $p < .05$ ). No significant differences were evident in participants' spending on education, housing improvements and total per capita food. However, between the baseline and follow-up periods, there was a significant and positive difference that participants spent at least some amount on meat or fish in the last week as compared to residents in control communities, with a marginally significant difference in the per capita mean amount spent.

### **Impact on Mothers' Health/Nutrition Practices**

In the six to ten months preceding the follow-up data collection round, CRECER management and staff had undertaken a variety of improvements in training and materials development to strengthen the strategy's education component. These efforts were beginning to produce results. A dramatic and significant increase was seen between the baseline and follow-up periods in participants' reported learning about good health and nutrition practices relative to nonparticipants and residents in control communities. An overwhelming majority of the 1997 participants (98%) rated the information they acquired through the learning sessions as "useful" or "very useful." Still, the quality of education participants received over the course of the study period varied greatly. Given this variability within the client sample, an opportunity exists to explore whether the quality of education services clients receive affects their knowledge and practice.

Comparisons of responses from the baseline and follow-up periods showed participants demonstrated positive and significant increases relative to nonparticipants and/or residents in control communities in the use of the following health/nutrition practices promoted by the *Credit with Education* program:

- ❖ Giving newborns the antibody-rich first milk, colostrum.

- ❖ Delaying the introduction of liquids and first foods in addition to breastmilk closer to the ideal age which is about six months.
- ❖ Not using feeding bottles.
- ❖ Introducing complementary foods at the ideal age of about six months.
- ❖ Feeding children foods such as meat and fish.
- ❖ Giving more liquids than usual to children who are suffering from diarrhea.
- ❖ Having children immunized (from self-report without verification).
- ❖ Completing later series vaccinations like DPT3 (as verified by health card).

Participants in 1997 also had better knowledge of diarrhea prevention, especially identifying “covering food” and “keeping food clean” as ways they could prevent diarrhea, compared to nonparticipants and/or residents in control communities.

An important composite measure was whether women who had more than one child reported feeding or breastfeeding their youngest child differently. Significantly more participants (21%) in 1997 reported differences that reflected positive changes than did residents in control communities (only 9%).

The quality of education services participants received through the *Credit with Education* program was directly related to whether they had made positive changes in how they fed or breastfed their youngest child. Participants who received better-quality education were significantly and much more likely (38%) to report making positive changes than participants who received “average or worse-than-average education” (8%). When the participant sample is divided into three groups, those receiving the “best” education were significantly more likely to make positive changes than those receiving the “worst” education.

Few other significant differences were seen as a result of the quality of education participants received. One-year-old children whose mothers received “better-than-average education”

had a significantly higher frequency of carrot or squash consumption in the previous three days than children of participants who received “average or worse” education. Consumption of green leafy vegetables was also significantly higher for children whose mothers received the “best” versus “average” education. For the breastfeeding topic area, however, a composite score based on several recommended practices was actually significantly higher for those receiving the “worst” education than for those receiving “average” or “best” education. In the topic areas of diarrhea and immunizations, the positive trends or improvements tended to be greatest for women receiving the best-quality education although there was no significant difference in their knowledge and practice relative to those receiving average or worse-than-average education.

### **Impact on Women’s Empowerment**

Indicators of women’s empowerment were developed to evaluate program impact at the level of the household and the community.

At the level of the household, an effort to quantify increases in women’s reported economic contribution and intra-household bargaining power yielded few significant results. No significant difference between the baseline and follow-up periods was evident in participants’ relative contribution to education expenses. In terms of intra-household bargaining power, no significant shift in decision-making was evident in participant households for decisions such as whether to send children to school or how much to spend on clothing, medicine or agricultural inputs. However, there was a positive and significant difference in participants’ “say” in how much to spend on house repairs relative to nonparticipants and residents in control communities. Because this type of expenditure is more associated with male decision-making, this finding provides some support for the assumption that as women contribute more cash income to the household, their influence will increase in areas characterized by relatively greater male control.

A significant and positive impact was also seen when comparing the baseline and follow-up periods in whether participants had discussed

family planning with their spouses as compared to nonparticipants in program communities. No differences were evident in other variables meant to measure change at the household level: whether a woman had given her husband spending money; whether her husband had offered to help care for the children; and whether her husband had offered to help her with her income-generating activity.

At the level of the community, the program seemed to positively affect women's participation in the civic life and reinforced helping contacts with family and friends. Between the baseline and follow-up periods, there was a significant and positive difference for participants as compared to nonparticipants or residents in control communities as to the percentage of those who

- ❖ were members of a community group beyond their families;
- ❖ gave advice about good health/nutrition practices to others in the last six months; and
- ❖ gave advice about good income-generating activities to others in the last six months.

The 1997 participants were also significantly more involved in the communities' political life. They were significantly more likely to have spoken at the community's general assembly meeting and to have run for or held office with the community *sindicato* than nonparticipants or residents in control communities. Without baseline measures, however, it is difficult to know whether this increased political involvement is a result of the program or a function of a self-selection bias for those women who tend to join *Credit with Education*. It is possible that the decision of nonparticipants not to join the program in their community itself reflects an initial lack of self-confidence and less involvement in the community's public life.

### **Impact on the Ultimate Goals— Nutritional Status and Food Security**

Over the course of the study, the incidence and duration of a "hungry season" were less

pronounced for each of the three study groups—participants, nonparticipants in program communities and residents in control communities. In general, it seemed that the agricultural season and food security situation was better in 1997 than for the baseline period. There was some evidence that *Credit with Education* program participation improved household ability to deal with periods of food stress. For those experiencing food insecurity, the 1997 participant households were significantly less likely to have sold off animals as a coping strategy than residents in control communities. Almost one quarter of the 1997 participants reported using either all or some of their most recent loan to buy food for their families—often buying foodstuffs in bulk at a lower unit price. Between the baseline and follow-up periods, participants were also significantly more likely to have spent some money on meat/fish in the last week than the residents in control villages.

No positive effect of the program was found over the course of the study on maternal nutritional status as measured by body mass index (BMI). The lack of programmatic effect is not surprising given the very low prevalence of maternal malnutrition when applying this indicator that measures a woman's weight for her height (her relative "thinness"). Only two women of the more than 400 measured had BMI values indicating malnutrition.

In addition, no positive effect of the *Credit with Education* program was found on the nutritional status of clients' children, measured by their height-for-age, weight-for-age or weight-for-height. Throughout the period of the study, the nutritional status of clients' one-year-olds remained relatively constant or was even lower in the follow-up period. The pattern seen for participants' children is quite similar to the one seen for the children of residents in control communities. In the follow-up period, however, the children of nonparticipants in program communities had better nutrition relative to those of the baseline period in their weight-for-age measures. The nonparticipant sample also showed a significant and positive difference



in maternal nutrition (mean BMI) values relative to the control group between the baseline and follow-up periods. In terms of socioeconomic characteristics such as asset ownership and years in school, the 1997 non-participants were not significantly “better off” than the 1997 participants or residents in control communities. Still, it seems the 1997 nonparticipants may represent a systematically better-nourished sample than was true for the baseline period.

Further analysis explored three possibilities for the apparent lack of effect of the program on the nutritional status of clients’ children: 1) variable quality of the health/nutrition education services provided to *Credit with Education* clients; 2) loan-use strategies that yield longer-term rather than relatively short-term nutritional benefits; and 3) the prevalence of household enterprise rather than primarily women-controlled enterprise. Of these three, the factor that is perhaps most amenable to programmatic adjustments is the relationship seen between the quality of education services clients received and the relative improvement in children’s nutritional status over the period of the study. This was also the only explanation of the three which was supported by the data in this study. Children of clients who received the relatively “worst” education services had poorer nutritional status in the follow-up relative to the baseline period. Those who received “average” or “better-than-average” education either had more constant nutritional status or better nutrition. Between the baseline and follow-up periods there was a significant and positive relationship between the quality of education received and children’s mean weight-for-age z-scores as well as the prevalence of moderate to severe malnutrition when controlling for a variety of child, household, community and provincial variables.

## Conclusion

The impact evaluation research in Bolivia provides evidence that credit and education services, when provided together to groups of women, can increase income and savings, improve health/nutrition knowledge and practice, and empower women. Positive impact on

the nutritional status of clients and clients’ young children was not evident, except when deeper analysis of the client group alone revealed that children’s weight-for-age was positively associated with the quality of education services provided. This finding supports one of the central assumptions underlying the design of the *Credit with Education* strategy—that without important improvements in caregiver practices, income increases and even empowerment are unlikely to bring about marked improvement in children’s nutritional status. This finding also highlights the importance of program management attention to the quality of the educational services offered to foster improvements in caregiver practices.

Although not a focus of the impact research, it is also important to note the program’s performance in terms of financial sustainability. In the six-month period—January 1999 through June 1999—the program had an operating self-sufficiency ratio of 95%. This ratio indicates that the interest paid by borrowers covered 95% of CRECER’s costs of delivering the credit and education, including financial costs such as interest on debt and provision of a loan-loss reserve. This excellent financial status has been achieved along with substantial program growth. As of June 30, 1999, CRECER had 15,595 borrowers and an outstanding loan portfolio of more than 2.4 million dollars. Although the program is not yet fully financially sustainable, CRECER’s figures represent a much higher level of cost recovery than most income-generation interventions and certainly more than traditional health/nutrition education programs. The combination of positive impact and financial sustainability makes *Credit with Education* a strategy with exciting potential for widespread and sustainable impact on households’ economic capacity, on women’s empowerment and ultimately on household food and nutrition security.

## 1.0 INTRODUCTION

Freedom from Hunger, in collaboration with the Program in International Nutrition at the University of California, Davis, undertook a multi-year impact evaluation of *Credit with Education* as implemented by CRECER in Bolivia. Funding was provided primarily by an Innovations Grant from the Thrasher Research Fund with supplemental support from the Nutrition Division of UNICEF/New York and PLAN International/Bolivia.

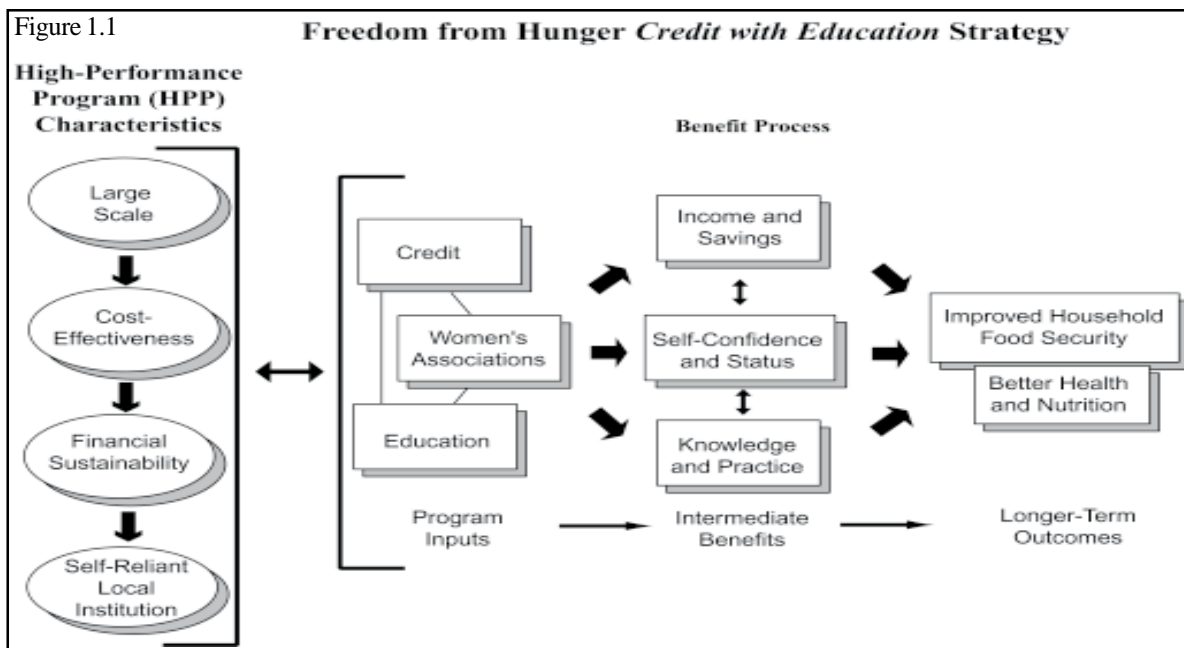
The evaluation research was designed to test four hypotheses:

- ❖ *Credit with Education* in a community has a positive effect on the nutritional status of children.
- ❖ Program participation will increase women's economic capacity (income, savings, time) to adopt beneficial behaviors and to invest in nutritionally important expenditures such as food and health care.
- ❖ Program participation will increase women's knowledge, trial and adoption of beneficial breastfeeding, weaning and diarrhea management and prevention practices.

- ❖ Program participation will increase women's status and self-confidence to plan and offer a healthy diet to their families, especially to their young children.

The conceptual framework guiding this impact evaluation is depicted in the hypothesized benefit process diagrammed in Figure 1.1. The strategy's ultimate goals—improved household food security and nutritional status—first require that the intermediate benefits of poverty alleviation, empowerment and behavior change be achieved. For this reason, qualitative and quantitative methods were used with measurements of nutritional status (maternal and child heights and weights) to investigate impact on the program's intermediate goals—women's economic resources, their health and nutrition knowledge and practice, and women's empowerment as measured by their self-confidence and status.

As indicated on the left side of Figure 1.1, the *Credit with Education* strategy has program-performance as well as impact goals. It is important to appreciate that the desired impacts are not being pursued at any financial cost. Rather, the strategy is designed and implemented so that the credit and education services are sufficiently cost-effective to allow for expansion and financial sustainability.



## **Background on *Credit with Education***

Founded in 1946, Freedom from Hunger is an international nonprofit organization working to empower the poorest families and communities to help themselves overcome hunger and malnutrition. Since 1989, Freedom from Hunger has developed and disseminated a cost-effective and sustainable program strategy called *Credit with Education* to improve the nutritional status and food security of women and their families in poor, rural areas of Africa, Latin America and Asia. Freedom from Hunger provides training and other technical assistance to local organizations (primarily local financial institutions but also nonprofit organizations) which directly implement the *Credit with Education* programs.

*Credit with Education* combines small-scale loans (less than \$300) with education in the basics of health, nutrition, birth timing and spacing and small business skills. Participants form self-managed Credit Associations (village banks) and guarantee each other's loans. The women invest their loans in income-generating activities in which they are already skilled, then meet weekly to repay the principal and interest and to deposit savings. Learning sessions (adapted to local needs) are also conducted at each meeting to provide important knowledge on basic health and nutrition practices, family planning and small business management.

Ideally, the credit and education components reinforce each other by addressing both the informational and economic obstacles to better health and nutrition. The education promotes nutritionally beneficial spending and intrahousehold distributions, as women's increased income and productivity help to overcome economic barriers to the adoption of better health and nutrition practices. The success of income-generating activities financed by the program and the participatory program design foster change in women's self-confidence and learning readiness to adopt important practices.

The purpose of the combined services is to allow and encourage women to: (a) earn and use income to gain access to adequate

quality and quantity of food; (b) exclusively breastfeed their infants for the first six months, if possible, and to introduce nutrient-dense complementary foods at about six months of age; (c) rehydrate children during diarrheal episodes and practice personal and food hygiene to help prevent diarrhea; (d) seek the full immunization series recommended for infants and women, where locally available; and (e) make more informed reproductive decisions for themselves and their families.

The design of *Credit with Education* was based on "development breakthroughs" such as the Grameen Bank, evidence in the literature and Freedom from Hunger's own experience of key programmatic features that offer the greatest potential to alleviate hunger and malnutrition. Some of the major assumptions underlying the design of the strategy include the following:

- ❖ Inadequate access to more and better food rather than food scarcity per se is the chief problem faced by the majority of food-insecure households.
- ❖ Income increases that will have the most direct, positive impact on food security and nutrition are those earned by the poorest households, controlled by women and earned in steady and regular amounts.
- ❖ Income increases alone are unlikely to have substantial impact on the malnutrition of women and young children unless key maternal and child health and nutrition behaviors are also adopted.
- ❖ The scope and scale of the problems of hunger and malnutrition require solutions with potential for widespread expansion and financial sustainability.

*Credit with Education* minimizes the cost of dual-service delivery through (1) delivery of both financial and educational services by a single field agent working with an average of 12 Credit Associations (village banks) that have an average number of 22 members; (2) participation by Credit Association members themselves in the management, distribution

and collection of loans; and (3) a minimalist education approach focused on a small number of high-impact practices. A high degree of loan recovery and the use of real interest rates are also mechanisms that make program expansion and financial sustainability possible. Interest and fee payments are used to pay administrative costs of program delivery, with full recovery of operating costs expected within three to five years of start-up in most areas. Sustainability is also attained through building or developing local capacity to implement, manage and expand program operations.

Still, despite the popularity of micro-credit and the intuitive potential of *Credit with Education*, there has been little evidence to date of the impact of such programs on food security or malnutrition (Berger and Buvinic, 1989; MkNelly and Dunford, 1996; Sebstad and Chen, 1996). For this reason, Freedom from Hunger, in collaboration with the Program in International Nutrition at the University of California, Davis, undertook a multi-year impact evaluation of *Credit with Education* in two program sites—coastal Ghana and the Altiplano in Bolivia. This report summarizes the findings from the Bolivia research.

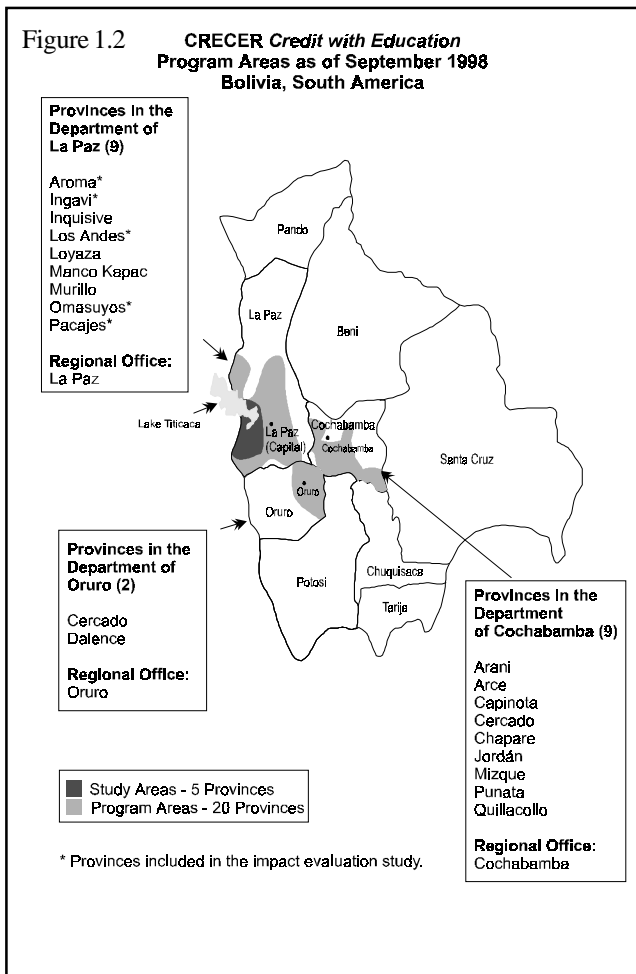
### Background on the CRECER *Credit with Education* Program

CRECER (Crédito con Educación Rural) is currently a subsidiary of Freedom from Hun-

ger. In 1985, Freedom from Hunger began delivering community-based nutrition improvement services to the communities around Lake Titicaca. In 1990, the *Credit with Education* program strategy was introduced and all other program activities were phased out in favor of this more sustainable strategy with potential for broad outreach and cost recovery. CRECER aims to achieve financial self-sufficiency and institutional sustainability by becoming a rural financial institution of national scale in Bolivia.

CRECER's mission is to enhance the food security and well-being of its clients, their families and their communities by providing high-quality, affordable financial and educational services, primarily to women and especially to those in rural areas where access to financial and educational ser-

vices is limited or absent. CRECER has targeted the poorest of economically productive women as the market for its *Credit with Education* services. The program is focused on the rural areas of Bolivia where both financial and health services are scarce or nonexistent. It is now offered in four departments of Bolivia—LaPaz, Cochabamba, Oruro and Potosi—and will start up in Chuquisaca in 2000 with a pilot effort. Figure 1.2 depicts the program area as of September 1998 with the darker shading indicating the study area in the Altiplano.



**Table 1.3: Loan Activities Reported by Borrowers Beginning a Loan Cycle October-December 1997**

<b>Loan Activities</b>	<b>Borrowers</b>
Food/Agricultural Commerce (buy/sell potatoes, maize, vegetables, etc.; make/sell cooked food or beverages, sell fish or animal feed, grocery store)	38%
Animal Husbandry (raise goats, sheep, pigs, llamas and/or cows, sell meat or milk from own animals)	36%
Buy/Sell Non-Agricultural Items (clothing, wood, wool, school supplies, grocery store [primarily nonfood])	10%
Artisan (weaving and/or sewing)	8%
Agricultural Production (vegetables, potatoes, cereal)	5%

### ***The Credit and Savings Component***

As of June 1999, there were 15,595 *Credit with Education* members organized in 774 Credit Associations. The dollar equivalent of the total amount of loans outstanding to these borrowers was \$2.4 million and the amount they had in savings was \$517,334. The average loan size was the boliviano equivalent of \$155 for a 4- or 6-month period. Table 1.3 summarizes the most common loan activities reported by borrowers at the time of the study's follow-up data collection period. The repayment rate for the program was excellent with only 0.3% loan portfolio at risk (outstanding balance of loans late more than 30 days/total loans outstanding).

### ***The Education Component***

The education component of *Credit with Education* is designed to complement the credit component by empowering women with the information, skills and confidence they need to better manage their own and their families' health and nutrition. The Credit Associations' regular meetings include learning sessions addressing three areas: health and nutrition, microenterprise development and Credit Association management. The same field agents who assist with the loan process facilitate these learning sessions. Field agents receive training in nonformal education techniques as well as lesson plans and a curriculum for sequencing the following topics:

#### ***Health and Nutrition Topics***

- diarrhea management and prevention
- breastfeeding
- infant and child feeding
- immunization
- family planning

#### ***Microenterprise Topics***

- choosing an appropriate activity
- increasing profits
- increasing sales
- managing a microenterprise

#### ***Credit Association Management***

- group formation
- loan analysis
- setting and enforcing rules
- setting and assessing goals

Within the Health and Nutrition and Microenterprise topic areas, specific ideal behaviors are promoted. The learning sessions include skits, stories and demonstrations so that these topics and ideal behaviors are addressed in a participatory rather than lecture format.

The Bolivian child survival funding, advocacy and technical assistance consortium, PROCOSI, has provided specific support for developing the program's health education component. Most recently, CRECER received a three-year grant to further develop the reproductive health education and service-referral system. This activity includes the development of new educational materials in key areas of sexual and reproductive health, the establishment of a peer counseling system in key areas of sexual and reproductive health, and the expansion and strengthening of an already-established community-based contraceptive distribution network with linkages to clinics providing reproductive health services in nearby towns.

A critical issue for the impact evaluation research is the quality of the education services. It was clear over the course of the research that there was a considerable range in edu-

cation quality received by the various Credit Associations operating in the study communities. Some Credit Associations received very little education while others covered multiple topics following the suggested sequence. High rates of field agent turnover and issues concerning field agent supervision and training explain much of this variability. A more detailed discussion of the quality of education services in the study area and its relationship to ultimate program impact is included in Sections 5.0 and 7.0 of this report.

### ***Financial Performance***

A recent paper by Gibbons and Meehan (1999) profiled the CRECER *Credit with Education* program as one of three examples of microenterprise programs that was approaching financial sustainability while still reaching the poor.<sup>3</sup> At the end of 1998, CRECER was shown to be at 93.5% operating self-sufficiency and at 78.2% financial self-sufficiency. This placed CRECER between the other two MFIs in the review, CARD-Philippines and FINCA-Uganda. CRECER was also shown to be very effective in administrative efficiency (administrative cost per dollar lent), and the only MFI to be showing a continuous improvement in administrative efficiency over the last three years, with a value (about 35 cents per dollar lent) approaching that of “best practice.” In fact, the “best practice” target of 15 to 25 cents per dollar lent was met by CRECER at the end of June 1999, with a calculated value of 16 cents per dollar lent. With regard to serving its intended market of the poorest areas of rural Bolivia, the report noted that CRECER, while not having as high a percentage of “poorest” clients as the other two MFIs, was operating in regions with the highest levels of poverty in Bolivia and was reaching the poorest households in those regions.

The most recent financial information from Freedom from Hunger’s own assessment

shows that CRECER has been at 95% of operating self-sufficiency for the six-month period ending June 30, 1999. While not yet fully financially sustainable, *Credit with Education*, as implemented by CRECER, has a higher level of cost recovery than most income-generation interventions and certainly more than traditional health/nutrition education programs.

## **2.0 IMPACT EVALUATION DESIGN AND METHODS**

Quantitative and qualitative methods were used to address the study’s four hypotheses. Three major survey and anthropometric (heights and weights) data collection rounds were conducted—two baseline surveys (in 1994 and 1995) with a follow-up survey in 1997—each time with different mother-and-child pairs. Much of this report is dedicated to presenting the more quantifiable findings provided by the survey and measurements. Qualitative techniques, such as in-depth individual or group interviews with participants, nonparticipants and program staff, were also employed to better understand the process by which impact occurred and to better understand the clients’ range of experience with the program.

### **Qualitative Methods—In-depth Interviews**

During the baseline rounds, in-depth interviews provided rich information on women’s income-generating activities and common maternal and child health and nutrition beliefs and practices. In the interim period between the baseline and follow-up surveys, qualitative methods were used to (1) identify site-specific manifestations of women’s empowerment and self-confidence; (2) more openly explore aspects of program impact; (3) assess the adequacy of delivery of the credit and education services, in particular

<sup>3</sup> Full financial sustainability means that a program would be covering all of its operating and financial costs including the effect of inflation on net worth. Operating self-sufficiency is a measure of financial self-sustainability, which is equal to total financial income (interest paid on loans), divided by the sum of financial costs (for borrowed capital), operating costs and provision for loan loss. A value of 100% indicates that the institution is covering all of its operational costs with internally generated income.

the quality of the learning sessions designed to motivate behavior change; and 4) solicit client feedback about the program. Qualitative methods that were used included informal discussion groups, observations of program meetings and in-depth individual interviews with field agents, participants and nonparticipants. In the 1997 follow-up period, in-depth interviews with nonparticipants as well as participants provided a better sense of community-level effects of the program, and interviews with borrowers without young children (the focus of the survey was on those with young children) provided a more representative view of the experience of *Credit with Education* participants.

### **Quantitative Methods—Survey and Anthropometric Measures**

#### ***Baseline Data Collection: 1994 and 1995***

Due to changes in the program's expansion plans, it was necessary to conduct two baseline data collection rounds. The first baseline survey was carried out in July/August 1994 in a total of 45 communities. Twenty-eight (28) were primarily Quechua communities located in the Department of Cochabamba while the additional 17 were primarily Aymara communities located in the Department of La Paz. Several of the baseline provinces, especially in the Department of Cochabamba, were relatively unknown to the program as they represented areas the program would expand into during the upcoming year. Unfortunately, once program promotion began, it was determined that the majority of the Cochabamba study communities were inappropriate for *Credit with Education* services. Many communities were either so sparsely populated or so remote that there was inadequate interest to form a Credit Association of at least 15 women. As a result, it was necessary to conduct a second baseline study. It was decided to simplify the research logistics and focus the second baseline on a single ethnic and language group (the Aymara) and eco-

logical zone (the Altiplano) because so few of the original Cochabamba communities remained in the study. In November 1995, a second baseline data collection round was conducted in an additional 24 study communities, all in the Department of La Paz.

Each of the women included in the baselines had a one-year-old child.<sup>4</sup> One-year-old children were selected as the focus of the study because they represent the most nutritionally sensitive age group typically exhibiting the highest rates of malnutrition. A common pattern seen in the nutritional status of children in the developing world is that faltering growth is most pronounced from about 5 to 6 months through approximately 12 months of age. Many of the health and nutrition education sessions conducted at the Credit Association meetings aim to prevent this predictable deterioration in children's nutritional status by promoting good breastfeeding and complementary feeding practices. For this reason, given the study's focus on assessing impact on children's nutritional status and the relatively short duration of the study, this was the logical age group on which to focus. This decision, however, made it not feasible to follow the same mother-and-child pairs, because few women would have young children in both the baseline and follow-up periods.

In each study community, local persons had been engaged to prepare lists of all the mothers of one-year-old children. In the great majority of communities, the local person hired for this work was a health volunteer trained by PLAN International. These individuals were called RPSs (*responsable personal de salud*). Because they helped to coordinate growth monitoring and immunization activities, they typically had relatively comprehensive lists of the young children in their community. These lists were also supplemented through a house-to-house census. In all but one community, all the one-year-old children and their mothers were asked to participate in the baseline study. However, in one large community that had almost 100 one-year-

<sup>4</sup> Children from 11 to 24 months of age were included. Although officially two years of age, 24-month-old children were included to augment the sample size.

old children, the baseline study was carried out in only two of the community's four zones. The estimated populations of the study communities in the Department of La Paz ranged from 145 to 2,350 persons. The number of mother-child pairs measured and interviewed in each study community ranged from one to 24.

The baseline survey collected information on a variety of topics:

- ❖ The household. Demographics, assets, food security, food expenditures and decision-making.
- ❖ The mother. Education and literacy levels, child-bearing history, knowledge and practice of key breastfeeding and complementary feeding behaviors, diarrhea treatment and prevention, immunization and family planning practices, income-earning activities, microenterprise and wage income, savings, assets and expenditures.
- ❖ The child. Breastfeeding and eating history, estimates of diet quality and quantity during the previous three days, and immunization history.

In addition, heights and weights of mothers and their children were measured to determine nutritional status. Portable adult/child measuring boards were used for the participants' height (length) measures. Special care was taken to get accurate recumbent height measures of the one-year-old child by (1) using three people, one at the child's feet, one at the knees and one at the head, to ensure the child was correctly positioned, and (2) assigning only two people to take the measurement reading to increase the consistency of readings.

### ***Assignment of the Study Communities to "Program" and "Control" Samples***

A quasi-experimental design was applied at the community level to minimize possible bias between the study groups. A common problem in interpreting program evaluations is the question of whether there were systematic differences between the "program" and "control" samples. It is also possible that programs tend to be offered to the "better-off" communities or the communities that

are better organized and more effectively advocate for their needs. If this is the case, then positive differences found between the "participant" and "nonparticipant" groups might be due to important community-level differences rather than to the impact of the program. To prepare for the baseline survey, a program representative had visited each potential study community to explain the purpose of the *Credit with Education* program and the research. Voluntary participation in the study was sought at that time from local leaders. In each instance, it was made clear that the community might be assigned to a control group that would not be offered the program for two years.

Following baseline data collection, study communities were randomly assigned to receive or not receive the program over the period of the research. Table 2.1 lists the assignments made to the study communities from both baselines surveys. Random assignment of communities was done by a SAS computer program that minimized the difference (F-tests) in each province among four community-level variables: estimated population, access to main road, distance in kilometers from a market, and access to water.

Approximately twice as many communities were randomly assigned to the program than the control sample. This was done because it was planned that two-thirds of the follow-up sample would be drawn from the program communities (participants and nonparticipants) and one-third from the control communities. According to the study design, communities in the program sample were to be offered *Credit with Education* as soon as possible after the baseline research, while those in the control sample would be offered the program only after completion of the research.

### ***Follow-up Data Collection***

In November 1997, the follow-up survey and measurements were conducted. Virtually the same survey was used, with the addition of questions to measure empowerment and a few other aspects of program impact that emerged as important from the qualitative interviews. (A copy of the English version of the follow-up survey is attached as Appendix A. The Spanish and Aymara



**Table 2.1: Bolivia Impact Evaluation Study Communities—Department of La Paz by province and year (communities in *italics* were dropped from the study)**

PROVINCES	PROGRAM	CONTROL
Omasuyo 1994	Taramaya <i>Cota Cota Alta</i> <i>Tairo</i> <i>Carmen Lipe</i> <i>Morocollo</i>	Uricachi Grande <i>Belen</i>
Los Andes 1994	Pallina Laja <i>Puchuni</i> <i>Chunuchuni</i>	<i>Calamarca</i> Collo Collo
1995	Corapata Chonjnacollo Karhuisa Machamarca	Kalasaya Aconcagua Pajcha Peñas
Ingavi 1994	Yanari Villa Remedios <i>Villa Arriendo</i>	Pocota Ancara Corpa
1995	Pircuta <i>Titijone</i> <i>Toraco</i>	Azafranal
Pacajes 1995	Caquiavariri Muru Pilar Pando Jayuma <i>Ballivan</i>	Caquingora
Aroma 1995	Arayllanga Patarani Alto Patacamaya <i>Chiarjaqui</i>	Zazori Llanga Belen
TOTAL	27 COMMUNITIES 11 DROPPED 16 REMAINING	14 COMMUNITIES 2 DROPPED 12 REMAINING

version of the survey is also available upon request.)

Of the 41 study communities in the Department of La Paz, 13 were ultimately dropped from the study<sup>5</sup> (see Table 2.1). Communities were excluded from the study for the following reasons:

- ❖ Program services were offered but there was insufficient interest to form a Credit Association with at least 15 members (six “program” communities).

- ❖ Although the community was selected to receive the program, services had not yet been offered to the community due to slower-than-anticipated expansion in those provinces (four “program” communities).

- ❖ The program had operated in the community, but the Credit Associations had disbanded before the follow-up period, so no active participants could be found (two “program” communities).

- ❖ Program services were offered to two of the “control” communities.

<sup>5</sup> Two additional program communities were not actually “dropped” from the study, but no participants of the Credit Association met the eligibility criteria to be included in the survey (participated in the program for one year and have a child under two years of age).

Follow-up surveys were not conducted in those communities “dropped” from the study. The baseline results from these communities were also deleted from the data set.

### **Sampling**

In the follow-up period, it was necessary to expand the age range of children to include those from 6 to 24 months because fewer-than-predicted program participants had one-year-old children (12 to 23 months) in 1997. A target of 80 mother-and-child pairs for each survey sample group was selected to capture meaningful and statistically significant differences in the nutritional status of children.<sup>6</sup> Table 2.2 shows that only 53

participants had one-year-old children in the Credit Associations active in the study communities at the time of the follow-up survey.

Although there were more women living in households with one-year-olds (primarily grandmothers or aunts), for simplicity the study focused on mother-and-child pairs only.

Three types of women were included in the follow-up survey: participants, nonparticipants in program communities and residents of control communities. All participants in program communities who had completed at least three 4-month loan cycles and had a child 6 to 24 months of age were included. However, with the expanded age group, the

**Table 2.2: Program Communities and Credit Associations Included in the 1997 Follow-up Survey**

Name of community and Credit Association ID number	Loan cycle at the time of the survey (11/97)	Total number of borrowers in the Credit Association	Number of borrowers of at least 3 cycles with child between 6 and 24 months of age	Number of borrowers of at least 3 cycles with child between 12 to 24 months of age
<b>PACAJES</b>				
Caquiavariri P 94	5	19	2	0
Jayuma P 104	5	19	8	8
Muru Pilar P 73	5	19	1	0
Pando P 91	6	41	9	7
Pando P 92	4	35	3	2
Pando P 93	6	29	6	4
<b>LOS ANDES</b>				
Corapata P 79	6	29	6	5
Corapata P 87	5	16	8	4
Chonjnacollo P 90	5	16	2	1
Karhuisa P 72	4	19	3	3
Machamarca P 80	6	18	2	2
<b>INGAVI</b>				
Pircuta P 75	7	17	3	2
Yanari P 102	7	15	1	1
Villa Remedios P17	8	20	3	3
Villa Remedios P 46	8	18	5	4
<b>AROMA</b>				
Arajillanga P 98	5	27	6	6
Alto Patacamaya P 82	5	23	1	1
<b>OMASUYOS</b>				
Taramaya BP-33	7	20	2	0
<b>SUMMARY FIGURES FOR THE 18 CREDIT ASSOCIATIONS</b>	<b>AVERAGE</b> 5.7 loan cycles	<b>TOTAL</b> 400	<b>TOTAL</b> 71 <b>(18% of all borrowers)</b>	<b>TOTAL</b> 53 <b>(13% of all borrowers)</b>

<sup>6</sup> Assuming a standard deviation similar to other nutritional status studies, the necessary sample size to detect a .4 difference in the weight-for-age and height-for-age z-score values of the participant and control groups with a power of 0.8 and significance level of 0.05 (one-tailed test assuming a more favorable value in the program group) would be 75. An additional five respondents per sample were added to compensate for possible missing or unreliable data.

**Table 2.3: Sample Sizes for Baseline and Follow-up Data Collection**

<b>Baseline Samples (1994, 1995)</b>	<b>Follow-up Samples (1997)</b>
<i>16 Study Communities Received the Program</i>	
77 baseline participants	71 participants (borrowers for at least one year)
80 baseline nonparticipants	86 nonparticipants in program communities
<i>12 Study Communities Did Not Receive the Program</i>	
93 residents in control communities	96 residents in control communities

community lists included more children than the baseline period, so nonparticipants and controls were typically randomly selected from the community lists. In the control communities, the same number of mother-and-child pairs as had been interviewed in that community during the baseline were randomly selected. For the nonparticipants, half the number of those included in the baseline were randomly selected. In some of the smaller program communities (less than 400 persons), it was difficult to identify many women who had never participated in the program. In those communities, all the eligible nonparticipants were asked to participate in the follow-up survey.

### ***Analysis***

Program impact is evaluated by comparing the difference between the baseline and follow-up results for participants and nonparticipants in program communities and residents in control communities. None of the baseline respondents were participants when the baseline survey was conducted, because the program had not yet been offered in their community. However, as part of the follow-up, it was determined which of the baseline respondents in the communities selected to receive the program later joined a Credit Association. With this information, baseline respondents were classified retrospectively by whether they had ever joined the program when it was later offered in their community. These “baseline participants” were all active members of a Credit Association at some point, although their duration of participation varied, and some had left the program before the 1997 follow-up research was conducted. Table 2.3 summarizes the number of women in each of the three groups for both survey rounds.

Retrospectively classifying the baseline respondents by their future program participation is very helpful for dealing with the possibility of self-selection bias, which confounds many credit program impact evaluations. “Self-selection bias” refers to the possibility that differences found in the concerned impact areas might reflect systematic, pre-program differences between the women who join the program and those who do not, instead of reflecting the impact of the program itself. For example, if participants are found to have better nutritional status than nonparticipants, it is possible that this is not a result of their program participation but because women who are better nourished tend to join the program. By comparing the baseline measures of women who later joined the program to actual participants (in 1997), the difference between years can be attributed more reliably to the impact of the program and not to inherent differences among respondent groups. Both groups had similar inclination to join the program once it was offered.

### **3.0 SURVEY RESULTS: CHARACTERISTICS OF RESPONDENT SAMPLE GROUPS**

Optimally, in an evaluation of impact, the participant and nonparticipant (control) groups would only differ in their exposure to the intervention being studied. Otherwise, if there are important differences between the groups, these differences, instead of the impact of the program, might explain contrasts in the outcome measures. For this reason, it is necessary to compare key socioeconomic and demographic characteristics of the sample groups which might explain the differences found in the groups’ responses.

By comparing the groups, the evaluation research sheds light on important questions that implementers have about whom the program is reaching. *Credit with Education* was designed to assist poor households vulnerable to hunger and malnutrition. Certain program policies, such as the relatively small loan size and selecting poor, rural communities in which to implement the program, make it likely that the program is reaching its intended clientele. However, within a community, which women ultimately join the program will depend on the decisions taken by individual women and the groups. The evaluation research provided an opportunity to more systematically assess the characteristics of women joining the program and the reasons some women choose to decline membership.

The sampling approach taken by the research resulted in survey sample groups that were quite similar. Only one statistically significant difference ( $p < 0.05$ ) was found in key household and maternal demographic and socioeconomic characteristics across the three groups (participants, nonparticipants in program communities, and residents of

control communities in the baseline period [see Table 3.1]). No significant differences were found in the follow-up period (Table 3.2).

Household socioeconomic status was assessed in several ways. First, a good proxy for income or socioeconomic status is the value of a household's assets. Program staff helped create a list of consumer goods that represent a progression of wealth within the local context. All respondents were asked whether they owned seven different consumer or productive assets (radio/tape player, television, bicycle, motorcycle, and car/pick-up truck) and their numbers. Respondents were also asked to estimate the current value of the asset by considering the price they would charge if they were to sell the asset at the time of the interview. Tables 3.1 and 3.2 summarize the median total and per capita value of these assets in dollars. Given the high degree of skew and variability in these values, statistical tests to assess differences were done on logarithms of the measured values. No statistically significant differences among the three groups were evident

**Table 3.1: Baseline Survey: Household and Mothers' Characteristics Across Sample Groups**

	Program Communities		Control Communities
	Baseline Participants n= 77	Baseline Nonparticipants n= 79	Residents n= 93
Mean Age of Mother (in years)	30	29	31
Mother's Mean Years of Formal Education	4.7	4.6	4.8
Percent of Mothers Who Are Literate	84	73	72
Percent of Mothers Who Are Married	94	92	92
Percent of Mothers Unmarried or Husband Away			
Majority of Year	27	32	27
Mother's Mean Number of Living Children	4.0	3.8	4.1
Percent of Mothers Who Had Own Nonfarm Income-generating Activity in Preceding Month	47*	30*	37
Household Size	5.9	6.0	6.2
Dependency Ratio (children under age 17 to adult)	1.7	1.6	1.6
Median Value of Consumer Assets in Bs. <sup>7</sup>	Bs. 340	Bs. 285	Bs. 270
Median Per Capita Value of Assets	Bs. 67	Bs. 48	Bs. 56
Mean Income Quartile	2.6	2.4	2.4
Percent Whose Household Owns Land	70	77	67

\* Significant difference between the participant and nonparticipant groups ( $p < .05$ ).

<sup>7</sup> Monetary amounts quoted in Bolivianos (Bs.). Exchange rate for the baseline period was \$1US=Bs. 4.75.

in this measure of household socioeconomic status for either time period.

To limit the effect of the considerable variability in this measure of wealth, the dollar value of assets was used to establish a relative wealth ranking. Based on the distribution of the asset values, cutoff points were determined so that households could be classified as to whether they fell in the poorest, poor to middle, middle to upper, or highest income quartile. For example, 25% of the baseline households classified as being in the poorest wealth quartile were assigned a “1” and those in the wealthiest quartile were assigned a “4.” The mean income quartile across the three groups was very similar and again indicated that there was no significant difference in household income or wealth across the three groups. Another measure of socioeconomic status was whether the household owned land. Again, there were no significant differences for these measures of wealth among the three groups for either time period. In the follow-up period only, another measure of socioeconomic status was whether anyone in the household had salaried, regular employment. Again, there were

no significant differences among the three groups.

In both time periods, even the demographic characteristics of the mothers in the three sample groups were very similar in age, marital status, number of children, literacy level and years attended school. However, the baseline participants were significantly more likely than the nonparticipants to be recently engaged in a nonfarm income-earning activity ( $p < .05$ ). This difference was not significant between the participants and residents in control communities.

It is important to note that the participants, nonparticipants and the residents of control communities are quite similar in characteristics that are likely to influence children’s nutritional status or women’s economic capacity, such as the level of their education and household wealth. The one aspect in which the groups were found to be different was the propensity of baseline participants to already be engaged in a nonfarming enterprise. This finding is not surprising because the loan terms are more conducive to nonfarm income-generating activities and it is an assumption of the program that clients

**Table 3.2: Follow-up Survey: Household and Mothers’ Characteristics Across Sample Groups**

	Program Communities		Control Communities
	Baseline Participants n= 71	Baseline Nonparticipants n= 86	Residents n= 96
Mean Age of Mother (in years)	30	30	30
Mother’s Mean Years of Formal Education	4.9	4.8	5.2
Percent of Mothers Who Are Literate	84	79	84
Percent of Mothers Who Are Married	97	92	92
Percent of Mothers Unmarried or Husband Away Majority of Year	20	29	30
Mother’s Mean Number of Living Children	4.3	4.0	4.0
Percent of Mothers Who Had Own Nonfarm Income-generating Activity in Preceding Month	37	34	26
Household Size	6.3	6.4	6.3
Dependency Ratio (children under age 17 to adult)	1.6	1.5	1.7
Median Value of Consumer Assets in Bs. <sup>8</sup>	Bs. 620	Bs. 455	Bs. 430
Median Per Capita Value of Assets	Bs. 100	Bs. 85	Bs. 66
Mean Income Quartile	2.6	2.5	2.4
Percent Whose Household Owns Land	83	76	87

<sup>8</sup> Exchange rate for follow-up period was \$1US= Bs. 5.3.

will use their loans for activities in which they are already engaged. Interestingly, this difference was not evident in the follow-up period.

The follow-up survey also collected information about why nonparticipants in program communities decided against joining the program. The most common reason given by 47% of the nonparticipants was that they had not heard about the program. Another 20 nonparticipants—almost one quarter of the respondents—said they were aware of the program, but were afraid to take a loan. Thirteen percent (13%) of the nonparticipants said they lacked the time to participate in the program and 6% either did not know what to invest in or thought good business possibilities for using the loan were nonexistent. In three cases, the women had wanted to join the program but the group denied them membership. Other reasons given by one or two women included: poor health, her husband would not let her join, her mother was in the program, she was not present when the group started, she felt the program had too many restrictions or required too much money to join.

That almost 50% of the nonparticipants said they had not heard about the program is indicative of the dispersed settlement of most of the study communities and the relative social isolation of many women in rural Bolivia. On the Altiplano, communities often have a town square or center, but the households are scattered and widely separated by considerable distances. This dispersed settlement pattern is a challenge to the Credit Associations' regular meetings—particularly in the rainy season—because some members have to walk several kilometers to meet with their group. Still, weekly attendance is required unless a member submits a written excuse. Depending on the rules developed by the individual groups, unexplained absences or tardy arrivals to meetings often result in a fine. The dispersed settlements also present a challenge to program promotion. Field agents typically attend community-wide meetings to explain and spread the word about the program. It is surprising that although the program had been operating for

at least one year and for as long as three years in the study communities, almost 50% of the nonparticipants said they had never heard about it. Perhaps, in some of these cases, the respondent meant she had not heard about the program before the groups were organized. While it is usually possible to join a Credit Association after the first loan cycle, it might be harder to join after the initial group formation.

The fact that almost one quarter of the nonparticipants said they were afraid to take a loan reflects the seriousness with which women assume their repayment responsibility. None of the nonparticipants mentioned not wanting to take responsibility for someone else's loan as a reason for not joining the program, even though this is the implication of the joint guarantee mechanism. It seems women were instead more concerned that they themselves would have difficulty repaying which would have significant implications for the group and for their relationships within the community. In addition, the "costs" of participation either in terms of time spent at or traveling to meetings and the savings requirements were deterrents for about 15% of the nonparticipants. It is important to remember that all the women included in the study had young children under two years of age. So, in addition to their regular obligations to care for animals, engage in agriculture and cook and clean, these respondents might be expected to have particular time constraints given the demands of such young children.

From this information, a profile of the *Credit with Education* client begins to emerge. Women who choose to join the program when it is offered in their community do not seem to be wealthier, more educated or older than women who choose not to join. However, they may be less risk-averse and less socially isolated than women who do not join. The participants are quite similar to the nonparticipant and control groups in basic demographics and socioeconomics. Given the likely differences in more difficult-to-quantify characteristics, such as social isolation or risk aversion, it is appropriate that for this study, program impact will be assessed by

comparing the baseline and follow-up measures of “joiners” versus “nonjoiners” and controls. This approach will help to minimize any self-selection bias between the survey samples.

#### **4.0 IMPACT ON THE INTERMEDIATE BENEFITS: WOMEN’S ECONOMIC CAPACITY**

The strategy’s ultimate goals—improved household food security and nutritional status—first require that the intermediate impacts of poverty alleviation, empowerment and behavior change be achieved at the level of the individual borrower. For this reason, qualitative and quantitative methods were used to investigate impact on each of these three areas of intermediate benefits. This section summarizes the results pertaining to women’s economic capacity for poverty alleviation as measured by their

- ❖ access to credit and loan use;
- ❖ income;
- ❖ nonfarm earnings;
- ❖ personal savings;
- ❖ entrepreneurial skill;
- ❖ food expenditures; and
- ❖ household expenditures.

The credit and savings component of *Credit with Education* has the most direct economic impact; however, nonformal education on microenterprise development as well as the group solidarity and support also aim to improve participants’ economic returns and entrepreneurial skill.

#### **Principal and Secondary Activities**

Participating and nonparticipating women in the program engage in very similar work (see Tables 4.1 and 4.2). The comparability in work patterns across the three sample groups reflects the approach of such poverty-lending programs as *Credit with Education*. Borrowers typically have experience in the income-generating activity for which they take a loan. While it is not uncommon for a woman to undertake a new activity or add a new product over the course of her partici-

pation, the loan activities in general reflect the work traditionally undertaken by women in the program area.

The most frequently mentioned principal activity by women in each group was animal husbandry. On the Altiplano, women are very involved with the care of the family’s animals—most often sheep, goats and cows and less frequently llama, poultry and pigs. Often the survey team was only able to locate a woman by searching the pastures surrounding a community where animals graze. The mother would be interviewed and measurements taken in the pasture with the sheep and cows grazing nearby. The category of animal-raising also includes those women who mentioned selling milk or making and selling cheese as their principal work. A major source of income in many of the study communities is the sale of milk and/or cheese. Milk is collected on a daily basis by APLEPAZ (Asociación de Producción de Leche de La Paz) and families also make and sell cheese. Whether or not women participated in the CRECER *Credit with Education* service, almost half of the respondents from each group were principally involved with animal-raising.

Residents in control communities were almost three times more likely to identify farming as their principal activity than were participants. Women in program communities—participants and nonparticipants—were more likely than those in control communities to identify commerce as their principal activity. Participants were relatively more likely to be principally engaged in buying and selling animals, while the nonparticipants were relatively more likely to have small stores and/or to make and sell food and drink. Women in program communities were also more likely to have engaged in hired labor, explained by the location of two of the program communities (one located on a salt flat and the other surrounded by stucco quarries).

When combining the principal and secondary activities, participants were shown to be more actively engaged in commerce. Forty percent (40%) of the participants as com-

pared to only 24% of the nonparticipants and 13% of the controls mentioned buying and selling goods and/or making and selling food and drink in the last year.<sup>9</sup> The remoteness and minimal commercial development

of many of the study communities explains this relatively low prevalence of mercantile activity. However, women were also artisans. Approximately 15% of the women in the program communities wove, knitted or sewed

**Table 4.1: Bolivia–Principal Work Activity (1997 Only)**

<i>Activity Type</i>	<i>Participants</i>	<i>Non-Participants</i>	<i>Residents of Control Communities</i>
ANIMAL HUSBANDRY OR SELL ANIMAL BY-PRODUCTS (produce/sell milk, cheese)	37%	37%	46%
FARMING	11%	24%	30%
COMMERCE	24%	17%	8%
Subtotals			
<i>Store/Sell Groceries</i>	6%	7%	1%
<i>Buy/Sell Animals</i>	10%	1%	3%
<i>Sell Food/Drink</i>	8%	8%	4%
HIRED LABOR (work in quarry or salt flat, haul sand, clean house)	15%	11%	6%
ARTISAN (weave/sew clothes/blankets, make sandals)	10%	10%	8%
OTHER	3%	1%	2%

**Table 4.2: Bolivia–Secondary Work Activity (1997 Only)**

<i>Activity Type</i>	<i>Participants</i>	<i>Non-Participants</i>	<i>Residents of Control Communities</i>
ANIMAL HUSBANDRY OR SELL ANIMAL BY-PRODUCTS (produce/sell milk, cheese)	10%	20%	25%
FARMING	7%	8%	5%
COMMERCE	17%	12%	6%
Subtotals			
<i>Agricultural commerce/Store/Sell Groceries</i>	7%	8%	5%
<i>Buy/Sell Animals</i>	7%	2%	–
<i>Sell Food/Drink</i>	3%	1%	1%
HIRED LABOR (work in quarry or salt flat, haul sand, clean house)	4%	–	2%
ARTISAN (weave/sew clothes/blankets, make sandals)	7%	5%	1%
OTHER	–	–	2%

<sup>9</sup> For this analysis, a distinction is made between women who buy and sell cheese (an activity that is categorized as commerce) and women who make and sell cheese from the milk produced by their own animals (an activity that is categorized as animal husbandry).



articles such as blankets, sweaters and other clothing for sale. They might use wool from their own sheep and/or purchase higher-quality alpaca wool.

### Access to Credit and Savings Services

Table 4.3 summarizes the program borrowing history of the participant sample.<sup>10</sup> Although there was a wide range in program loan size, the average amount per borrower tripled over approximately 18 months of participation. In general, loan size increases as a woman stays in the program for multiple loan cycles. Box 4.4 outlines the progression of loan sizes for which participants are eligible each loan cycle. As required by the program, all members must maintain a certain minimum savings with their Credit Association although they are encouraged to save above this mandatory amount.

Participants of the CRECER *Credit with Education* program also have access to internal loans from their Credit Association. The internal fund is made up of individual savings, weekly repayment installments on the program loan and group monies from fees and fines. Because of the lack of financial institutions in rural Bolivia, each Credit Association holds and manages its own internal fund. Over time the internal fund can become quite large as participants' loan sizes and savings grow. Specific internal loan policies are determined by each individual Credit Association; however, in general, each week the entire internal fund is loaned out to members, and in some cases nonmembers, in the

form of internal loans. Box 4.4 outlines the difference between the program and internal loans.

The great majority of women in the participant sample had taken at least one internal loan in the previous loan cycle and many had taken more than one (see Table 4.5). Although participants were borrowing less from the internal fund than from CRECER, internal lending was still very active (on average \$154 per borrower). Women explained that they liked that the internal loans offered them access to additional working capital on more flexible terms. Repayment installments are not required, and depending on the availability of internal funds, loan amounts can exceed the program loan ceilings. As is discussed in greater detail in the next section, women reported using their internal loans in ways very similar to their program loans.

Certainly, households not participating in the *Credit with Education* program are borrowing from sources other than CRECER. Table 4.6 indicates that approximately one-quarter of the households in each of the three survey samples borrowed from sources other than CRECER during the twelve months before the follow-up survey. However, very few women respondents themselves had taken loans from alternative sources.<sup>12</sup> The most common source of loans was family or neighbors and/or friends. Approximately 7% of the households, primarily those in the larger communities, reported borrowing from other credit programs such as PRODEM, Sartawi

**Table 4.3: Participants' Program Loans and Savings<sup>11</sup> (1997 Only)**

Amount of First Program Loan (Mean)	Amount of Current Program Loan (Mean and Range)	Number of 4-Month Loan Cycles Completed (Mean and Range)	Amount of Savings on Deposit with Program (per Borrower)
Bs. 30 (approx. \$60) Bs. 300	Bs. 1,045 (approx. \$197) Bs. 300 to Bs. 2,000	4 cycles (3 to 7 cycles)	Bs. 281 (approx. \$53) Bs. 30 to Bs. 760

<sup>10</sup> One borrower had left the program just two weeks before the follow-up interview, but because she had participated for more than one year and had a child of the desired age she was included in the study.

<sup>11</sup> Dollar equivalencies have been provided using contemporary exchange rates. The exchange rate for the follow-up period was \$1US=Bs. 5.3.

<sup>12</sup> In only one case did a participant say that she herself had taken an alternative loan. She had borrowed Bs. 200 from a family member at no cost to buy food.

**Box 4.4: Program Loans versus Internal Loans**

**Program or External Loans.** Program loans are made by CRECER to the Credit Association and divided among the individual members. These loans are repaid in 16 equal installments of principal and interest during a 4-month loan period or “cycle.” An interest rate of 3.5% per month or 14% per loan cycle is applied to the total loan amount. The interest accrues to CRECER although field agents do not take the repayment installments until the end of the loan. Participants jointly guarantee each other’s program loans. Participants are eligible for a progression of loans of increasing size based on their repayment and savings history. The maximum loan size is Bs. 3,500 per borrower. Loan ceilings for the various loan cycles are as follow:

- |                  |                    |                    |
|------------------|--------------------|--------------------|
| cycle 1: Bs. 300 | cycle 4: Bs. 1,200 | cycle 7: Bs. 2,500 |
| cycle 2: Bs. 500 | cycle 5: Bs. 1,500 | cycle 8: Bs. 3,000 |
| cycle 3: Bs. 800 | cycle 6: Bs. 2,000 | cycle 9: Bs. 3,500 |

**Internal Loans.** Each Credit Association determines its own internal loan policies although considerable similarity exists across groups. Internal loans are primarily made to *Credit with Education* members, but in some cases also to nonmembers. The loan period ranges in length from one to four months. Repayment is made as a lump sum rather than in weekly installments. The interest charged is from 4% to 5% per month. (Because internal loans are paid in a lump sum rather than in weekly installments, the effective interest rates of the two types of loans are closer than they appear.) The interest paid on the internal loans is divided among the members through a dividend system based on a member’s loan and savings amounts. There is no maximum amount for internal loans although individual Credit Associations may choose to adopt one. Members do not guarantee each other’s internal loans and all internal loans must be repaid before a program loan cycle can end and new program loans are disbursed.

or FADES. Only one respondent mentioned borrowing from a *pasanaku*—an informal savings and lending group in which members contribute and rotate access to the collective amount.

Almost half of these alternative loans came from informal sources that charged no interest. However, there were cases where even loans from family members required from 2% to 5% interest per month. The other credit programs seemed to charge interest similar to CRECER with a range of 3% to 4% per month. Most of the smaller loans were for

food or other family expenses such as school uniforms or clothes. The largest loans were for assets such as land or a motorcycle.

Participant households used their alternative loans in a manner similar to their CRECER loans. The most common use for the loan was to purchase animals. The second most common use was to pay for family expenses such as food or clothing. Nonparticipants and controls were two and four times, respectively, more likely than participants to use alternative borrowing to buy food for their families.

**Table 4.5: Participants’ Internal Loans (1997 Only)**

Percent of Participants Who Took at Least One Internal Loan in the Previous Loan Cycle	Amount of Internal Loan (Mean and Range)	Number of Internal Loans Taken in Previous Loan Cycle (Mean and Range)
85	Bs. 814 (Bs. 0 to Bs. 3,900)	2.9 loans (0 to 7 loans)

## Loan Use

The type and degree of impact the strategy's credit component has depends on how women use their loans and how they use the relative returns to their investment strategies. As with other poverty-lending programs, a central tenet of the *Credit with Education* strategy is that borrowers themselves know best how to use a loan. The credit offered is unfixed and no attempt is made to verify that loans are spent on reported loan activities. However, to help the participants avoid repayment problems, they are encouraged to use their loans for productive purposes; at the start of each loan cycle, the Credit Association reviews the feasibility of each member's proposed new loan use. The short loan period and weekly repayment installments also help to ensure good repayment performance partly because these requirements are more compatible with activities that earn steady returns than they are with agriculture. Typically, such loan terms favor microenterprises such as commerce, food processing or the production and sale of handicrafts. CRECER has undertaken the

challenge of extending its rural outreach as deeply as possible, because these are the areas of Bolivia that to a large degree have been bypassed by development. However, because commercial development in many of the study communities was minimal, women's income-generating opportunities were relatively limited.

Participants (n= 70) were asked in the follow-up survey how they had used their most recent CRECER loan. In declining order of frequency, the categories of use were as follow:

**34% Commerce.** Buy and sell cheese (7 borrowers); buy goods for my store (7); make and sell food or drinks (5); buy and sell firewood (2); buy and sell salt (2); buy and sell stucco (1).

**31% Bought Animals for the Family.** Buy a sheep or pig for my family (12 borrowers); buy a cow or bull for my family (9); buy chickens to sell the eggs (1).

**30% Did Not Invest.** Bought food for my family (16 borrowers); bought clothing or other items for family (4);

**Table 4.6: Alternative Sources of Credit (1997 Only)**

	Participants n= 71	Nonparticipants n= 85	Residents in Control Communities n= 96
Percent reporting someone in the household had taken a loan from a source other than CRECER in the last 12 months	24	26	30
Percent reporting they themselves had taken a loan from an alternative source in the last 12 months	1	7	5
<b>SOURCE OF LOAN (number)</b>			
Family member	9	11	20
Neighbor/friend	2	5	-
Other credit program: FADES, Sartawi, PRODEM, another NGO	5	6	8
Other: bank, <i>pasanaku</i> , CRECER member	1	2	1
<b>AMOUNT (mean and range)</b>	Bs. 1,650 (Bs. 50 to Bs. 10,600 )	Bs. 2,223 (Bs. 20 to Bs. 25,500)	Bs. 781 (Bs. 50 to Bs. 5,000)
<b>DURATION (mean and range)</b>	6.5 mo (1 to 24 mo)	4.0 mo (1 to 12 mo)	5.9 mo (1 to 24 mo)

gave it to my husband or other family member to invest (3); bought building materials for my house (1).

**19% Buy Animals to Sell.** Buy sheep or pigs to sell or butcher (9 borrowers); buy cows or bulls to sell (6).

**10% Inputs for Agriculture or Animal Husbandry.** Buy animal feed (5 borrowers); buy agricultural inputs (1); buy net for fishing (1).

**9% Artisan.** Make and sell woven, knitted or sewn items (7 borrowers).

**7% Other.** Buy firewood or fuel for *estucaria*<sup>13</sup> (2 borrowers), buy a motor for *estucaria* (1); buy dollars (\$200) (1); buy rubber to make sandals (1).

It is important to realize that many borrowers (almost 40%) reported using their loans in more than one manner. Although 30% reported using their last loan to buy food or other things for their families, typically only part of the loan was used in this manner. Still, the most common single use for either the program or internal loans was to buy food for the family. Clearly program participation affects consumption-smoothing. Women also explained that dry goods such as pasta are cheaper when purchased in large bulk amounts. Box 4.7 indicates the diversity of loan use by detailing the program and internal loan-use strategies of 13 borrowers included in the survey.

As seen in Box 4.7, loans were used for items and activities as diverse as nets for fishing, firewood to make stucco, cheese to buy and sell, and vicuña wool to knit. Still, a striking feature of many of the common loan-use strategies—buying animals for the family, buying animals to raise and sell to buy food and other items for the family—is that they do not generate the steady income needed to repay weekly. Clearly, money used to make the weekly repayments often comes from alternative sources—such as the sale of

milk and cheese. It also seems likely that access to internal loans might also assist with the weekly repayments either directly or by helping to cover family expenses until loan-financed activities such as raising and selling animals yield returns.

## Economic Impact

The follow-up survey included a series of retrospective questions to determine economic impact in general. Participants were asked if their income, savings and number of animals had “increased greatly,” “increased,” “stayed the same,” “decreased” or “decreased greatly” since they joined the *Credit with Education* program. Figure 4.8 shows that the majority of participants felt their own savings and income had increased; few categorized the change as being “great.” A little more than 40% reported an increase in the number of animals since joining the program.

## Savings

Savings is an important economic resource for coping with family emergencies, developing an income-generating activity or making significant investments in quality-of-life improvements. While it is true that the program requires some amount of mandatory savings, this amount can be quite nominal and members are able to withdraw their savings at the end of a loan cycle. Given this mandatory requirement, it is not surprising that there was a significant difference in the percentage of participants having savings between years versus controls and versus nonparticipants, but not for nonparticipants versus controls (see Table 4.9). There was also a significant difference in the amount of savings between years for participants versus nonparticipants.<sup>14</sup> The amount participants had in savings also varied tremendously—from Bs. 0 to Bs. 7,000—indicating the range in economic success among borrowers living in the same communities and participating in the same program.

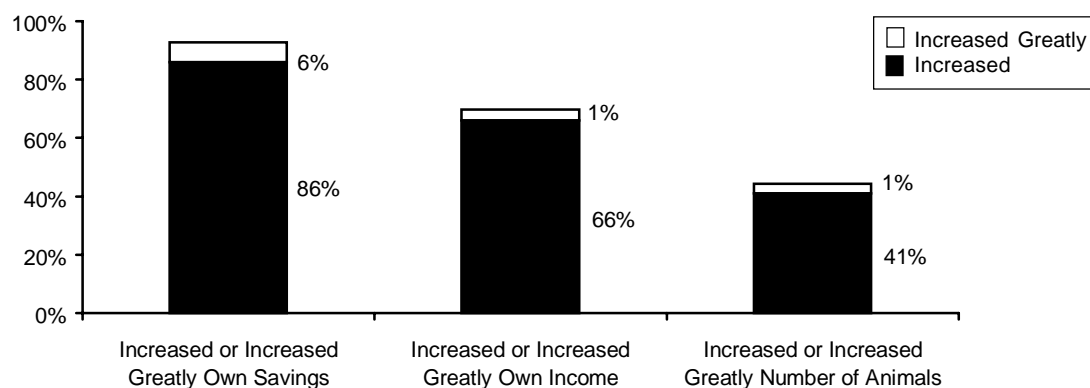
<sup>13</sup> An *estucaria* is a “mill” which produces stucco. The *estucaria* is a makeshift structure typically built into the side of a rock face or the hills surrounding a community. Rock is blasted from the mountainside and is brought to the *estucaria* to be ground and made into stucco that is used as building material. Relatively large quantities of fossil fuel and firewood are used to process stucco.

<sup>14</sup> If a woman said she had savings, she was only asked to indicate her amount of savings by selecting precoded ranges. This was done because program implementers and interviewers felt women would be unwilling to reveal exact amounts.

**Box 4.7: Loan-Use Strategies of Selected Borrowers for Their Most Recent Program and Internal Loans**

- #1: Bs. 2,000 loan from CRECER to buy a large animal (cow or bull) for the family. Also a Bs. 2,300 internal loan to buy small animals (sheep or pigs) for the family.
- #2: Bs. 500 loan from CRECER to buy and sell cheese and to buy chickens to sell their eggs. Also a Bs. 1,250 internal loan to buy small animals (sheep or pigs) and to buy food for her family.
- #3: Bs. 1,000 loan from CRECER to buy small animals (sheep or pig) and food for the family and to buy wool to weave. Also a Bs. 200 internal loan to buy food and a small animal (sheep or pig) for the family.
- #4: Bs. 300 loan to buy a small animal (sheep or pig) for the family and to sell and to buy animal feed. Also an internal loan of Bs. 600 to buy small animals for the family and to sell.
- #5: Bs. 1,800 loan from CRECER to buy and sell salt. Also a Bs. 1,200 internal loan to buy food for the family.
- #6: Bs. 1,800 loan from CRECER to buy small animals (sheep or pigs) and food for the family and to buy a large animal (cow or bull) to sell. Also a Bs. 750 internal loan to buy clothing and other items for the family.
- #7: Bs. 1,800 loan from CRECER to buy motor for *estucaria*. Also a Bs. 500 internal loan to buy firewood for the *estucaria*.
- #8: Bs. 800 loan from CRECER to make and sell food. Also a Bs. 200 internal loan to process travel documents for her children.
- #9: Bs. 1,800 loan from CRECER to buy small animals and food for the family and large animals (cow or bull) to sell. Also a Bs. 750 internal loan to buy clothing and other things for the family.
- #10: Bs. 1,800 loan from CRECER to buy clothing and other items for the family and to buy firewood or fuel for the *estucaria*. Also a Bs. 2,300 internal loan to buy food for the family.
- #11: Bs. 500 loan from CRECER for agricultural inputs. Also a Bs. 800 internal loan to buy small animals for the family.
- #12: Bs. 1,800 loan from CRECER to buy merchandise for her store. Also a Bs. 1,200 internal loan to repair the family's house.
- #13: Bs. 1,800 loan from CRECER to buy and sell firewood. Also a Bs. 3,900 internal loan to buy potato seeds to plant.

**Figure 4.8: Percentage of Participants (n=71) Reporting Increases in Savings, Income and Animals Since Joining the CRECER Program (1997 Follow-up Only)**



### Income

In general terms, the majority of participants (67%) reported that their incomes had increased since joining the *Credit with Education* program. Participants identified the following reasons why their incomes had increased:

- ❖ Expanded scale of income-generating activity (41%)
- ❖ Reduced costs because now able to get inputs in bulk (13%)
- ❖ Undertook new activity or new products (10%)
- ❖ Sold in new markets (8%)

- ❖ Reduced costs because no longer dependent upon getting inputs on credit basis (3%)

The most common effect of program participation was the expansion of existing activities and increased profit margins. For example, women with stores were able to buy more merchandise; women who made shawls and blankets could buy more wool and produce more continually; and other women were able to buy small, skinny cows and over time fatten them to resell at a higher price. Very few participants (10%) attributed their increased incomes to new activities or products or to selling in new markets (8%). It seems the major change was expansion of existing activities.

**Table 4.9: Personal Cash Savings**

	Participants		Nonparticipants		Controls	
	Baseline n= 76	Follow-up n= 71	Baseline n= 78	Follow-up n= 85	Baseline n= 93	Follow-up n= 96
<b>Percentage who report having personal savings</b>	22	86*	22	53	24	67
<b>Percentage having savings greater than Bs. 200 (approx. \$40)</b>	5	37**	5	11	4	17

\*Controlling for distance from major market, significant difference in percent having savings for participants versus controls ( $p < .05$ ) and participants versus nonparticipants ( $p < .05$ ) but not for nonparticipants versus controls.

\*\*Controlling for distance from major market, significant difference in percent having savings more than Bs. 200 for participants versus nonparticipants ( $p < .05$ ) but not for participants versus controls or for nonparticipants versus controls.

Still, it is important to note that 23% of the participants reported there had been no change in the amount of income they had been able to earn and 7% reported a decrease in their income. Given the high rate of loan-use to purchase animals, food or other items for the family, it seems that for about one-quarter of the participants, impact on their income was not a major effect of the program. One participant whose income had “decreased” explained she had invested the loan in sheep and fertilizer and because she doesn’t have a business of her own, repays with her husband’s money. Other women described how they would divide their loan and use part of it to buy animals and part of it to engage in commerce such as buying and selling cheese just so they could repay their loan. For these women, their profit is really “on the hoof” rather than evident in increased income earnings.

### ***Nonfarm Income Earnings***

Efforts to quantify income are notoriously difficult. For the purposes of this impact evaluation research, the initial focus was on women’s own income earned from nonfarming activities. While nonfarm income is likely to represent only a portion of returns to women’s overall productive labor, this impact indicator was selected for a number of reasons. First, the primary objective of the research was to assess program impact on children’s nutritional status and those intermediate benefits most related to children’s nutritional status. Previous research has indicated that income increases controlled by women are more directly associated with positive impact on children’s nutrition than household income in general (Blumberg, 1988; Bruce, 1989; Guyer, 1980; and Hoodfar, 1988). Also, steady income earnings are more likely to be channeled to nutritionally beneficial basic needs expenditures such as food and clothing than are lump sum earnings from activities like agriculture. In fact, these indications, in part, led Freedom from Hunger to develop the *Credit with Education* strategy to achieve its mission to

alleviate hunger and malnutrition. Second, it was decided that collecting total household income was not feasible given the multiple foci of the research (on health behaviors and women’s empowerment as well as economic impact) and the time and resources required by the interviewers and respondents to collect this type of comprehensive information. Finally, given the loan terms, it was expected that the primary economic impact of the program would be on women’s microenterprise earnings.

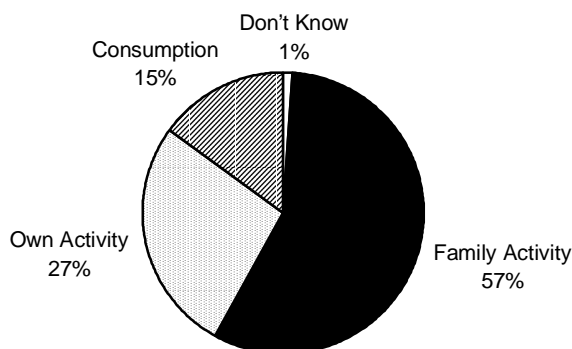
Women’s income was quantified by asking respondents about their nonfarm earnings for the four weeks preceding the survey. Because few women kept accounting records and recall of income flow information is difficult, the reporting period was limited to only four weeks before the interview. In the baseline period, women were asked whether they had earned income in their own business. Only 39% of the baseline respondents reported having earned income in the last month. Once the program was implemented, it became clear that many clients invested their loans in what were considered “family” activities rather than the women’s own activities.

Figure 4.10 presents the breakdown on whether the 1997 participants reported they had invested their last program loan in an activity that they considered primarily “their own” or “a family activity.” Only a little more than one-quarter of the women would characterize the activity as their own. For this reason, in the follow-up period, income-flow information was collected for any nonfarm enterprise. As a follow-up question, respondents were asked whether they would consider this primarily a family enterprise or their own enterprise.

### **Estimated “Profit”**

Women were asked to estimate their profit for the time period best suited to the product cycle—per day, per week, per two weeks or per month. The mean monthly profit estimates are summarized in Table 4.11 for

**Figure 4.10: How Participants Invested Their Most Recent *Credit with Education* Loan (1997 Only)**



those activities women categorized as primarily their own.<sup>15</sup> (If a woman had more than one activity, her profit estimates were totaled.) There was no significant difference in the logarithm values of women's own monthly estimated profit between years for participants versus nonparticipants or participants versus the control sample. Although the nonparticipant sample in the follow-up period appears to have a much higher mean profit, this value is very much affected by a handful of cases where women earned relatively high profits. In the follow-up period, only approximately one-third of the respondents in any of the sample groups reported earning income from an activity they considered primarily their own.

In the follow-up period, information was collected on the general household earnings in the previous four weeks from sources other than farming and/or working for others. A

more striking contrast was evident in this measurement (see Table 4.12). The 1997 participants had significantly higher general monthly profits than nonparticipants or residents in control communities. Participants were also significantly more likely to have nonfarm income in the last month than the other two sample groups.

Although the 1997 survey exhibited significantly higher general nonfarm earnings, it is interesting to note that no significant difference was evident in earnings from primarily women-controlled activities. It is also important to emphasize the considerable range in participants' monthly earnings. Some participants reported monthly profits as high as Bs. 800 to Bs. 1,200 (approximately \$150 to \$220). However, one-quarter of the participants reported profits of Bs. 50 (approximately \$10) or less per month. It is clear there is a great diversity of impact even

**Table 4.11: Estimated Profit from Women's Own Nonfarm Earnings in the Preceding Four Weeks**

	Participants		Nonparticipants		Controls	
	Baseline n=76	Follow-up n=71	Baseline n=78	Follow-up n=85	Baseline n=93	Follow-up n=96
Percent of women with own earnings	49	37	30	34	36	24
*Monthly profit from women's own nonfarm enterprise—mean (and standard deviation)	Bs. 60 (95)	Bs. 59 (113)	Bs. 42 (97)	Bs. 127 (571)	Bs. 48 (91)	Bs. 47 (152)

\*Controlling for distance from major market, no significant difference in the log value of respondents' own estimated monthly profit for any of the groups.

<sup>15</sup> Given the tremendous range and skew in this measurement, it would be preferable to present median rather than mean values. However, because more than 50% of the respondents in each group had no monthly profit, all the mean values are presented in Table 4.11 and the median values in Table 4.12.



**Table 4.12: Estimated Profit from Women’s Own or Family Nonfarm Earnings in the Preceding Four Weeks**

	<b>Participants n= 71</b>	<b>Nonparticipants n= 86</b>	<b>Controls n= 96</b>
Percent with nonfarm earnings	84	60	53
*Monthly profit from overall nonfarm earnings—median (and standard deviation)	Bs. 160 (249)	Bs. 60 (597)	Bs. 27 (252)

\*Controlling for distance to major market, significant difference in the log value of monthly nonfarm profit for participants versus nonparticipants ( $p < .05$ ) and participants versus controls ( $p < .05$ ) but not for nonparticipants versus controls.

within the same Credit Association, with some women enjoying considerable improvement in their activities while others experience little change. A better understanding of the factors that allow some women to be relatively more successful—individual attributes, entrepreneurial skill, investment strategies, local commercial development or program loan terms—could lead to changes in program implementation, such as microenterprise development education, which might enhance the economic impacts for other, less successful borrowers.

The stories of four borrowers are included here to portray by example the diversity of program impact (see boxes 4.13–4.16).<sup>\*</sup> The benefits each woman enjoys from participating in CRECER’s *Credit with Education* program depend in large part on her loan use and the economic opportunity of her community. The first borrower lives in a community dedicated to animal-raising where livelihoods depend primarily upon the sale of milk and cheese. Each cycle the progressively larger loans enabled her to invest in more and larger animals leading toward her ultimate goal of buying a milk cow. However, a mounting tension is evident in this loan-use strategy given the short loan period and increasing weekly repayment requirements. The second borrower has been able to substantially expand and benefit from her restaurant business during her approximately three years with the program. Living in one of the more commercially developed communities, this borrower has been able to expand into surrounding markets, hire assistants, buy larger pots and rent an additional kitchen with what she estimates to be a sevenfold increase in her weekly profit. The

third borrower believes she has experienced little economic benefit from her participation in the program. Living in one of the most remote study communities, the intense competition and low returns to her loan activity—selling sheep parts—force her to travel to La Paz each week although the transportation costs cut into her profit. The minimal impact on her income is also linked to use of loans to buy land and school uniforms. The fourth borrower has used the loans to significantly expand the number of sweaters she makes and sells in a month. She would like a larger loan to buy a sewing machine so that she could increase her productivity and sales even more.

### **Entrepreneurial Skill**

As is clear from boxes 4.13 through 4.16, how the program loan is invested will greatly influence the return and economic benefits a borrower is able to enjoy. A basic assumption of the *Credit with Education* strategy, like other minimalist credit approaches, is that the borrowers know best (or at least better than an external lender) what activity would be most profitable for them given their personal considerations and trade-offs. However, it is also recognized that *Credit with Education* is serving women operating in a survival economy, many of whom might benefit from practical entrepreneurial and credit-use skills development. One characteristic associated with what has been referred to as “C-level enterprises,” or pre-entrepreneurial microenterprises, is that the producer focuses more on “supply” than “demand” considerations. For example, the entrepreneur might be primarily influenced to pursue an enterprise on the basis of familiarity

<sup>\*</sup>Actual names are not used in the stories to respect confidentiality.

**Box 4.13: Animal Raising**  
***“We only survive by selling milk”***

The principal objective of *Credit with Education* clients in Arajillanga is to become eligible for a large enough loan (Bs. 2,000 to Bs. 4,000) to buy one of the most important productive assets for households in this community—a good milk cow. The approximately 750 inhabitants of Arajillanga live 7.5 km from the nearest market. The poor soil quality of the surrounding area cannot support the cultivation of staple crops like potatoes or quinoa, so households primarily subsist by raising animals, especially cows, for the production of milk and cheese. “We only survive by selling milk,” one member explained. This lack of economic opportunity is made worse by tightly controlled local markets. According to a CRECER program coordinator, each commodity has a section in the market which is unionized and run by a director who controls the number of vendors selling the same item. He believes it is actually easier to get market space in La Paz than in local markets. If women do gain access, vendors are charged weekly rent on the stall space, a weekly tax and a membership fee. To make ends meet, the men of many households go to the cities for part of the year to work as hired laborers.

Limited options to earn income were evident in the fact that all 38 members of the Credit Association reported using their fourth-cycle loan to either purchase animals (mostly little cows, little bulls or sheep) or animal feed. The experience of Rosemary illustrates how the progressively larger loans and profits were commonly used. Rosemary used her first loan (Bs. 300 = \$60) to purchase smaller, less costly animals—a young sheep (Bs. 200) and pig (Bs. 100). With her second loan (Bs. 500 = \$100), she bought two lambs (Bs. 200 each) and another pig (Bs. 100) to replace the last one which died. With her third loan (Bs. 800), Rosemary bought three more mature sheep of better quality including one pregnant ewe. After the ewe gave birth, she sold it for Bs. 200 and kept the lamb. She used the profit, along with another Bs. 100 and the Bs. 1,200 of her fourth loan, to purchase a bull calf. Rosemary was able to repay weekly from income generated from milk, cheese and egg sales from her family’s other animals.

Rosemary and other members begged for larger loans and a longer repayment period. They wanted to buy more profitable animals, like milk cows, but to do this they needed smaller weekly payments over a longer period of time. With the relatively short 4-month loan cycle, members complained that so much of their profit from selling milk and cheese was going toward weekly repayment that they didn’t have enough money to buy food to eat. By the fourth cycle, the weekly repayment and savings requirement on the fourth-cycle Bs. 1,200 loan was Bs. 90.5 per week—an amount increasingly difficult to cover from alternative sources. Despite wishing for adjustments to the loan terms, members report that since joining the program they have been able to buy more animals, earn a little bit more profit from their businesses and have learned how to manage their money and businesses better.

**Box 4.14: Selling Cooked Food**  
***She took the largest loan in her group***

Isabella is a successful entrepreneur and member of the first Credit Association organized in Villa Remedios. Her community of about 1,000 persons is one of the largest in the study and is a market center for the surrounding area. Isabella borrowed Bs. 3,000 (approximately \$600) in her ninth loan cycle, which was the largest loan taken by any woman in her group. This 37-year-old resident has five children and married when she was 15. Her husband works for an electrification company. Isabella cooks various meats and sells them in several markets. She was taught how to make these foods by her mother and has been doing it since she was a child. Before joining CRECER, she was only selling two kinds of meat in a single market and she estimated her profit was only Bs. 20 to Bs. 30 per week. Now she sells six kinds of meat in four markets each week and earns Bs. 150 to Bs. 200 in profit. She has hired 15- and 16-year-old girls to help her as well as an older woman to peel potatoes. She pays the girls Bs. 150 per month. Her husband also helps her some afternoons. In the past, her children helped her more, but one son and a daughter went to Argentina. One of the internal loans she borrowed from her Credit Association was to pay for a passport and other costs of sending her son to Argentina.

The biggest change for Isabella since joining *Credit with Education* almost three years earlier was that it became much easier for her to get money to run her business. She was able to buy bigger pots for cooking and had just started renting a little kitchen in which to cook at the market in Alto Patacayma. In addition, she has been able to build rooms onto her house. Her children wanted to have their own rooms, so now they are happier. At the time of the interview, Isabella had Bs. 1,000 in savings with the goal of saving a total of Bs. 2,000 to Bs. 3,000 for her son's marriage. She also wanted to get benches in her kitchen for people to sit on. In the future she would like to build a *pension*<sup>16</sup> and rent rooms; this would require about Bs. 5,000. Before she joined CRECER, Isabella belonged to another program, but didn't like it as much because there were men in her group who were late in repaying. Also, the other program had no savings and no internal fund.

Isabella would prefer to take a larger loan from CRECER (of Bs. 5,000 to Bs. 6,000), with smaller regular payments twice a month over a 6-month loan cycle. She says she has to spend her profit on many obligations, including her husband's debt to a cooperative to which he belonged. She thought she could repay a loan of this size just with the profit from her cooked food. She also would like bi-monthly rather than weekly meetings because she is very busy with her business and taking care of animals.

---

<sup>16</sup> Boarding house.

**Box 4.15: Commerce—Selling Meat**  
***She can't carry two children and ten sheep***

The story of this borrower illustrates how difficult the lives of many members can be. Amelia lives in Jayuma, one of the most remote communities in the study. During two to three months of the rainy season, it is cut off by a river, which people must wade across to reach the single road into the community. The primary work in Jayuma is the production of salt. A large saltwater spring generates natural salt, which families harvest to sell. Because of the salt content in the soil and water, agriculture does very poorly in the area. Many families have no agricultural land, although some have land in nearby communities.

Amelia has six children ranging in age from 11 months to 14 years. She and her family earn income by selling salt, buying and slaughtering sheep and selling the meat in La Paz, and growing potatoes. Each week, she takes the approximately four-hour trip to La Paz to sell butchered sheep using every part—the wool, meat, organs, head, etc. Sometimes she earns a profit and sometimes she doesn't. If she is able to sell the parts of three or four sheep, she makes Bs. 30 to Bs. 40, but if she can sell the parts of five or six sheep, then she makes Bs. 50 to Bs. 60. It costs her Bs. 16 to travel to La Paz, so if she only sells the meat of one sheep, she makes no profit at all. If only she could carry 10 or 11 sheep, she feels she could make a good profit. But she can't manage carrying two of her children and the parts of 10 sheep. She could sell the sheep parts in Pando (a nearby larger town), but she can earn more by selling in La Paz. Selling to wholesalers in Pando, who come from La Paz, is not an option, because they buy at the same price she pays for the live sheep.

Amelia has been in the program for four loan cycles, or a little more than one year. She says participation has had little economic impact and that her income has not increased, nor does she think she has more animals since joining the program. The only difference is a little bit more to eat. Amelia had used her CRECER loans both to invest in sheep and to buy things for her family. In the first cycle she took a combination of program and internal fund loans totaling Bs. 1,000 to buy sheep which she butchered and sold. During her second loan cycle she used money from salt sales plus her loan to buy land for her children in La Paz. She said that she likes the rural area but wants to get land in La Paz where her children can live. There is no building on the land, and she is still paying for it. In cycle three, she again bought sheep for slaughter and sold meat and parts. In cycle four she took a loan of Bs. 1,500 and used Bs. 480 to buy school uniforms for four of her children.

#### **Box 4.16: Artisans**

##### ***From 10 sweaters in a month to 10 sweaters in a week***

Gracelia, a member of the Coropata Credit Association, makes and sells sweaters from alpaca and sheep wool. She learned how to make sweaters from a course taught by a “women in development” project called the Mothers’ Club. Before joining the CRECER program, she sold approximately 10 sweaters a month. Now she sells an average of 10 sweaters per week. A woman comes from the city and buys all the sweaters Gracelia is able to finish. Gracelia’s seven children, ages four months to 12 years, are too young to help her make the sweaters, but her husband pitches in and sometimes she uses someone else’s machine. The family also farms and has cattle. When Gracelia has time, she also makes hats and other things and sells them in the local market.

At the time of the interview, Gracelia was in her fourth loan cycle, so she had been in the program for just a little more than a year. In the first and second loan cycles, she took loans of Bs. 300 each. In the third and fourth loan cycles, she took loans of Bs. 500. Her passbook shows that on this Bs. 500 (\$100) loan she will pay Bs. 70 (\$14) interest. Each week she saves Bs. 5 and repays Bs. 31.25 in principal and Bs. 4.75 in interest. In the fourth loan cycle she also took an internal loan of Bs. 400. She used the loan to buy alpaca and sheep wool in the El Alto market, but uses her profit from the sale of sweaters to buy food for the family.

Gracelia said her experience with the program had been good and that what she had learned most came from the health and nutrition learning sessions. However, she mentioned needing larger loans so that she and three other members could pool their loans and buy a sewing machine. She thought machines strong enough for sewing sweaters cost as much as Bs. 4,000. She explained that the purchase of a sewing machine would be a good group venture, because this would help maintain equality of earnings. If she gets the machine and earns more than the others, she was concerned that people would not trust her and would say she has more money. On the other hand, she thought it might be better to purchase a machine on her own, because with a group machine they would share profits regardless of the amount each individual worked. With your own machine, your returns match your effort.

with or the seasonality of this work rather than whether it is in demand or likely to yield profitable returns.

Table 4.17 summarizes the most common factors respondents mentioned when asked what they consider when deciding in which income-generating activity to engage.<sup>17</sup> The most common reason given by women in each group related to their familiarity with the activity. The second most common factor for each group was profitability or demand considerations with no significant difference between participants and nonparticipants or participants and controls giving this response. Women in each group were more likely to mention considering the time an in-

come-generating activity required than the amount of working capital needed. It seems that time constraints and the demands of women’s other responsibilities, such as childcare and animal husbandry, were for many women as important, if not more so, than access to working capital in their selection of income-generating activities.

#### **Expenditures**

A major assumption underlying the design of the *Credit with Education* strategy is that if women are assisted in earning increased incomes, they will invest their increased profits in nutritionally beneficial items such as food, healthcare, shelter and other basic

<sup>17</sup> Results from 1997 only are presented here, because only those women with their own enterprise were asked this question in the baseline, which resulted in few responses.

**Table 4.17: Factors Women Considered When Selecting an Income-Generating Activity (1997 Only)**

	Participants n= 70	Nonparticipants n= 81	Controls n=91
Familiarity with the work (have done this work before, it is the season/others doing it)	74%	75%	60%
Time required/compatibility with other work or family responsibilities	13%	14%	19%
Working capital (whether have enough, whether work requires little capital, etc.)	3%	6%	8%
Demand for product/profitability of activity	49%	40%	36%

needs like clothing. In addition, it is hoped that the strategy's education component will increase awareness and appreciation for nutritionally beneficial expenditures and make these investment decisions more likely.

### **Food Expenditures**

Table 4.18 summarizes household food expenditure information. In both time periods, respondents were asked to estimate the household spending on several types of food. These estimates have been divided by the number of persons in the family (counting an adult as one and a dependent under 17 years of age as 0.75) to obtain per capita amounts. In the five categories of food, there

was not much difference between years in the amount spent across the three groups.

Although there was no significant difference between years in total per capita food expenditures for participants versus the other two survey groups, the findings pertaining to spending on meat and fish were interesting. There was most evidence of program impact for this more income-sensitive food purchase. There was a positive and significant difference between years that participants would have spent at least some amount on meat or fish as compared to residents in control communities ( $p < .05$ ) and a marginal difference in the per capita amount spent ( $p = .07$ ).

**Table 4.18: Per Capita Food Expenditures in Bolivianos—mean**

	Participants		Nonparticipants		Controls	
	Baseline n= 77	Follow-up n= 71	Baseline n= 79	Follow-up n= 82	Baseline n= 92	Follow-up n= 88
Maize/Rice	1.7	2.1	1.6	1.9	1.8	2.4
Oil	1.1	1.2	1.0	1.2	1.0	1.2
Cooked Food	.4	.7	.2	.4	.2	.5
Meat/Fish	2.5	3.2	1.0	2.4	2.0	2.2
Controlling for distance from major market and month information collected, significant difference for nonparticipants vs. controls ( $p < .05$ ).						
Vegetables/Fruit <sup>18</sup>	2.0	2.6	1.5	2.3	1.6	2.4
Potatoes/ <i>Chuño</i> <sup>19</sup>	2.1	.66	1.4	.7	2.1	.4
Controlling for distance from major market and month information was collected, significant difference in logarithmic values for nonparticipants vs. controls ( $p < .05$ ).						
Total Food Expenditures <sup>20</sup>	14.8	16.1	11.0	14.3	13.3	15.4
Controlling for distance from major market and month information was collected, no significant difference in the logarithmic values for any of the three groups.						

<sup>18</sup> Baseline collected information on vegetable purchases only but in follow-up included amounts spent on fruit.

<sup>19</sup> Baseline collected information on potato purchases only but in follow-up also included amounts spent on *chuño*.

<sup>20</sup> Total amount in the follow-up period refers to a larger number of food items than for the baseline period.

**Table 4.19: Spending on Clothing in Last 12 Months**

	<b>Participants n= 70</b>	<b>Nonparticipants n= 82</b>	<b>Controls n= 92</b>
Percentage spending some amount	96	95	91
Controlling for number of children and distance to major market, no significant differences.			
Per capita amount spent in Bolivianos Mean (and standard deviation)	135 (158)	100 (127)	90 (79)
Controlling for number of children and distance from major market, significant difference in logarithmic value of amount spent for participants versus controls ( $p < .05$ ) but not between participants versus nonparticipants or nonparticipants versus controls.			

There was also a marginally significant difference in spending on potatoes for participants vs. nonparticipants ( $p = .08$ ).

### ***Household Expenditures***

For the follow-up survey, women were asked to report the amount their household had spent on several types of common expenditures. Their responses were analyzed both in terms of whether the household had spent any amount and also the amount spent. Because of the considerable skew in expenditure amounts, statistical tests were done on the logarithm values.

The expenditure area with the highest prevalence across each of the three groups was clothing (see Table 4.19). More than 90% of the respondents in each group reported their household had spent some amount on clothing in the last twelve months. Controlling for the number of children in the household and the community, there was no significant difference in the prevalence of spending on clothing across the three groups. However, participants spent a significantly greater per capita amount than controls ( $p < .05$ ) and marginally greater than nonparticipants ( $p < .07$ ) even when controlling for the number of children and distance to

major market. There was no significant difference in the amount spent for nonparticipants versus controls.

A similar percentage of respondents from each group reported their household had spent some amount on school fees and expenses in the last year (see Table 4.20). When controlling for the number of children and distance to major market, there was no statistically significant difference among the groups in the prevalence of spending on education or the per capita amount spent.

Participants were significantly more likely than residents in control communities to report having medical expenditures, even controlling for the number of children and distance to major market (see Table 4.21). However, there was no significant difference between the logarithm values of the amount spent among the groups.

There was no significant difference among the three groups in either prevalence of spending on housing or in the per capita amount spent when controlling for distance to major market (see Table 4.22). Approximately only one-quarter of the respondents in any of the three groups reported their household had spent any money on housing improvements in the last year.

**Table 4.20: Spending on School Fees and Materials in Last 12 Months**

	<b>Participants n= 69</b>	<b>Nonparticipants n= 83</b>	<b>Controls n= 91</b>
Percentage spending some amount	65	68	72
Controlling for number of children and distance from major market, no significant differences among groups.			
Per capita amount spent in Bolivianos Mean (and standard deviation)	43 (48)	45 (51)	41 (45)
Controlling for number of children and distance from major market, no significant differences in logarithmic value among groups.			

Despite the fact that animal-raising was a common loan activity, participants were the least likely of the three groups to report spending on veterinary services or animal feed in the last six months (see Table 4.23). When controlling for distance to major market, participants spent significantly less on veterinary services than did residents of con-

trol communities ( $p < .05$ ) although there was no significant difference between participants and nonparticipants.

When controlling for distance to major market, there was no significant difference in the prevalence or amount spent on animal feed (see Table 4.24) in the last six months among the three groups.

**Table 4.21: Spending on Medical Costs in Last 12 Months**

	<b>Participants n= 71</b>	<b>Nonparticipants n= 85</b>	<b>Controls n= 91</b>
Percentage spending some amount	73	61	55
Controlling for number of children and distance from major market, participants significantly more likely to have spent some amount on medical costs than controls ( $p < .05$ ).			
Per capita amount spent in Bolivianos Mean (and standard deviation)	16 (29)	15 (36)	13 (30)
Controlling for distance from major market and number of children, no significant differences in logarithmic amount spent among groups.			

**Table 4.22: Spending on Housing Improvement in Last 12 Months**

	<b>Participants n= 69</b>	<b>Nonparticipants n= 81</b>	<b>Controls n= 90</b>
Percentage spending some amount	26	22	29
Controlling for distance from major market, no significant differences among groups.			
Per capita amount spent in Bolivianos Mean (and standard deviation)	44 (138)	62 (339)	43 (100)
Controlling for distance from major market, no significant differences in logarithmic value of per capita amount spent among any of the groups.			

**Table 4.23: Spending on Veterinary Services in Last Six Months**

	<b>Participants n= 70</b>	<b>Nonparticipants n= 83</b>	<b>Controls n= 92</b>
Percentage spending some amount	56	63	68
Controlling for distance from major market, no significant differences among groups.			
Per capita amount spent in Bolivianos Mean (and standard deviation)	31 (47)	50 (84)	54 (69)
Controlling for distance from major market significant differences between participants and controls ( $p < .05$ ) but not among participants and nonparticipants and controls.			

**Table 4.24: Spending on Animal Feed in Last 12 Months**

	<b>Participants n= 70</b>	<b>Nonparticipants n= 84</b>	<b>Controls n= 94</b>
Percentage spending some amount	43	43	52
Controlling for distance from major market, no significant differences among groups.			
Per capita amount spent in Bolivianos Mean (and standard deviation)	70 (133)	87 (141)	124 (205)
Controlling for distance from major market, no significant differences among groups.			



**Table 4.25: Animal Ownership**

	Participants		Nonparticipants		Controls	
	Baseline n= 77	Follow-up n=71	Baseline n= 78	Follow-up n= 84	Baseline n= 93	Follow-up n= 95
Percent who own chickens/ducks	56%	66%	67%	54%	59%	75%
Number of chickens/ducks–mean and standard deviation	2.1 (2.8)	4.8 (10.9)	2.4 (2.6)	2.0 (2.6)	2.3 (3.2)	4.4 (10.4)
Controlling for distance from major market, significant difference in percent owning chickens/ducks and logarithmic value of mean number of chickens/ducks for participants vs. nonparticipants and nonparticipants vs. controls but not for participants vs. controls.						
Percent who own sheep/goats	75%	83%	78%	75%	81%	82%
Number of sheep/goats–mean and standard deviation	8.5 (10.4)	11.0 (12.9)	11.3 (17.7)	15.3 (24.2)	14.0 (15.4)	16.3 (20.2)
Controlling for distance from major market, no significant difference in percent owning sheep and goats or logarithmic value of mean number of sheep/goats among the three groups.						
Percent who own cows/bulls	70%	73%	81%	77%	81%	83%
Number of cows/bulls–mean and standard deviation	2.3 (2.3)	2.7 (2.7)	3.0 (2.6)	3.4 (3.3)	2.7 (2.6)	4.5 (4.3)
Controlling for distance from major market, no significant difference between years in percent owning cows/bulls. Significant difference for mean number of cows/bulls for nonparticipants vs. controls and marginally significant participants vs. controls (p=.09).						
Percent who own oxen	9%	6%	22%	2%	17%	5%
Number of oxen–mean and standard deviation	0.1 (0.4)	0.1 (0.6)	0.3 (0.7)	0.04 (0.3)	0.3 (0.8)	0.08 (0.4)
Controlling for distance from major market, marginally significant difference in percent owning oxen participants vs. nonparticipants (p=.06). Controlling for distance from major market, significant difference between participants and nonparticipants in logarithmic value of number of oxen and marginally significant (p=.06) participants vs. controls.						
Percent who own horses/donkeys	20%	21%	26%	21%	48%	47%
Number of horses/donkeys–mean and standard deviation	0.2 (0.5)	0.3 (.06)	0.4 (0.7)	0.3 (0.6)	0.7 (0.8)	0.8 (1.0)
Controlling for distance from major market, no significant difference in percent owning horses/donkeys or logarithmic value of mean number of horses and donkeys among the three groups.						

### Animal Ownership

Forty percent (40%) of the 1997 participants reported that the number of animals their family owned had increased since they had joined the program. However, few significant differences were evident between the baseline and follow-up period in the prevalence of animal ownership or the number of animals owned (see Table 4.25). There was a positive and significant difference between years for participants as compared to nonparticipants in program communities for ownership of chicken/ducks and oxen (p<.05). However, there were no significant

differences among the three groups for animals such as sheep/goats or cattle that participants most commonly reported using their loans to acquire.

In fact, a larger and marginally significant (p=.06) difference between the years was evident in the number of head of cattle residents of control communities had compared to participants. However, it is important to note that the large standard deviation values (relative to the mean values) for certain indicators such as the number of sheep/goats or the number of cows/bulls indicate a large degree of variability in the numbers owned.

For example, one nonparticipant owned 110 head of sheep while one resident in a control community owned 28 head of cattle. Several households owning relatively large numbers of animals very much affect mean values. Less variability was evident in the participant households in the number of sheep and cattle owned.

Another factor that complicates evaluating impact on animal ownership is respondents' reticence to provide this information. Of all the survey questions, this was the most sensitive topic of inquiry as the number and type of animals owned is an important indicator of wealth and a potentially taxable asset. In several cases, a respondent or her husband only agreed to participate in the interview on the condition that they not be asked about their number of animals. Interviewers also reported instances when the interview occurred in the presence of cows. But when asked whether the family owned any cows, the woman said "no." When the interviewer asked about the cows which were tethered in plain view, they were said to belong to someone else.

## Conclusions

Participants, nonparticipants in program communities and residents in control communities engage in very similar work, although participants were more likely to have engaged in some type of commerce and less likely to have farmed in the last 12 months. The most common principal activity for women in each group was animal raising. On average, women in the participant sample had been in the program for a year-and-a-half. More than one-quarter of the nonparticipant and control households had taken a loan from a source other than CRECER in the last 12 months (most often from family, friends and/or neighbors) but less than 10% of the mothers reported that they themselves had taken such a loan. On average, the CRECER participants had borrowed a little more than Bs. 1,000 in program loans and Bs. 800 in internal loans in the last cycle. The most common uses for both types of loans was commerce, buying animals for the family, buying animals to sell and consump-

tion-spending such as buying food for the family. The majority of loan-funded enterprises were categorized by women as being "family" rather than "primarily their own" income-generating activities.

The majority of the 1996 participants (67%) felt that their incomes had increased since they had joined the *Credit with Education* program. Participants attributed this improvement to expansion of their income-earning activity, reduced input costs by buying in bulk or with cash and new activities or products that access to credit had made possible. From the baseline to the follow-up period, there was no significant difference between periods in participants' own nonfarm monthly profit as compared to nonparticipants and residents in control communities. However, when women's own and general family nonfarm earnings are pooled, participants earned significantly greater monthly profits than the other two groups.

In 1997, the median monthly nonfarm profit for the participant sample was two-and-a-half times more than the profit earned by the nonparticipants and more than five times the profit earned by the residents in control communities. While overall the 1997 participants exhibited significant improvement in their nonfarm earnings, there was considerable range in monthly profits. Some participants had profits as high as Bs. 800 to Bs. 1,200 per month, but one-quarter reported profits less than Bs. 500. A woman's loan-use strategy and the commercial development of her community influenced the degree of economic benefit she enjoyed.

Perhaps even more than an income effect, clients' diversified loan-use strategies suggest the program allowed participants to augment household assets—chiefly animals—and smooth consumption needs by purchasing food in bulk and meeting other basic needs.

Participants relative to nonparticipants and residents in control communities also demonstrated positive impact on personal savings. Participants were significantly more likely than nonparticipants and controls to have personal savings and significantly more likely than nonparticipants to have savings

in excess of Bs. 100. However, there was no evidence that program participation was fostering the entrepreneurial skills of participants in terms of their considering factors related to demand and profitability when deciding to undertake an income-generating activity.

Some differences were seen in expenditures across the three groups. Participants were significantly more likely than residents in control communities to have spent money on medical costs during the last year. Participants also spent a significantly greater per capita amount on clothing than nonparticipants or controls ( $p < .05$ ). However, no differences were evident in participants' spending on education, housing improvements and food.

An increasing tension was evident for borrowers investing in animals for their family. As the loan size grew, many women were eager to purchase milk cows—one of the most important productive assets in the study area. However, the short loan period and requirement of weekly repayment becomes more arduous for the borrower as the loan sizes grow, particularly when repayment is being made at least in part from sources other than the loan activity.

## 5.0 IMPACT ON THE INTERMEDIATE BENEFITS: WOMEN'S HEALTH/ NUTRITION KNOWLEDGE AND PRACTICE

An assumption underlying the design of the *Credit with Education* strategy is that although poverty is the root cause of malnutrition, income increases alone are unlikely to positively influence children's nutritional status. Key health and nutrition practices that will best nourish children, keep them healthy and promote their good growth are also important. Hence, nonformal health and nutrition education is directly integrated into the credit-delivery system and the learning sessions facilitated at the Credit Associations' regular meetings.

The evaluation collected information on knowledge and practice in each of the program's health/nutrition topic areas:

- ❖ Breastfeeding
- ❖ Child feeding
- ❖ Diarrhea treatment and prevention
- ❖ Immunization
- ❖ Family planning<sup>21</sup>

Program impact is assessed through comparisons of baseline and follow-up measures of the women's knowledge and practice of the specific ideal behaviors promoted in each of these topic areas. In addition, to better explore the relationship between the quality of education services offered and the intended behavior change, the client sample is further analyzed by the education service-delivery performance of the field agent(s) working with each Credit Association included in the study.

### Variability in the Education Services

Clients from 18 different Credit Associations were included in this impact evaluation study. These 18 Credit Associations were drawn from a relatively large study area covering five different provinces on the Altipl-

ano. The amount and quality of education services facilitated at the Credit Associations' regular meetings varied across borrower groups. While there is relative uniformity in the credit policies and terms that *Credit with Education* participants are offered, the quality of the education services is likely to be more variable. The skills and initiative of the field agent assigned to work with a particular Credit Association play an influential role in the amount and quality of education services a Credit Association receives. Similarly, the quality of the training, supervision and feedback provided to the various field agents on their performance also varied and ultimately influenced the quality of the education services clients received.

Over the course of the research, visits to the Credit Associations included in the study underscored the range in program services. Members of certain Credit Associations could talk at length about the specific health and nutrition behaviors they were discussing and trying. In some cases, Credit Association meeting places were decorated with posters depicting the health topics that the groups had discussed. At the other extreme, members of other Credit Associations included in the study complained that although the program was called *Credit with Education*, their groups had participated in very few learning sessions.

Certain field offices within the study area had experienced considerable staff turnover and implementation challenges particularly related to expansion and internal control. It was primarily at these sites that education services suffered as managers focused their attention on other aspects of program delivery. In some cases, field agents were replaced because they did not give adequate attention to the strategy's education component. There were also examples of field agents who were especially adept and committed to the strategy's education component being promoted or relocated outside the study area to strengthen the program in other sites.

Table 5.1 shows the number of four-month loan cycles completed over the course of the study and the number of different field agents who worked with each Credit Association.

<sup>21</sup> The topic of family planning did not begin until after the impact study for most of the Credit Associations.

For example, in the province of Pacajes, it was not uncommon for Credit Associations to work with a different field agent each loan cycle. High rates of staff turnover undermine the dialogue and trust that is required for good-quality participatory adult education. In addition, some Credit Associations in the

study covered more health/nutrition topics than others. According to monitoring reports, certain Credit Associations had only addressed the topic of diarrhea treatment and prevention while others had covered breastfeeding, child feeding, immunization and family planning.<sup>22</sup>

**Table 5.1: Health/Nutrition Education Offered to the Credit Associations Included in the Impact Study**

<b>Credit Associations In Study Communities</b>	<b>Number of Different Field Agents Assigned to the Credit Association Over the Course of the Study</b>	<b>Average Education Quality Score 1=unsatisfactory 2=average 3=very good</b>	<b>Health/Nutrition Education Topics Addressed According to Program-Monitoring Records Over the Course of the Study<sup>23</sup></b>
<b>Pacajes</b>			
CA #1	4	1.6	Diarrhea
CA #2	4	1.8	Diarrhea
CA #3	5	1.6	Diarrhea, Immunization
CA #4	5	1.7	Diarrhea, Immunization
CA #5	4	1.5	Diarrhea, Immunization
CA #6	5	1.6	Diarrhea, Immunization
<b>Los Andes</b>			
CA #7	2	2.6	Diarrhea, Breastfeeding, Child Feeding, Immunization
CA #8	2	2.6	Diarrhea, Breastfeeding, Child Feeding, Immunization
CA #9	2	2.2	Diarrhea, Breastfeeding
CA #10	2	2.6	No monitoring records
CA #11	2	2.5	Diarrhea, Breastfeeding, Child Feeding, Immunization
<b>Ingavi</b>			
CA #12	2	1.3	Diarrhea, Breastfeeding
CA #13	2	2.0	Diarrhea, Breastfeeding, Family Planning, Immunization
CA #14	2	1.6	Diarrhea, Breastfeeding, Child Feeding, Immunization
CA #15	2	1.6	Diarrhea, Breastfeeding, Child Feeding, Immunization
<b>Omasuyos</b>			
CA #16	3	2.3	Diarrhea, Breastfeeding, Immunization
<b>Aroma</b>			
CA #17	3	2.8	Diarrhea
CA #18	3	2.0	Breastfeeding

<sup>22</sup>However, monitoring information cannot be assumed to be complete because, particularly during periods of high staff turnover, monitoring records were not fully maintained.

<sup>23</sup>Additional topics might also have been covered as monitoring information may not be complete.

Given this variability within the client sample, an opportunity exists to explore whether the quality of the education services clients received affects the impacts that are achieved. An appraisal of the relative quality of education services received by the various Credit Associations included in the study was made in the following way. First, the specific field agent assigned to each Credit Association was identified for the period of the study. Then, CRECER's National Training Coordinator rated each field agent's education service provision as unsatisfactory, average or very good. (The Training Coordinator had close familiarity with the field agents' performance as a result of her involvement in staff training and her periodic supervisory visits to provide feedback to field staff.) Ratings corresponded to the following performance:

- ❖ “Unsatisfactory” (rated a “1”): Field agents who had facilitated virtually no health/nutrition learning sessions.
- ❖ “Average” (rated a “2”): Field agents who had conducted some education but either a) lacked mastery of all the topics; b) did not address the topics in a systematic order; or c) had facilitation skills that were insufficiently participatory.
- ❖ “Very Good” (rated a “3”): Field agents who facilitated a variety of education topics in the suggested sequence and who applied good facilitation and follow-up skills.

An average education score was calculated for each Credit Association on the basis of the ratings given to the field agents assigned to work with it over the course of the study. The lowest average possible score was a “1” and the highest a “3.”

For the follow-up period, clients were divided into two groups—those who received “average” to “worse-than-average education” and those who received “better-than-average education”—using the median score as the dividing point between the two groups. Similarly, the education scores were used to di-

vide clients into three groups of approximately equal number—those who received the “worst,” “average” or “best” education.<sup>24</sup> Baseline participants were assigned the same education quality categories as the follow-up participants living in the same community. Throughout this section, the participant results are further analyzed according to the quality of the education their Credit Association received.

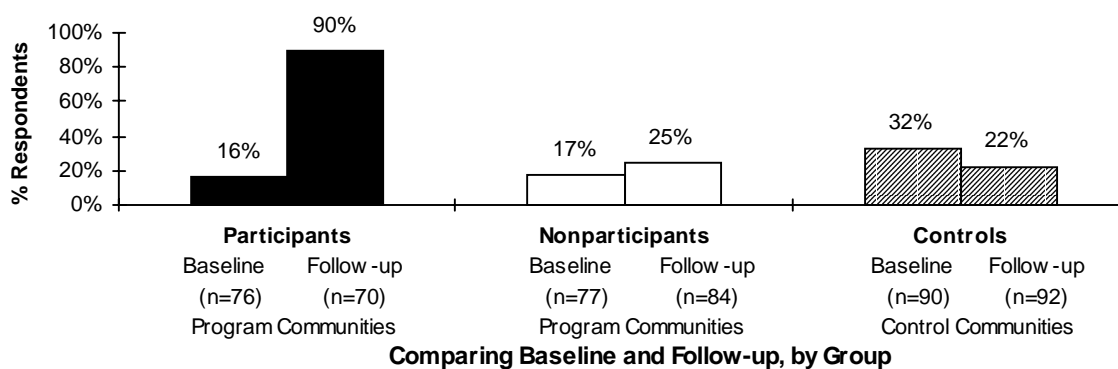
### **Learning versus Behavior Change**

In the six to ten months preceding the follow-up data collection round, CRECER management and staff had undertaken a variety of improvements to strengthen the strategy's education component. Field agent manuals with supporting education materials such as games and wall charts were finalized for the topics of diarrhea, breastfeeding, nutrition and family planning. Specific recipes were organized and disseminated for complementary and child-appropriate foods tailored to the variety of regions (valley and high plains) in which the program operates. In addition, a variety of staff in-service trainings were held to strengthen field agent mastery of the health/nutrition education topics and participatory methodology.

These efforts were beginning to produce results. In both the baseline and follow-up periods, respondents were asked if they remembered learning about good feeding or health practices for themselves or their children during the last six months. An overwhelming majority of the 1997 participants reported learning about feeding and health practices (see Figure 5.2). The follow-up period is 74% higher than the baseline with a more modest increase of only 8% for non-participants and a decrease of 10% for the residents in control communities. The difference between years is positive and significant ( $p < .05$ ) for the participants versus non-participants and nonparticipants versus control group. It was also significantly different for nonparticipants versus controls with non-participants showing an increase in learning

<sup>24</sup>Clients with scores of 1.3 to 1.6 were classified in the “worst” education group, those with scores of 1.7 to 2.4 in the “average” education group and those with scores of 2.5 to 2.8 in the “best” education group.

**Figure 5.2: Women Reporting They Had Learned About a Good Health Practice or Feeding Practice in Last Six Months**



Significant and positive difference for participants versus nonparticipants and participants versus controls ( $p < .05$ ). Also, significant difference for nonparticipants versus controls ( $p < .05$ ).

and residents in control communities showing a relative decline ( $p < .05$ ).

Respondents who reported learning something were asked to specify what they had learned. Table 5.3 summarizes the responses for the follow-up period. The types of health/nutrition topics and specific messages mentioned by the 1997 clients reflect the themes addressed as part of the *Credit with Educa-*

*tion* service. In declining order of frequency, 1997 participants mentioned receiving messages or information pertaining to the following topic areas: good nutrition, family planning, general preventive health, diarrhea treatment or prevention, good breastfeeding practices, immunization and general hygiene. Participants were significantly more likely than nonparticipants and residents in con-

**Table 5.3: Health and Nutrition Topics 1997 Respondents Mentioned Learning About During the Previous Six Months**

Health/Nutrition Topic Areas with Examples of the Specific Messages Learned	1997 Participant n= 71	1997 Nonparticipants n= 85	1997 Residents in Control Communities n= 95
<b>Good Nutrition:</b> give children nutritious foods (greens, eggs, cheese), good diet for pregnant women, good diet for family	54%	18%*	16%*
<b>Family Planning:</b> different family planning methods and how to talk with husband about family planning	35%	12%*	8%*
<b>General Health Care/Preventive Health:</b> prevention of illness in children and in family, seek timely health care	31%	6%*	10%*
<b>Diarrhea Treatment and Prevention:</b> use ORS packets, eat well-cooked and clean food	30%	2%*	3%*
<b>Good Breastfeeding Practices:</b> don't use bottle, give newborns colostrum	13%	0%*	0%*
<b>Immunization:</b> for children, prevent measles	13%	0%*	3%*
<b>General Hygiene</b>	11%	0%*	2%*

\* Significant difference between this percentage and percentage of participants ( $p < .05$ )

trol communities to mention information pertaining to each of these topic areas ( $p < .05$ ). In contrast, there were no significant differences between the nonparticipant and control groups.

As part of the follow-up survey, participants were also asked to rate whether they thought the nutrition/health information they received through the program was “not very useful,” “useful” or “very useful.” As shown in Figure 5.4, the overwhelming majority of 1997 participants valued the information with the majority rating it “very useful.” During informal group discussions and in-depth individual interviews, virtually all the women strongly appreciated the education services they had received. Several women stated that they appreciated the education as much or more than access to loans.

One older client was interviewed in-depth about her loan-funded activity to buy cheese in her community and sell it in peri-urban markets outside of La Paz. After an extended conversation about her enterprise returns, challenges and plans to grow the business, she was asked what she liked best about the program. Surprisingly, she quickly mentioned liking the learning sessions held at her Credit Association meetings. She explained that after the meetings, she and other women would often discuss at their homes what had been addressed in order to understand it better. Given the relatively low levels of formal schooling provided to *Credit with Education* clients on the Altiplano, women seem to feel bypassed or shut out from education and

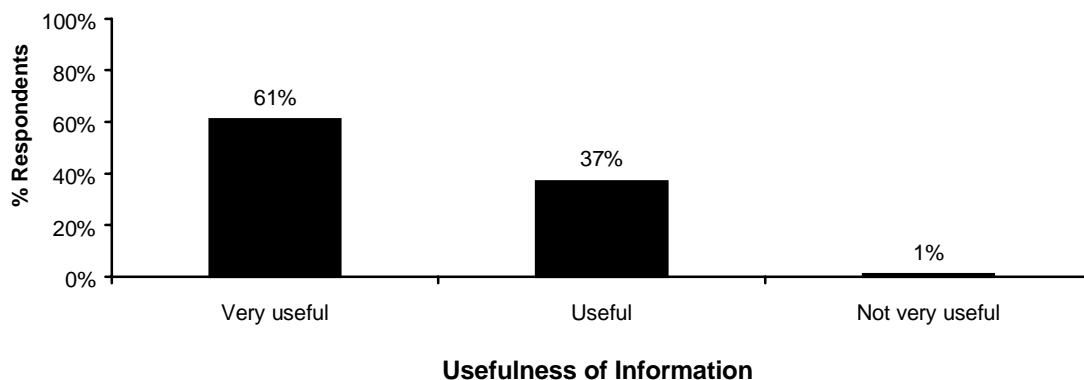
are “hungry” for any useful training and information.

As is well appreciated by health educators throughout the world, a tremendous gap exists between “learning” or “knowing” something and actually changing one's practices. Before a person actually changes her health- or nutrition-related behavior, she needs to be convinced of a need to do so. She also must believe in the efficacy of the “new” behavior and feel it is something that is feasible and worthwhile for her to adopt. Many, many obstacles exist in our environment, in our social relations and in our minds that prevent us from translating something we learn is “good” into a changed behavior or practice. Even when someone is willing to try a recommended behavior, she needs the opportunity to do so and often a certain degree of social support or positive reinforcement to sustain the change.

### Changes in Breastfeeding and Child-Feeding Practices

While the great majority of *Credit with Education* participants reported learning new health/nutrition information and even felt this information was useful, other survey results indicate less dramatic impact on participants' behaviors. For example, mothers who had more than one child were asked in the follow-up survey if they had fed or breastfed the child included in the study differently from their other, older children and if so, what was the difference. Particularly, if improvements in the education services had

**Figure 5.4: Participants (1997) Rated Usefulness of Nutrition/Health Information Received Through the *Credit with Education* Program (n=71)**





been relatively recent, *Credit with Education* clients would not have had adequate time to learn about good child-feeding behaviors, become convinced of their appropriateness and have had the opportunity to change the way they fed their youngest child.

Women's more detailed responses were then classified as to whether they reflected a "positive" or "neutral/negative" difference in child-feeding practices. Differences were classified as neutral when they pertained to the specific predilections of that child, such as refusal of certain kinds of food or a poor appetite. Negative changes included responses such as "We had less money so I fed this child less" or "Child was fed with a bottle." Responses were only categorized as "positive" if they reflected recommended or improved feeding practices. Table 5.5 shows that 1997 participants were more likely than nonparticipants or residents in control communities to have fed the child included in the study differently from their older children.

Improvements were more commonly related to general child-feeding practices, such as giving more food, than to specific breastfeeding behaviors.

When pooling responses that indicate either an improved breastfeeding or child-feeding practice, there is a significant and positive difference between the 1997 participants and the 1997 residents in control communities when controlling for child's age and community-level variables such as distance from major market ( $p < .05$ ). (The difference between participants and nonparticipants is only marginally significant at  $p = .09$ ).

That one-fifth of the mothers of young children in the *Credit with Education* program mention making positive change reflects improvement. However, this percentage is not particularly dramatic or "revolutionary," particularly considering the number of different breastfeeding and child-feeding practices promoted by the program.<sup>25</sup> (Subse-

**Table 5.5: Differences in How the Study Child Was Fed (only for mothers in 1997 with more than one child)**

	<b>Participants n=66</b>	<b>Nonparticipants n=76</b>	<b>Residents in Control Communities n=87</b>
<b>Percentage reporting that they breastfed or fed this child differently from their other older children</b>	29%	14%	13%
<b>Response(s) indicate a positive difference in how study child was breastfed (e.g., was given colostrum, breastfed longer or for two years, etc.)</b>	14%	5%	8%
<b>Response(s) indicate a positive difference in how study child was fed (e.g., was given more food, fed more often, or given better-quality foods, etc.)</b>	18%	8%*	7%*
<b>Response(s) indicate a positive difference in how study child was fed or breastfed</b>	21%	12%	9%*

\* Significant difference between this percentage and the percentage of participants when controlling for child's age and distance to major market. No significant differences evident between nonparticipants and residents in control communities.

<sup>25</sup> For comparison purposes, it is interesting to note that a similar study of a *Credit with Education* program in Ghana found 63% of the mothers had made positive changes in the way they fed or breastfed the study child as compared to their other, older children.

quent sections of this report explore the relative differences among the three survey groups in specific health/nutrition knowledge and practice.)

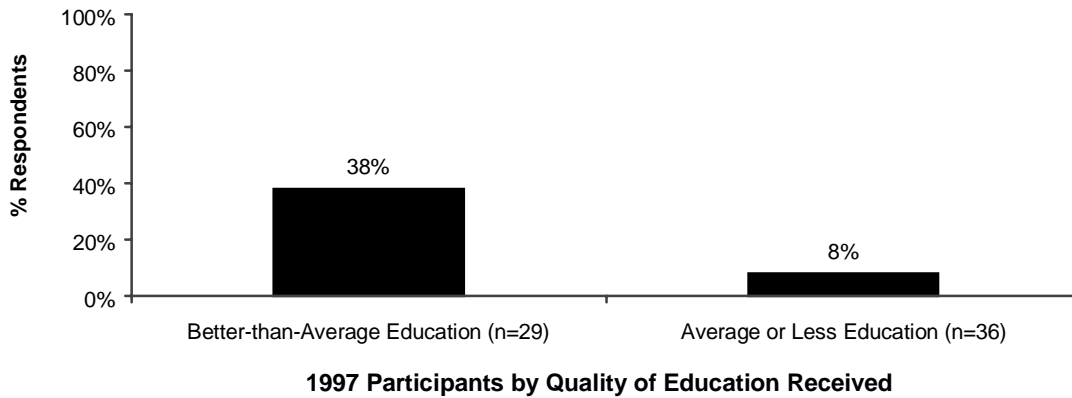
### Changes in Breastfeeding and Child-Feeding Practices by Quality of Education

Given the variability in the education services provided to the participant sample, it is possible to explore the relationship between education quality and reported changes in practices. Figures 5.6 and 5.7 show the percentage of 1997 participants having more than one child who made a positive change in the way they either breastfed or fed the study child by the quality of education received. In Figure 5.6, clients who

received better-than-average education were more than four times as likely to have made a positive change than those who had received average or worse-than-average education ( $p < .05$ ). The difference is also evident when the 1997 participants are classified into three groups—those who received relatively “worst,” “average” and “best” education. The difference between those receiving “average” education (10%) was significantly less than those receiving the “best” education (42%) when controlling for child's age and distance to a major market ( $p < .05$ ).

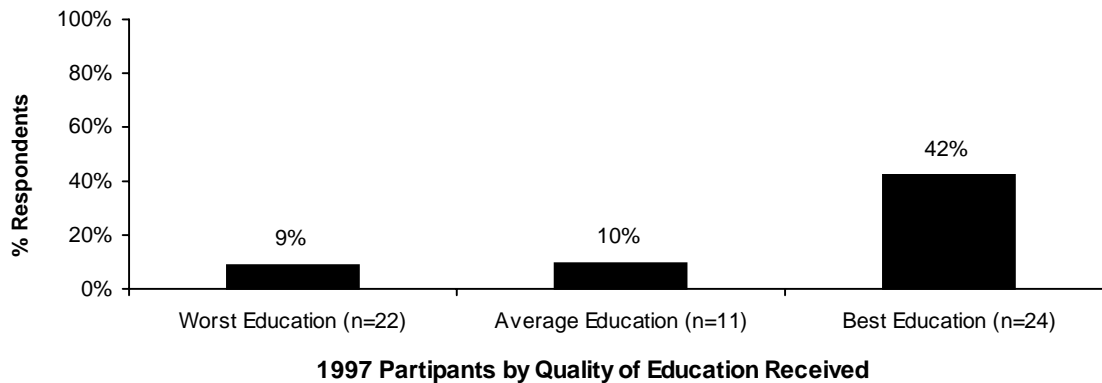
From these results, the quality of the education services participants received clearly affects the degree of behavior change. While only a modest positive change of 20% was evident in the full client sample, almost half

**Figure 5.6: Positive Difference in How Study Child Was Breastfed or Fed, Compared to Participants' Other Children, by Quality of Education Received (Two Groups)**



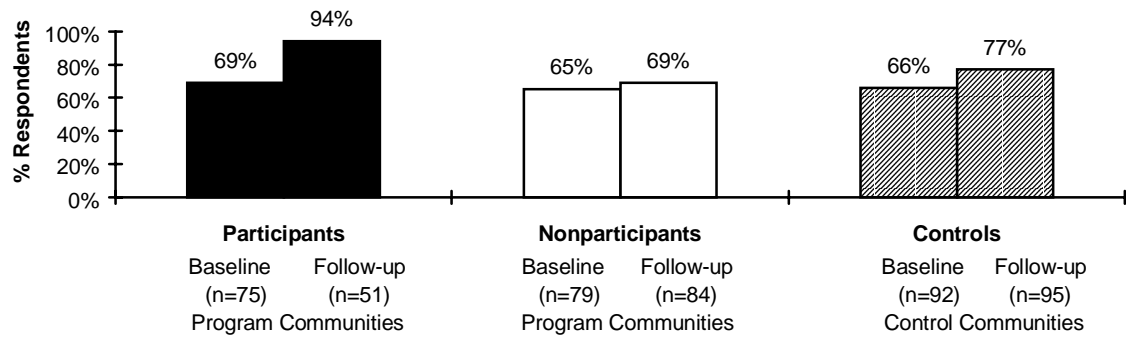
Significant and positive difference for participants receiving better education ( $p < .05$ ).

**Figure 5.7: Positive Difference in How Study Child Was Breastfed or Fed Compared to Participants' Other Children by Quality of Education Received (Three Groups)**



Significant and positive difference ( $p < 0.05$ ) for participants receiving best vs. average education, when controlling for child's age and distance to major market.

**Figure 5.8: Mothers Who Gave Colostrum to Newborns  
(1997 Participants With Baby Born After Joining the Program)**



**Comparing Baseline and Follow-up, by Group.**

Significant difference for participants versus nonparticipants and versus controls ( $p < .05$ ). No significant difference between nonparticipants and controls.

of the mothers who received the “best”-quality education improved the way they either breastfed or fed their child. It seems likely that this more widespread prevalence of change is required if the intended intermediate impacts on health/nutrition behavior are to translate into discernible impact on children's nutritional status.

**Breastfeeding Promotion**

The ideal breastfeeding behaviors promoted by the program include: (1) giving the child the first antibody-rich milk, colostrum, instead of discarding it; (2) initiating breastfeeding immediately after a baby is born (at least within the first eight hours after birth); (3) exclusively breastfeeding babies until they are approximately six months of age; (4) not using feeding bottles; and (5) breastfeeding until the child is approximately two years of age.

***Colostrum and Early Initiation of Breastfeeding***

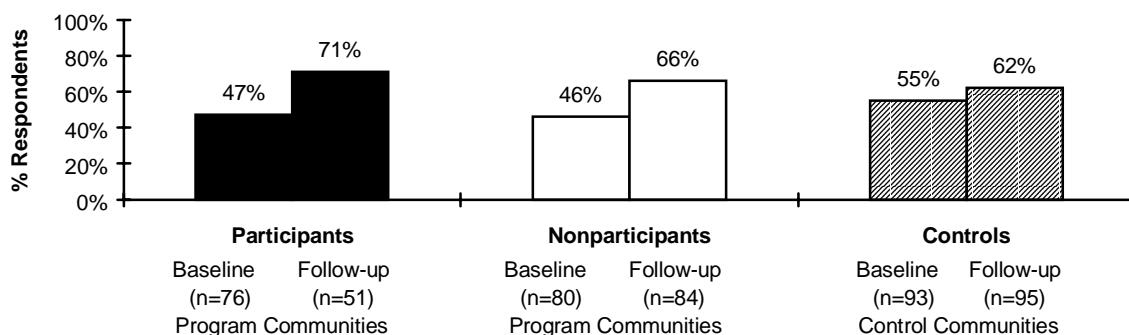
In the baseline period, approximately one-third of the respondents reported that they had discarded their colostrum either before or after the study child was born. Informal discussion groups did not reveal any strong cultural taboo against giving infants colostrum. Rather, some mothers simply believed its thick, yellowish appearance meant colostrum was unhygienic and not good for the baby. The learning sessions in this topic area

emphasized the benefits of colostrum for keeping newborns healthy.

To evaluate whether program education had impacted this behavior, it was necessary to restrict the participant group to those women who would have had an opportunity to try what they had learned—women who had given birth after joining the *Credit with Education* program. Figure 5.8 shows that while only 69% of the baseline participants had given their newborns colostrum, 94% of the 1997 participants who gave birth after joining the program reported doing so. There were significant and positive differences between years for participants versus controls and for participants versus nonparticipants, indicating a positive effect of the program on encouraging mothers to give newborns colostrum ( $p < .05$ ). However, the difference between years for nonparticipants versus controls is not significant.

A somewhat related practice promoted by the program is that mothers should begin breastfeeding newborns immediately after their birth—ideally within the first hour (see Figure 5.9). In the follow-up period, 60% to 70% of the women in each of the three survey groups reported putting the study child to the breast to suckle either immediately or within the first hour after birth. There was no significant difference between years in comparisons of any of the two groups. Ninety-nine percent (99%) of the women in

**Figure 5.9: Mothers Who Breastfed Newborns Within the First Hour After Birth (1997 Participants with Baby Born After Joining the Program)**



**Comparing Baseline and Follow-up, by Group**

No significant difference for either of the two groups.

both reporting periods put newborns to the breast within the first *eight* hours after birth.

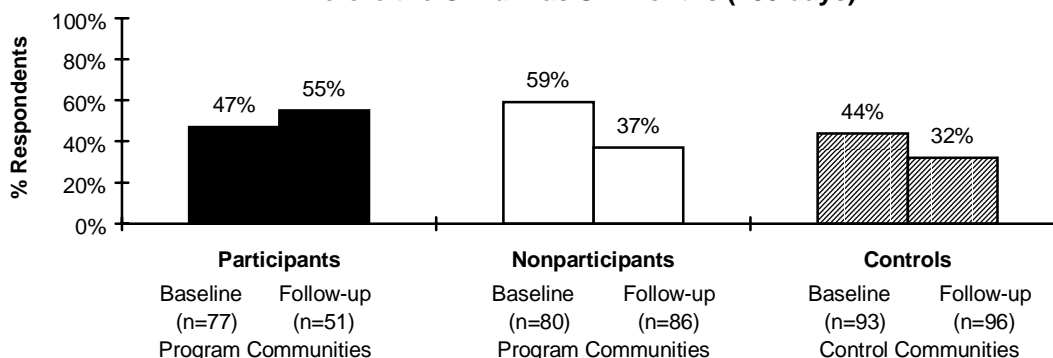
**Exclusive Breastfeeding**

A behavior also promoted by *Credit with Education* is the importance of exclusively breastfeeding (meaning no water or foods) until babies are approximately six months of age. Introducing foods and even liquids such as water before that age unnecessarily increases their risk of getting diarrhea and other illnesses. The baseline research found that 51% of the mothers had introduced water before their child was five months of age (before 150 days) and 61% before the child was six months of age (before 180 days). As for “first foods,” 16% of the baseline respondents had introduced foods by the end of the baby’s fourth month of life (120 days).

The participant sample was restricted to include only those women who gave birth after joining the program and had the opportunity to apply program messages. Figure 5.10 refers to the introduction of liquids before six months of age. There is a significant difference between years for participants versus nonparticipants when controlling for a child’s age ( $p < .05$ ). The difference is not significant for participants versus residents in control communities and nonparticipants versus controls.

A similar pattern is seen for the introduction of foods before six months (Figure 5.11). When controlling for the child’s age, participants were more likely than nonparticipants to withhold foods until their babies are six months of age ( $p < .05$ ). The difference between participants and controls and nonpar-

**Figure 5.10: Percentage Who Introduced No Other Liquids In Addition to Breastmilk Before the Child Was Six Months (180 days)**

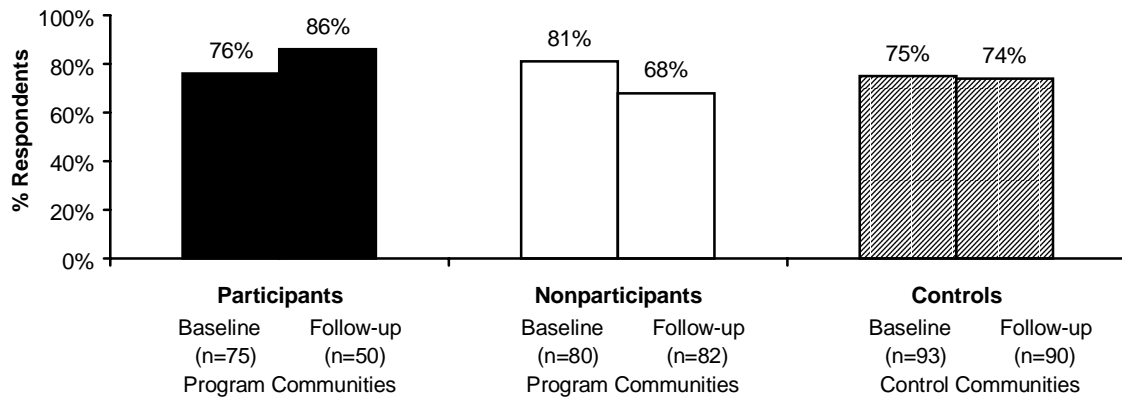


**Comparing Baseline and Follow-up, by Group**

Significant difference for participants versus nonparticipants controlling for child’s age ( $p < .05$ ).

No significant difference between participants and controls or nonparticipants and controls.

**Figure 5.11: Percentage Who Introduced No Foods in Addition to Breastmilk Before the Child Was Six Months (180 days)**



**Comparing Baseline and Follow-up, by Group**

Significant difference for participants versus nonparticipants, when controlling for child's age ( $p < .05$ ). No significant difference for participants versus controls or controls versus nonparticipants.

Participants and controls is not significant. Between the years, there is a positive increase in the percentage of participants waiting until their babies are six months of age before introducing "first" foods or liquids in addition to breastmilk. However, this difference is significant only in comparison with the nonparticipant sample, reflecting more a reduction in good behaviors among the nonparticipants than improvement among *Credit with Education* clients.

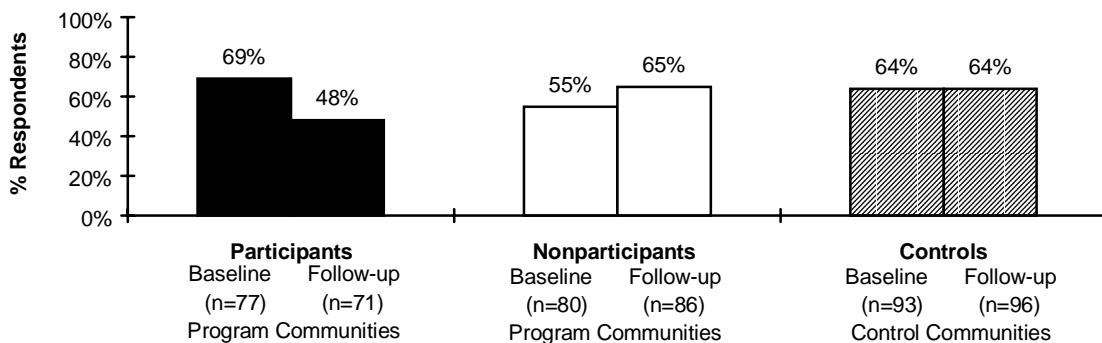
**Use of Feeding Bottle**

Figure 5.12 indicates an improvement in feeding-bottle use between the baseline and follow-up periods among *Credit with Educa-*

*tion* participants. The difference between participants and nonparticipants is significant when controlling for the child's age ( $p < .05$ ). No significant difference was found between participants versus controls and nonparticipants versus controls.

These results are particularly encouraging, because participants might be expected to be using feeding bottles more than nonparticipants. A necessary concern about *Credit with Education* is that time-intensive childcare practices such as breastfeeding might be compromised as women invest their loan, and potentially more of their own time into their business. However, these results indicate that participants were *not* more likely to use

**Figure 5.12: Percentage Who Ever Used a Bottle to Feed the Baby**



**Comparing Baseline and Follow-up, by Group**

Significant difference for participants versus nonparticipants, when controlling for child's age ( $p < .05$ ). No significant difference between participants and controls or nonparticipants and controls.

**Table 5.13: Age of Child When “First” Foods Were Introduced in Addition to Breastmilk**

	Participants		Nonparticipants		Controls	
	Baseline n= 76	Follow-up n=51	Baseline n= 80	Follow-up n= 83	Baseline n= 93	Follow-up n= 94
<b>Too early (before six months &lt; 180 days)</b>	24	16	19	32	25	29
<b>Appropriate age (about 6-7 months or 180 to 239 days)*</b>	49	72	52*	52*	56*	47*
<b>Too late (after seven months &gt; 240 days)</b>	28	12	29	16	19	25

\*Significant difference between years for participants vs. nonparticipants and controls controlling for child’s age (p<.05).

feeding bottles. In fact, after at least one year in the *Credit with Education* program, they were less likely to use feeding bottles than women not in the program.

### Breastfeeding Score

Participation in the *Credit with Education* program seems to have improved participants’ breastfeeding practices. Between the baseline and the follow-up period, *Credit with Education* participants were significantly more likely to (1) exclusively breastfeed longer, and (2) not use feeding bottles relative to the non-participant sample.

An overall breastfeeding behavior score was derived on the basis of the four breastfeeding ideal behaviors described above. Respondents received a maximum score of four—one point each for (1) giving colostrum to newborns; (2) withholding water until a newborn was at least 180 days old; (3) withholding foods until child was at least 180 days old; and (4) never using a feeding bottle. Participants showed the most dramatic improvement in mean breastfeeding score when restricting the sample to those children born after their mothers had joined the program. The participant group had a baseline mean breastfeeding score of 2.2 and a follow-up mean score of 2.9. Nonparticipants went from a mean score of 2.5 to 2.1, and residents in control communities remained at 2.2 in both periods. The difference between years for the overall breastfeeding score was statistically positive and significant for the participants relative to the other two

groups, when controlling for a child’s age (p<.05).

In terms of quality of education, between the baseline and follow-up periods there is no significant difference in mean breastfeeding scores for those receiving better-than-average education as compared to average or worse education. In fact, when the participant sample is divided into three groups—those receiving the “best,” “average” and “worst” education—improvement in the mean breastfeeding score is actually greatest for the group receiving the “worst” education. This difference is significantly greater in comparison to those receiving “average” or “best” education when controlling for child’s age (p<.05).

### Complementary Foods

In this topic area, the timing of introduction of complementary foods was compared across the three impact evaluation groups. Table 5.13 shows that, for the baseline period, approximately half of the mothers across the three groups introduced “first” foods such as soups or porridges at the recommended age of about six months (defined as six to seven months or from 180-239 days). In the follow-up period, the percentage of participant mothers introducing foods at the appropriate age was higher while it was constant for nonparticipants and even declined among residents in control communities.

For this analysis, the 1997 participant sample was limited to those children born

after their mothers had joined the *Credit with Education* program. Comparison of the percentage of mothers introducing food at the appropriate age (from six to seven months of age) shows a significant difference between the years for participants as compared to nonparticipants and participants compared to controls, when controlling for the child's age ( $p < .05$ ). No significant difference was seen between nonparticipants and residents in control communities.

The impact survey also included questions to assess the current status of the study child's diets. To evaluate feeding frequency, mothers were asked to report the number of times the child had eaten food in addition to breastmilk in the last 24 hours. To evaluate diet quality, mothers were also asked to report the frequency with which their child had

eaten a number of particularly nutritious foods over the last three days. Table 5.14 summarizes these findings for children 12 months and older.

From the baseline to the follow-up period, the participant sample shows the largest improvement in feeding frequency (from an average of 3.3 to 4 times per day), but this difference is not significant when controlling for the child's age and distance to a major market. None of the comparisons between any of the two groups showed significant difference between the baseline and follow-up periods.

In terms of diet quality, there is a significant and positive difference for increase in the consumption of animal proteins—meat/fish—for the participant children as com-

### Child Feeding

In addition to breastfeeding, the program also promotes ideal behaviors about how, when, what and how often young children should be fed to promote their healthy growth. Learning sessions address the following:

Topic	Specific message or ideal behavior
<ul style="list-style-type: none"> <li>When to introduce complementary foods</li> </ul>	<ul style="list-style-type: none"> <li>When babies are about 6 months of age.</li> </ul>
<ul style="list-style-type: none"> <li>Appropriate complementary foods made</li> </ul>	<ul style="list-style-type: none"> <li>Soup with meat, soup with barley and rice, potatoes with cheese.</li> <li>Quinoa with oil, <i>tarwi</i> with rice.</li> <li><i>Pito de cañahua</i>: porridge-like breakfast food with toasted and hulled grain served with water, milk and/or sugar.</li> <li>Food enriched with dried beans (<i>habas seca</i>), mashed vegetables, cows' milk.</li> </ul>
<ul style="list-style-type: none"> <li>Increase feeding frequency</li> </ul>	<ul style="list-style-type: none"> <li>In addition to breastmilk, children 8 to 24 months should be fed a meal or nutritious snack at least 5 times a day.</li> </ul>
<ul style="list-style-type: none"> <li>Giving young children more and better-quality food and safe food</li> </ul>	<ul style="list-style-type: none"> <li>Young children need to eat a variety of foods and nutritious foods such as fruits, grains, oil, animal proteins (egg, meat, fish, cheese) and vegetables (carrots, green leafy vegetables, beans).</li> <li>Feed children more at every meal and use separate bowls.</li> <li>Washing hands, washing food, covering food, cooking food thoroughly and immediately serving prepared food will help prevent illness.</li> </ul>
<ul style="list-style-type: none"> <li>Feeding during and after illness</li> </ul>	<ul style="list-style-type: none"> <li>When sick, children's appetites will decrease but mothers should still offer food and drink. When children recover, give them extra meals to catch up.</li> </ul>

**Table 5.14: Feeding Frequency and Dietary Quality—Children 12 to 24 Months Only**

	Participants		Nonparticipants		Controls	
	Baseline n=67	Follow-up n=48	Baseline n=69	Follow-up n=55	Baseline n=88	Follow-up n=66
<b>Mean frequency of eating in last 24 hours</b>	3.3	4.0	3.4	3.5	3.5	3.6
<b>In the last three days, mean frequency of eating:</b>						
	<b>n=72</b>	<b>n=48</b>	<b>n=73</b>	<b>n=55</b>	<b>n=92</b>	<b>n=66</b>
<b>Eggs</b>	1.9	2.5	1.8	2.2	2.0	2.5
<b>Meat/Fish</b>	1.9	3.2	1.7*	2.6*	2.0	2.7
*Significant and positive difference for participants versus nonparticipants when controlling for child's age and distance to major market (p<.05). Other comparisons between groups not significant.						
<b>Green leafy vegetables</b>	1.2	1.8	1.2	1.3	1.0	1.2
<b>Carrots/squash</b>	1.3	4.0	3.2	3.4	3.6*	3.6*
*Significant and positive difference for participants versus residents in control communities when controlling for child's age and distance to major market (p<.05). Other comparisons between groups not significant.						
<b>Beans/lentils/peanuts</b>	1.6	1.7	1.4	1.0	1.7	1.8

pared to the nonparticipant children when controlling for child's age and distance to a major market (p<.05). There was also a significant difference for increase in consumption of carrots/squash for participant children as compared to children in control communities when controlling for these same variables (p<.05). However, no significant difference was found in the consumption patterns of children of nonparticipants versus children in control communities. These findings indicate that the program may have improved participant children's diets, particularly in terms of their animal protein and vitamin A consumption. The findings pertaining to the meat/fish consumption also reinforce the results presented in Section 4.0, that participant households were significantly more likely to have spent some amount on meat/fish as compared to residents in control communities.

### **Children's Diet and the Quality of Education Received**

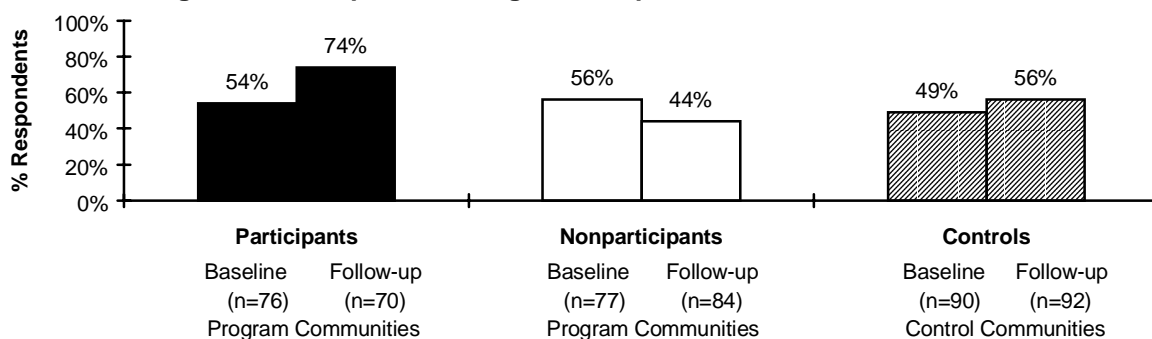
Few significant differences were found in improvement of children's diets when the participant sample was further analyzed by quality of education services received. No significant difference was found between the baseline and follow-up periods in the num-

ber of meals participants' one-year-old children received in comparisons of those receiving "average or worse" education to those receiving "better-than-average" education. Similarly, no significant differences were found when the participants were divided into three groups—those receiving "worst," "average" or "best" education.

In terms of the specific foods given, only two significant differences were found. There was a significant and positive difference between years in the frequency of carrot and squash consumption for those receiving relatively "average or worse" education compared to those receiving "better-than-average" education when controlling for child's age and distance to a major market (p<.05). This relationship was not seen when the participant sample was divided into three groups according to the quality of education received. However, children of mothers who received the "best" education showed significant and positive differences in the greater consumption of green leafy vegetables as compared to those receiving "average" education when controlling for these same variables (p<.05).



**Figure 5.15: Reported Giving More Liquids When Child Had Diarrhea**



**Comparing Baseline and Follow-up, by Group**

Significant difference for participants versus nonparticipants, when controlling for child's age and distance to major market ( $p < .05$ ).

**Diarrhea Treatment and Management**

New Credit Associations typically address diarrhea treatment and prevention in their first loan cycle. This is a good first topic, because the pervasiveness of diarrhea and its sometimes dire consequences mean that there is widespread local sentiment that this is an important health problem. A series of nonformal learning sessions addresses the following:

- ❖ Appreciating the potential danger of diarrhea.
- ❖ Giving extra liquids to a child who has diarrhea.
- ❖ Practicing how to mix ORS\* packets.
- ❖ Continuing to feed children who have diarrhea and giving extra food to children who have recovered.
- ❖ Signs of severe cases of diarrhea and when to seek immediate, trained help.
- ❖ How best to prevent diarrhea.

The baseline research indicated that a key topic for the education component was the need for rehydration of children suffering bouts of diarrhea. Many of the mothers explained that in the past when children had diarrhea they withheld or reduced drinks and watery foods thinking that they would only exacerbate the problem. According to one field agent, the past practice was to give di-

arrhea sufferers “*comida seca*” (dry foods) such as bread and to withhold liquids, water or watery foods. According to this agent, a mother might notice that her child had dry lips and no tears and despite the child’s request, still withhold liquids, because she thought liquids would cause more diarrhea. The *Credit with Education* program encourages mothers to give *more* liquids such as water, teas, ORS therapy, soups and especially breastmilk.

Mothers in both time periods were asked if they gave them “more,” “the same,” “less” or “no” liquids when their child had diarrhea. Figure 5.15 shows the percentage reporting giving more liquids by sample group and year. The difference between years in the percentage of mothers giving more liquids is significant and positive for participants versus nonparticipants, when controlling for child’s age and distance to a major market ( $p < .05$ ). Although the percentage is higher for 1997 participants as compared to residents in control communities, the difference between years is not significant.

Figure 5.16 shows the percentage of mothers in both time periods who said they gave their child “less” or “no” food when the child had diarrhea. No significant difference was found among any of the sample groups. As more than 50% of the 1997 clients had reduced or withheld food, the *Credit with Education* program should re-emphasize the importance of continuing to offer food to children suffering from diarrhea.

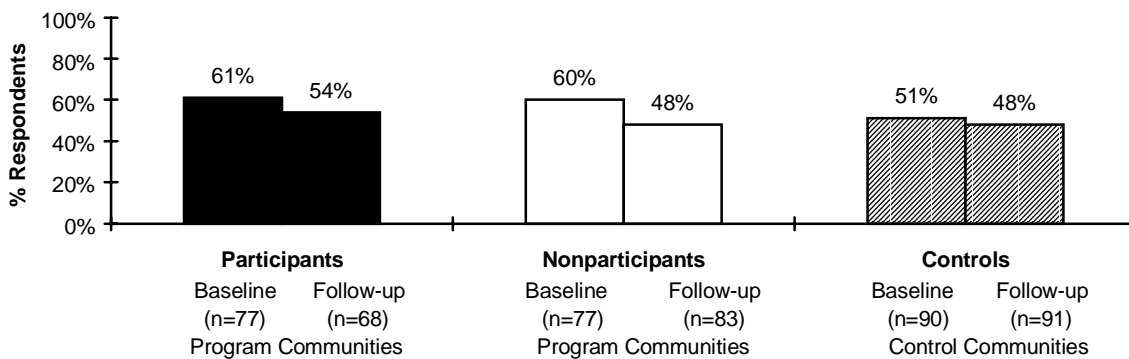
\*Oral Rehydration Solution.

After children have recovered from a bout of diarrhea or other illnesses, the program promotes offering them even more food than usual to help facilitate their “catch-up” growth. Figure 5.17 shows the percentage of mothers who said they gave children “more food than usual” following a recent illness. Between the two data collection rounds, improvement was evident in each of the sample groups. In the baseline period, a little less than 30% of the participants reported that they gave more food as compared to almost 60% in the follow-up period. However, the difference between years is only significant and positive in comparisons between the nonparticipant and control groups, when controlling for child’s age and distance to a major market ( $p < .05$ ).

## Diarrhea Prevention

Women included in the study were asked to list measures they could take to prevent diarrhea. Figure 5.18 summarizes the measures mentioned by women included in the 1997 survey. Relative to the nonparticipants, the participants were significantly more likely to mention two of the preventive practices promoted by the *Credit with Education* program—keep food clean and cover food ( $p < .05$ ). Relative to residents in control communities, 1997 participants were significantly more likely to mention the need to cover food ( $p < .05$ ). However, no significant difference was seen in the other preventive practices promoted by the program—hand washing, breastfeeding and immunization for measles.

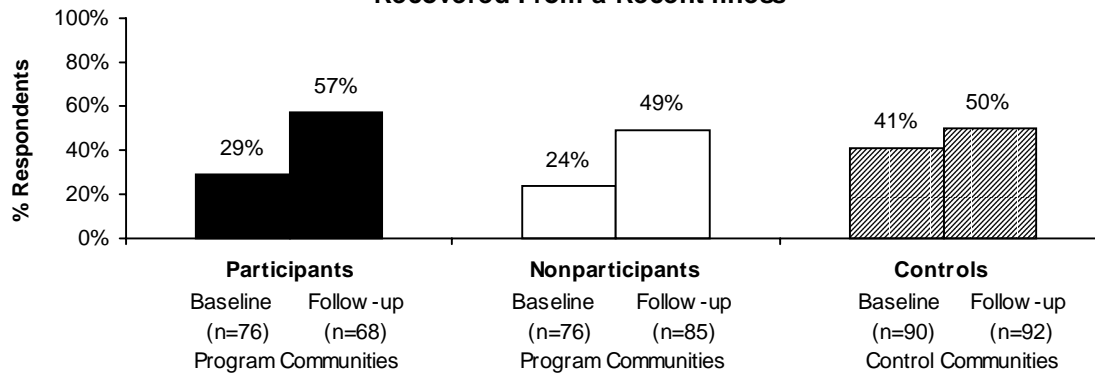
**Fig 5.16: Reported Giving No or Less Food When Child Had Diarrhea**



### Comparing Baseline and Follow-up, by Group

No significant difference for any of the two groups.

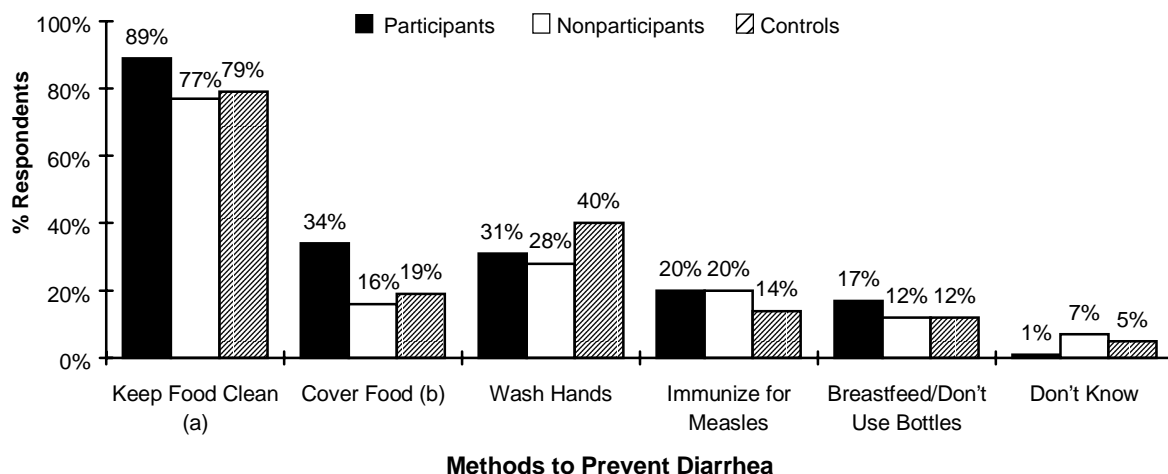
**Figure 5.17: Reported Giving More Food Than Usual to a Child Who Has Recovered From a Recent Illness**



### Comparing Baseline and Follow-up, by Group

Significant difference for nonparticipants versus controls, when controlling for child’s age and distance to major market ( $p < .05$ ). Difference between participants and controls not significant.

**Figure 5.18: Mentioned Methods for Preventing Diarrhea (1997 Only)**



a=significant difference between participants and nonparticipants  
 b=significant difference between participants and nonparticipants and participants and controls

A diarrhea-prevention score gave one point each to the five preventive measures listed in Figure 5.18 that a woman mentioned. Table 5.19 shows that the mean number of methods mentioned increased the most for the participant sample between the two time periods. However, this difference was not significantly greater when controlling for a variety of child and community variables.

During informal discussions conducted during the baseline period, mothers attributed diarrhea to a variety of causes. They mentioned most often diarrhea being caused by poor diets—food of poor nutritional quality and small amounts of food—and “dirt” or dirty food. Women also commonly mentioned the importance of breastmilk for keeping children healthy. However, women were more likely to talk about the importance of clean food and keeping children from eating dirt than they were to mention personal hygiene practices such as hand-washing and proper fecal disposal. Mothers

seemed to still primarily associate diarrhea with “dirt” rather than contaminated food or water and/or fecal contamination due to poor personal hygiene. The learning sessions in this topic area should emphasize the importance of appropriate hand-washing techniques and the need to reduce the risk of contamination and fecal transmission rather than dirt. Also, the message that diarrhea is something that can be prevented should also be reiterated. During an informal discussion with one Credit Association, the members made a distinction between a type of diarrhea that can and should be treated and one that is typical and expected for children.

### Diarrhea-related Behaviors and the Quality of Education

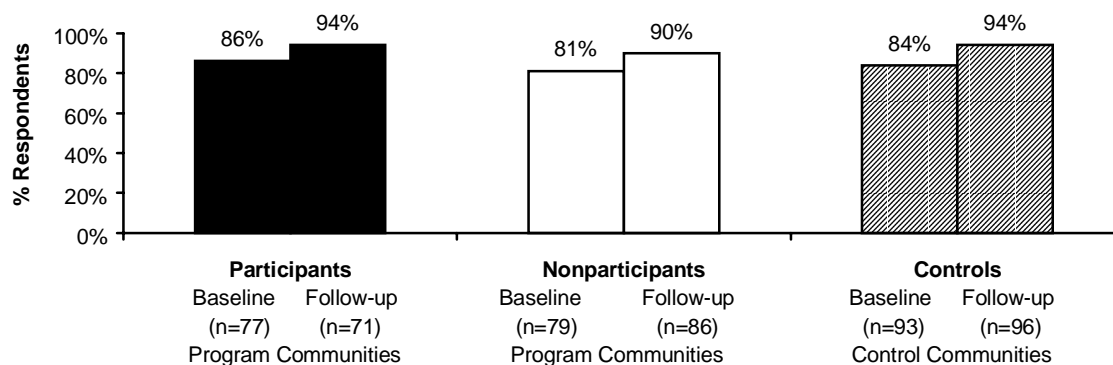
No significant differences were found when analyzing the participant sample by quality of education received in the variety of diarrhea-related behaviors: giving more liquids

**Table 5.19: Mean Number of Appropriate Methods to Prevent Diarrhea Mentioned**

Participants		Nonparticipants		Controls	
Baseline n=77	Follow-up n=71	Baseline n=80	Follow-up n=86	Baseline n=93	Follow-up n=96
1.0	1.9	.8	1.5	.9	1.6

\*No significant differences controlling for child’s age and distance to a major market.

**Figure 5.20: Percentage Who Knew That Immunization Was a Way to Protect Their Child From Getting Measles**



**Comparing Baseline and Follow-up, by Group**

No significant difference in comparisons of any of the two groups.

to children having diarrhea; not reducing the amount of food; and giving children who have recovered from recent illness more food than usual. Those receiving the “best”-quality education had the largest increase in the mean number of preventive steps mentioned (.6 to 2.0) between the time periods but the increase was not significantly greater in comparison to those receiving lower-quality education.

**Immunization**

Immunization is a topic addressed by Credit Associations in their second year. The learning sessions review the various types of vaccinations and encourage mothers to have the series completed by the child’s first year. Colostrum is also described as the first natural “vaccination.” In some cases, health workers are invited to Credit Association meetings to vaccinate children.

Informal discussions held with women revealed that the great majority of mothers are aware of immunization campaigns. In most of the study communities, mobile units of health workers come directly to the home to immunize children. Knowledge of the preventive effect of immunizations is widespread. The great majority of women in both periods mentioned immunizations when asked if they knew of any way to protect their child from getting measles (Figure 5.20). In a few cases, women referred to more traditional approaches such as keeping the child clean, giving them teas, bathing them with

water and urine or treating them with alcohol.

Women were asked whether the study child had received any immunizations, and if so, to show the interviewer the child’s health card to verify the immunizations the child had received. There was a significant difference for both participants and nonparticipants versus controls in the percentage of mothers reporting their child had received at least one vaccination, when controlling for child’s age and distance to a major market ( $p < .05$ ). However, this difference was not significant when only children whose mothers could verify the immunization by showing a health card were considered immunized (see Table 5.21).

Analysis of whether children had received specific immunizations (see Table 5.22) was restricted to children 12 months and older because the recommendation advises completion of the immunization series by 12 months. In 61 cases (12%), mothers reported that their child had been immunized but they were not able to show the interviewer the health card. If a health card was unavailable for confirmation, the child was not considered immunized. Therefore, these coverage rates reflect verified immunizations for children 12 months to two years.

For two of the immunizations, DPT1 and Polio1, which children receive early in the series when they are quite young, there was a significant difference in the coverage rates

**Table 5.21: Immunization Coverage for Children 5-24 Months Old**

	Participants		Nonparticipants		Controls	
	Baseline n=77	Follow-up n=71	Baseline n=78	Follow-up n=86	Baseline n=92	Follow-up n=96
<b>Mother reported child had received at least one immunization</b>	71%	87%	72%	86%	86%*	81%*
*Significant differences for participants versus residents in control communities and nonparticipants versus control communities when controlling for child's age and distance to major market (p<.05).						
<b>Mother reported child had received at least one immunization and verified with health card</b>	61%	75%	56%	71%	72%	75%
*No significant difference.						

of nonparticipants versus children in control communities when controlling for child's age and distance to a major market.

For DPT3, there was a significant and positive difference between the participant and nonparticipant samples, also when controlling for child's age and distance to a major market (p<.05). This is particularly interesting since there is typically a drop-off in immunization coverage for those vaccinations given later in the series. The rather large increase for the participant children (from 32% to 54%) being able to verify receiving DPT3 may indicate a positive effect of the program on encouraging mothers to have their children complete their immunization series. Between the two study peri-

ods, the relative increase for other later vaccinations, Polio3 and measles, is also greater for the participant sample than the other two groups, but this difference was not significant.

### **Immunization Coverage and the Quality of Education**

As indicated in Table 5.1, some of the Credit Associations had not yet addressed the topic of immunizations at their regular meetings. However, certain field agents took the initiative to coordinate the provision of immunization services to occur at the Credit Association meeting. One field agent in particular would visit the local health center and invite the immunization team to a regular,

**Table 5.22: Immunization Coverage for One-Year-Old Children—by Vaccination**

	Participants		Nonparticipants		Controls	
	Baseline n=67	Follow-up n=48	Baseline n=69	Follow-up n=55	Baseline n=88	Follow-up n=66
<b>DPT 1</b>	49%	48%	40%	57%	63%	55%
*Significant difference for nonparticipants versus residents in control communities when controlling for child's age and distance to major market (p<.05).						
<b>DPT 3</b>	32%	54%	34%	34%	52%	58%
*Significant difference for participants versus nonparticipants when controlling for child's age and distance to major market (p<.05).						
<b>Polio 1</b>	33%	48%	32%	58%	60%	46%
*Significant difference for nonparticipants versus residents in control communities when controlling for child's age and distance to major market (p<.05).						
<b>Polio 3</b>	33%	48%	32%	32%	44%	43%
<b>Measles</b>	47%	59%	42%	47%	57%	61%
<b>BCG</b>	49%	65%	45%	68%	58%	65%

scheduled Credit Association meeting. This agent explained that at one center this invitation was accepted and appreciated. The health workers preferred to meet women in a central location because “when they go directly to the homes, people might say ‘go away’ and dogs chase them.” At another health center, the invitation was never acted upon. In any case, this experience demonstrates the potential of better coordination with local health services, which is an effort CRECER is seriously pursuing, particularly in the topic area of family planning and health referral. Even where immunizations are readily available, the program can do much to promote immunization and improve these less-than-impressive immunization coverage rates. For example, the program could continue to focus on the following:

- ❖ Promoting the importance of documentation and completion of vaccination schedules for women and children.
- ❖ Encouraging mothers to seek out vaccinations or help coordinate campaigns in their community or even at regular Credit Association meetings.

No significant differences were found when analyzing the participant sample by quality of education received, either in terms of whether they reported and could verify that their child had received any immunizations or for specific immunizations. While the percentage of verified immunizations tended to increase most dramatically for those receiving the best education, the differences were not significant when controlling for child’s age and distance from major market.

### **Family Planning**

Few of the Credit Associations included in the study had addressed the topic of family planning before the follow-up survey was carried out. However, the demand for additional information and discussion in this topic area was widespread. Even during the interviews, several respondents asked the interviewers if they could tell them more about family planning since the survey in-

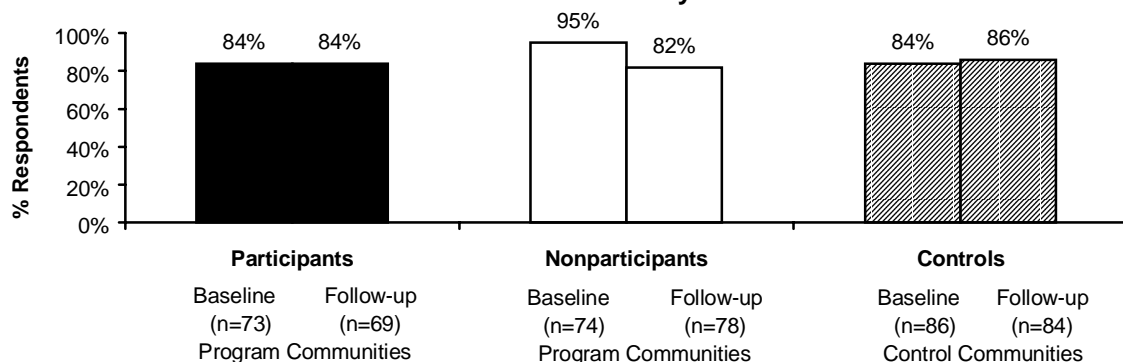
cludes questions on this topic. Although it is now changing, historically family planning information and especially modern contraceptives have been in very short supply in rural areas such as the Altiplano.

A major initiative of the CRECER program over the last two years has been to strengthen the program’s family planning activities. The following project activities have been completed to date:

- ❖ Development of a training package of materials to facilitate learning sessions at Credit Association meetings with the members and to train community-based distributors (CBDs) of contraceptives.
- ❖ Training more than 200 community-based distributors of contraceptives who are each a member of a Credit Association.
- ❖ Arrangements to distribute and sell condoms and spermicide at subsidized prices from two USAID programs through the CBDs.
- ❖ Development of a logistics system to provide the CBDs with contraceptives (condoms and spermicide).
- ❖ Agreements with several local health services to provide family planning and other medical services to Credit Association participants at a discounted price.

Figure 5.23 indicates the high demand for family planning among women in both the baseline and follow-up periods. Women were asked, “If it were up to you, when would you want another child?” Eighty to ninety-five percent (80% to 95%) of the respondents indicated a demand for family planning by reporting that they either “did not want more children” or “they wanted to wait two or more years.” The level of demand—84%—stays constant between the baseline and follow-up periods for participants. There was a significant difference between years for nonparticipants versus participants and nonparticipants versus controls with a relative drop in the percentage of nonparticipants demanding family planning ( $p < .05$ ).

**Figure 5.23: Mothers Indicating a Demand for Family Planning  
Either Wants No Children or Only After Two Years**



**Comparing Baseline and Follow-up, by Group**

Significant difference for participants vs. nonparticipants and nonparticipants vs. controls, when controlling for mother's age, number of living children, and youngest child's age.

Despite the widespread demand for family planning, women's knowledge of contraceptive methods—particularly modern methods—was quite low. Figure 5.24 shows the percentage of women who said they knew of no way, either modern or natural, to prevent or space births. In the baseline period, approximately 50 percent of the women interviewed said they knew of no way to prevent or space births. For the participant sample, the percentage knowing no methods drops from 49 percent to 28 percent over the course of the study. However, this difference is not significant when controlling for mother's age, age of her youngest child and number of living children.

Table 5.25 summarizes the specific family planning methods that respondents did men-

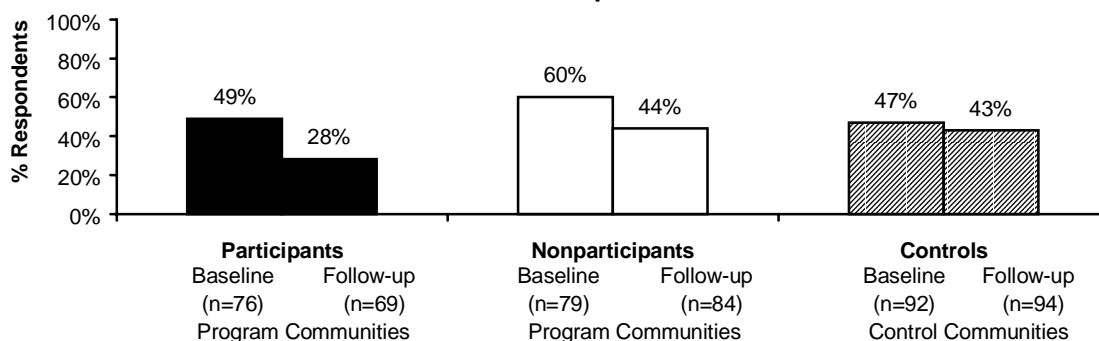
tion. Knowledge of rhythm ranked the highest for all the groups, followed by abstinence. Knowledge of modern contraceptive methods was very low, not more than 10% for any group. Very little change was evident in participants' knowledge of modern contraceptive methods between the two time periods, as expected since very few Credit Associations had addressed this topic before the follow-up data collection round.

Only four women in the baseline and follow-up periods combined reported using a modern method of family planning.

**Conclusion**

During the six to ten months preceding the follow-up data collection round, CRECER

**Figure 5.24: Knew of No Way Either Modern or Natural Method to Prevent or Space Births**



**Comparing Baseline and Follow-up, by Group**

No significant differences, when controlling for mother's age, number of living children and child's age.

management and staff had undertaken a variety of improvements in training and materials development to strengthen the strategy's education component. These efforts were beginning to produce results. A dramatic and significant improvement was seen from the baseline to the follow-up period in the percentage of participants who reported learning about good health and nutrition practices relative to nonparticipants and residents in control communities. An overwhelming majority of the 1997 participants (98%) rated the information that they had learned through the education sessions as "useful" or "very useful." Still, the quality of education participants received over the course of the study period varied greatly. Given this variability within the client sample, an opportunity exists to explore whether the quality of the education services clients receive affects their knowledge and practice.

In comparing responses from the baseline and follow-up surveys, participants demonstrated positive and significant increases relative to nonparticipants and/or residents in control communities in the following

health/nutrition practices promoted by the *Credit with Education* program:

- ❖ Giving newborns the antibody-rich first milk, colostrum.
- ❖ Delaying the introduction of liquids and first foods in addition to breastmilk closer to the ideal age of a baby, which is about six months.
- ❖ Not using feeding bottles.
- ❖ Introducing complementary foods at the ideal age of about six months.
- ❖ Feeding children good nutritional-quality foods such as meat and fish.
- ❖ Giving more liquids than usual to children who are suffering from diarrhea.
- ❖ Having child immunized (from self-report without verification).
- ❖ Completing later-series vaccinations like DPT3 (as verified by health card).

Participants in 1997 also had better knowledge of diarrhea prevention, especially identifying "covering food" and "keeping food clean" as ways of preventing diarrhea com-

**Table 5.25: Family Planning Knowledge—Percentage Who Mentioned**

	Participants		Nonparticipants		Controls	
	Baseline n=76	Follow-up n=69	Baseline n=79	Follow-up n=84	Baseline n=92	Follow-up n=94
<b>Natural Methods of Family Planning</b>						
<b>Rhythm</b>	25	64	20	40	22	39
<b>Abstinence/ Agreement with Spouse</b>	22	29	20	12	23	18
<b>Breastfeeding</b>	3	1	–	2	4	5
<b>Teas</b>	–	1	–	1	–	–
<b>Modern Methods of Family Planning</b>						
<b>Depo-Provera</b>	–	–	1	–	3	–
<b>IUD</b>	1	–	–	2	1	1
<b>Condom</b>	–	–	1	–	2	–
<b>Pill</b>	1	2	–	1	1	–
<b>Sterilization</b>	–	1	1	2	1	–
<b>MENTIONED ANY MODERN METHOD</b>	3	4	4	5	9	1



pared to nonparticipants and/or residents in control communities.

An important composite measure was whether women who had more than one child made a positive change in how they fed or breastfed the younger sibling included in the evaluation study. Significantly more participants (21%) in 1997 reported differences that reflected positive changes than did residents in control communities (only 9%).

The quality of the education services participants received through the *Credit with Education* program showed a direct relationship to whether they had made positive changes in how they fed or breastfed their youngest child. Participants who received better-quality education were significantly more likely (38%) to report making positive changes than participants who received “average or worse education” (8%). Similarly, when the participant sample is divided into three groups, those receiving the “best” education were significantly more likely than those receiving the “worst” education to make positive changes.

Few other significant differences were seen in the quality of education participants received. One-year-old children whose mothers received “better-than-average education” had a significantly higher frequency of carrot or squash consumption in the previous three days than children of participants who received “average or less” education. Consumption of green leafy vegetables was significantly higher for children whose mothers received the “best” versus “average” education. However, for the breastfeeding topic area, a composite score based on several recommended practices was actually significantly higher for those receiving the “worst” education than those receiving “average” or “best.” In the topic areas of diarrhea and immunizations, the trends or improvements tended to be greatest for those receiving the best-quality education, but this positive difference in knowledge and practice was not significantly greater than among those receiving average or worse education.

## **6.0 INTERMEDIATE BENEFITS: WOMEN’S EMPOWERMENT**

Women’s self-confidence and status play a pivotal intermediate role in *Credit with Education’s* hypothesized benefit process (Figure 1.1). It is thought that program participation will create fundamental changes in women’s inner sense of self, their social relations and their lifestyle. These changes will empower them to confront problems, take risks and make their own informed choices for better health and nutrition. In addition to its potential for economic impact, group lending exposes women to new ideas, new experiences and new opportunities for leadership roles which can foster their self-confidence. The program’s emphasis on participatory learning and Credit Association self-management underscores that women have both the right to speak and the ability to manage their own affairs. There is considerable social isolation in the physical layout of most of the study communities where homes are dispersed and separated in some cases by considerable distances. Women participating in the program are being exposed to new ideas and experiences through the Credit Association meetings, the solidarity that develops among the members and by traveling to local markets and even major markets such as La Paz.

Observers of other poverty-lending programs have noted an impact on women’s increased social status, confidence, self-worth and self-reliance (UNICEF/Nepal, 1989; Yunus, 1989). Self-confidence ultimately can be important for healthful behavior change. For example, self-confidence can be linked to a more open attitude toward learning and problem resolution and, more specifically, to greater success in breastfeeding, more active feeding of children with illness-induced anorexia, and increased use of existing health services. Evaluation studies of other credit programs have confirmed a relationship between women’s increased cash earnings and their status or “say” within the household (Berger, 1989).

This evaluation research built upon the approach taken by the John Snow, Inc. (JSI) Empowerment of Women program. This multi-year research effort in Bangladesh and Bolivia evaluated the impact of poverty-lending programs on women's status and their subsequent reproductive health and fertility decisions. The JSI program applied a behaviorally focused definition of "empowerment"—*the ability to take action*—that is appropriate to the evaluation research of *Credit with Education*. Schuler and Hashemi (1991) suggest six manifestations of women's empowerment: (1) sense of security and vision of a future; (2) mobility and visibility; (3) ability to earn a living; (4) decision-making power within the household; (5) ability to act effectively in the public sphere; and (6) participation in non-family groups. While these categories offer important guidance, qualitative interviews were conducted in the CRECER program area to identify manifestations and indicators appropriate to the local context and to the relationships under study.

During the course of the collaborative research, interviews were conducted with field agents and with *Credit with Education* members (individually and in small groups of two to four persons) to explore ways the program might have "empowered" women. Numerous examples and indicators emerged from these discussions. Most often, women talked about feeling more confident that they could successfully assume a loan and manage their income-generating activity. Some mentioned that the increased economic independence they now had allowed them to contribute more directly to their family's expenses and spend their own money rather than always having to consult with their husbands. Women's self-confidence is also fostered by the education sessions and the group dynamics at the meeting. Individuals mentioned appreciating the information they received through the health learning sessions and described how discussions of these issues would continue among the women outside the meetings.

Beyond the specific financial and educational services the program provided, the contact

and solidarity the Credit Associations offered women was an important, more general catalyst in the empowering process for women. Women talked about valuing the friendships that developed through the Credit Associations and the opportunity to discuss their problems in a supportive all-female environment. One woman explained the benefits of an all-female meeting: "We understand each other. Women have soft voices but men have strong voices. When men come to meetings they don't let us talk." Other women mentioned how their experience at the group meetings gave them the confidence to speak up at community meetings. Field staff also mentioned observing increased participation of women at community meetings. In addition they explained that a woman's experience on the management committee of the Credit Association makes her a more likely and attractive candidate for the *sindicato* (a community-level elected administrative body).

In some cases, field agents themselves are "empowering" examples. One borrower said quite directly, "I want to be like the promoter. I want to train myself and work well." A program coordinator explained that in the rural areas, people previously thought women should be in the home, so they were not given many opportunities to study. But by their example, the women field agents demonstrate what women can do.

The baseline survey included only a few indicators of empowerment to allow for qualitative research to identify appropriate empowerment indicators. For this reason, baseline data is not available for all the empowerment measures. For those indicators included in the 1997 follow-up survey, comparisons can only be made among the three sample groups. Without baseline data it is more difficult to attribute differences between the groups as being caused by the *Credit with Education* program. Perhaps more "empowered" women, or women with the tendencies being measured, are simply more likely to join the program. Empowerment indicators are divided into two areas: (1) status and decision-making in the household

and (2) status and social networks in the community.

### Status and Decision-Making in the Household

Women’s empowerment might be evident in terms of their changed status or decision-making role within the household. During the informal discussion groups and in-depth individual interviews, several women mentioned that their husbands appreciated their increased economic contribution to the family and that they took pride in being able to contribute more to the family’s expenses. Potentially, women’s increased economic contributions or cash earnings can translate into increased intra-household bargaining power.

The survey included some questions designed to measure whether women’s cash or expenditure contributions had increased between the baseline and follow-up period. Some of these questions worked less well in the Bolivia study site than in Ghana. In Ghana, as is true for much of West Africa, the norm is for women to maintain a separate “purse” of money distinct from the household and for expenditure obligations to be more clearly gender-specific. Women in Ghana typically manage their own income-generating activity in addition to their work on the family farm. And while actual expenditure patterns certainly differ by family, there is general social agreement that men are responsible for certain expenditures, such as school fees, and women are responsible for food expenditures (with varying economic support from her spouse).

In Bolivia, as was discussed in Section 4.0 of this report, most of the loan activities were categorized by women as being a family rather than their own income-generating activity. Among the Aymara households in the Bolivia study area, resources are more fully “pooled” and earnings more likely to be considered to be jointly earned than was true for the Ghana study site. For example, women were asked for the total amount spent in the last week on food and for the specific amounts spent for selected food items. Then they were asked, of the total amount, how much money was their contribution and how much was their spouse’s or another person’s. This was a meaningful line of questioning in Ghana where women are responsible for food purchase, but husbands also typically give their wives some amount per week for food expenses. In Bolivia, however, many women could not distinguish between what was their own and their husbands’ contribution, because their money was managed jointly. Still, it was possible with certain questions to gain a more general sense of women’s relative cash contributions.

In both the baseline and follow-up periods, women with children enrolled in school were asked who paid the school fees and school expenses (using a precoded scale of 1= only their husband; 2= principally their husband; 3= themselves and their husband equally; 4= principally themselves; and 5= only themselves). Analysis of this information was restricted to married women and women who did not mention another relative as contributing to school expenses (Table 6.1).

**Table 6.1: Intra-Household Spending on School Expenses**

<i>Who in your household...</i>	Only Your Husband or Mostly Your Husband		Jointly—You and Your Husband		Mostly You or Only You	
	Baseline	Follow-up	Baseline	Follow-up	Baseline	Follow-up
<b>pays the school fees for children in primary school</b>	20% P 10% NP 12% C	6% P 10% NP 7% C	65% P 76% NP 84% C	89% P 86% NP 90% C	15% P 15% NP 3% C	4% P 4% NP 3% C
<b>pays for the school expenses—clothes, food and materials for primary school</b>	13% P 14% NP 12% C	2% P 9% NP 3% C	78% P 76% NP 88% C	91% P 88% NP 95% C	9% P 10% NP - C	6% P 2% NP 2% C

P=Participant; NP=Nonparticipant; C=Resident in control community

For those women having children in primary school, the great majority (80% to 97%), reported they either “jointly,” “mostly” or “only” paid these school expenses. Some shift was evident from primarily husband to joint spending for participants between the baseline and the follow-up period. However, a similar pattern was also seen, to a lesser degree, in the nonparticipant and control groups.

These results were analyzed in two ways to capture intra-household changes in relative contributions. First, these ordinal rankings were treated as interval data for the analysis of difference among the groups. The range of responses was assigned a “1” for “only your husband” through “5” for “only you.” Mean values were compared using general factorial analysis, testing for whether there was a significant interaction between year and participant status. The analysis also controlled for whether the husband was away from home for more than six months a year, because this variable might explain a woman’s differential contribution to school expenses. No significant difference was evident between years in comparisons of the survey groups.

Second, responses were reclassified to create a dummy variable where “1” equaled those women reporting education costs were paid either “jointly,” “mostly” or “only” by themselves and “0” equaled those reporting education costs were paid either “only” or “mostly” by their husbands. Again, analysis was restricted only to married women and for those not mentioning another family member as contributing to school expenses. Using logistic regression and controlling for the absence of the husband, no significant difference was evident between years in comparisons of the survey group.

An additional question added to the 1997 survey also was designed to capture women’s increased economic self-reliance or economic contribution. Women were asked if during the last six months they remembered an occasion when they gave their husbands spending money because their husbands wanted something but lacked the money to buy it.

While participants were slightly more likely to do so than nonparticipants (96% as compared to 91%) and controls (92%), there was no significant difference between the groups in this indicator.

A similar series of questions used to capture women’s relative contributions was also used to explore intra-household decision-making (Table 6.2). It was expected that women’s “relative say” would decrease with the larger or more costly expenditure decisions. Women were asked to identify who made decisions in their household concerning the amount to spend on a number of items. Again, women were asked to respond using a pre-coded scale ranging from “only your husband” to “only you.”

The analysis was restricted to married women who did not mention a relative other than their husbands as influential in the decision-making process. Again, responses were analyzed both as mean values and as dummy variables where “1” equaled those women who made the decision either “jointly,” “mostly” or “only” by themselves and “0” equaled those reporting the decision was made either “only” or “mostly” by their husbands. Controlling for whether the husband was away for six months or more of the year, a significant difference was evident in only one of the statistical tests. There was a significant and positive difference between years in women’s relative say in house repairs for the participant versus the nonparticipant groups ( $p < .05$ ) and for participants versus controls ( $p < .05$ ) but not for nonparticipants versus controls. In the baseline period, only 64% of the participants said housing repairs was a decision made “jointly,” “mostly” or “only” by them. These findings support the assumption that with women’s increased economic contribution (through own earnings and perhaps through accessing credit) women will have greater relative say in those areas characterized by male decision-making. House repairs are likely to represent a relatively large and infrequent expenditure decision. Across the three groups this was the expenditure most associated with male decision-making. Spending on agricultural inputs is another area that is relatively more

**Table 6.2: Intra-Household Decision-Making for Basic Needs Expenditures**

<i>Who in your household decides...</i>	<b>Only Your Husband or Mostly Your Husband</b>		<b>Jointly—You and Your Husband</b>		<b>Mostly You or Only You</b>	
	<b>Baseline</b>	<b>Follow-up</b>	<b>Baseline</b>	<b>Follow-up</b>	<b>Baseline</b>	<b>Follow-up</b>
<b>whether school-aged children (primary school) will go to school</b>	11% P 10% NP 5% C	2% P 4% NP - C	83% P 80% NP 93% C	96% P 96% NP 98% C	6% P 10% NP - C	2% P - % NP - C
<b>how much to spend on clothing for children</b>	7% P 7% NP 7% C	11% P 9% NP 5% C	80% P 83% NP 90% C	84% P 79% NP 86% C	13% P 10% NP 4% C	4% P 13% NP 9% C
<b>how much to spend on medicine</b>	5% P 7% NP 9% C	2% P 8% NP 6% C	77% P 83% NP 82% C	87% P 78% NP 86% C	17% P 10% NP 8% C	10% P 14% NP 8% C
<b>how much to spend on agricultural inputs</b>	14% P 7% NP 10% C	12% P 19% NP 15% C	74% P 85% NP 77% C	82% P 77% NP 83% C	12% P 7% NP 2% C	6% P 4% NP 2% C
<b>how much to spend on fixing the house</b>	36% P 17% NP 15% C	14% P 23% NP 18% C	55% P 77% NP 85% C	86% P 76% NP 80% C	8% P 6% NP - C	- P 1% NP 2% C

P=Participant; NP=Nonparticipant; C=Resident in control community

the domain of the husband to determine. However, participants' relative say increased for decision-making about agricultural inputs though not to a significant degree.

A woman's increased intra-household status or bargaining power might also be reflected in whether her husband helps her with her work and whether she has been able to discuss issues commonly of concern to women with her husband. Given this possible dynamic, several questions were included in the 1997 follow-up survey to capture these manifestations of empowerment. Women were asked whether in the last six months their husbands had

- ❖ helped with childcare by offering to take care of the study child while they were busy or

- ❖ directly helped in some way to carry out their income-generating activities.

In both time periods, women were also asked if they had ever discussed with their husbands methods for spacing or preventing pregnancies (with the assumption that this would be a topic of particular interest to women).

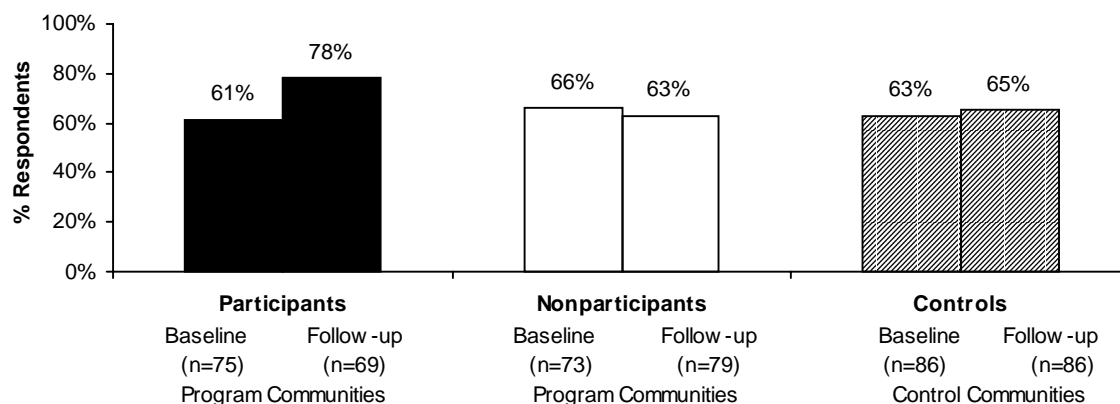
Analysis of the assistance offered by husbands was limited to those respondents who were married and whose husbands were not away from home six months or more in a year. No significant differences were evident in either the likelihood that husbands had offered to help with childcare or with an income-generating activity (Table 6.3).

Figure 6.4 shows the percentage of women who said that they had discussed ways to

**Table 6.3: Assistance Offered by Husband (1997 Only)**

<b>In the last six months...</b>	<b>Participants</b>	<b>Nonparticipants</b>	<b>Residents of Control Communities</b>
Percent whose husband offered to watch children	94	94	95
Percent whose husband offered to help with income-generating activity	84	78	77

**Figure 6.4: Whether Has Discussed With Spouse Ways to Space or Avoid Pregnancies**



**Comparing Baseline and Follow-up, by Group**

Significant difference for participants versus nonparticipants, controlling for the number of a woman’s living children, age of her youngest child and whether her husband is gone more than 6 months out of the year ( $p < .05$ ). Marginally significant difference between participants and controls ( $p < .1$ ).

space or avoid pregnancies with their spouse. It seems that women who join the *Credit with Education* program are more likely to have this type of conversation with their spouses. (Some but not all of the Credit Associations included in the study had begun to conduct learning sessions on the topic of family planning.) There was a significant and positive difference between years for participants relative to nonparticipants when controlling for the number of living children the women had, the age of the youngest child, and whether their husbands were away for six months of the year or more ( $p < .05$ ). When controlling for these same variables, there was a marginally significant difference between the years for participants versus residents in control communities ( $p < .1$ ).

**Status and Social Networks in the Community**

A woman’s empowerment might also be manifested at the level of the community by the degree of her civic involvement and/or in the strength and variety of social networks she maintains beyond her family. Questions to measure these types of social relations were included in both the baseline and follow-up interviews. Women were asked whether in the last six months they had

- ❖ been a member of a group or association;
- ❖ helped a friend with his/her work;

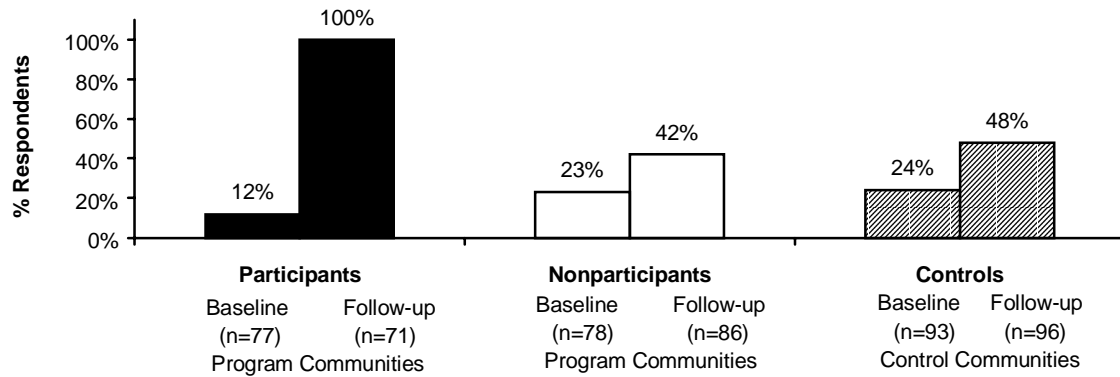
- ❖ given advice about health; or
- ❖ given advice about business.

To capture the potential of women’s increased exposure to new ideas and influences beyond their community, an additional indicator was added to the follow-up survey:

- ❖ The number of times she had traveled to La Paz in the last month.

In-depth interviews conducted during the course of the evaluation research also revealed that an important empowering impact of the program was that women were playing a more active role in community politics and public activities. Field agents and borrowers had both mentioned that women’s experience of speaking up at the Credit Association meetings had made them more vocal at community meetings. Participants, especially those who had served on the Credit Association’s management committee, were also more likely to be considered as good candidates to serve on the community’s *sindicato* (an elected local administrative body). In addition, each community celebrates a number of festivals each year, one of which honors the patron saint of that community. A family’s social status and standing can be enhanced if it “hosts” such a festival by providing the refreshments. Participants’ increased economic capacity and social networks as a result of the program might increase their ability to undertake the respon-

**Figure 6.5: Was a Member of a Group or Association in the Last Six Months**



**Comparing Baseline and Follow-up, by Group**

Significant difference for participants versus controls and participants versus nonparticipants when controlling for distance from major market ( $p < .05$ ).

sibility of hosting such a festival. Questions to measure this community-level involvement and status focused on whether in the last six months women

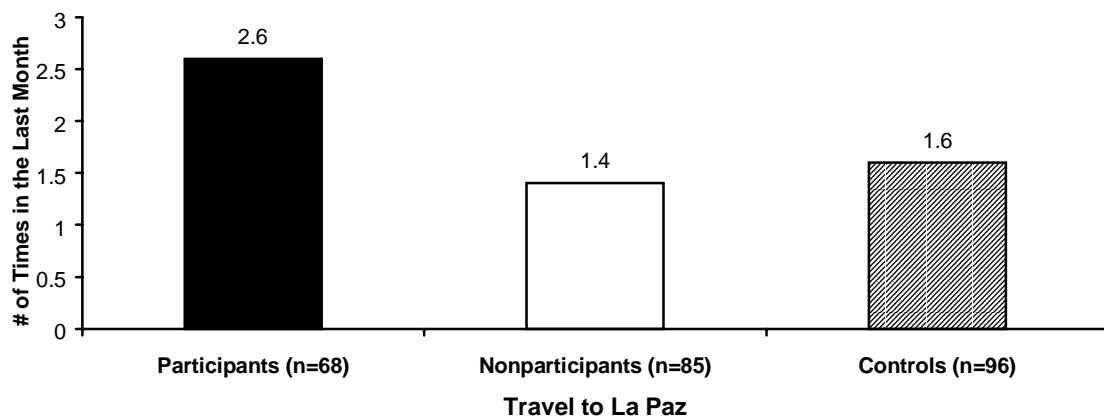
- ❖ had spoken at the community's General Assembly Meeting (typically held monthly);
- ❖ had been a candidate for public office or been a member of the community's *sindicato*; or
- ❖ hosted a community festival either by themselves or with their family.

Figures 6.5 and 6.6 present the findings for the indicators meant to capture increased involvement in a setting beyond the family and the potential for increased exposure to new

ideas. Not surprisingly, when controlling for distance from a major market there was a positive and significant difference between the years that *Credit with Education* participants were more likely to be members of a group or association than nonparticipants or residents in control communities. Participants in the 1997 follow-up survey also had a significantly higher mean number of trips to La Paz in the last month when controlling for distance from major market.

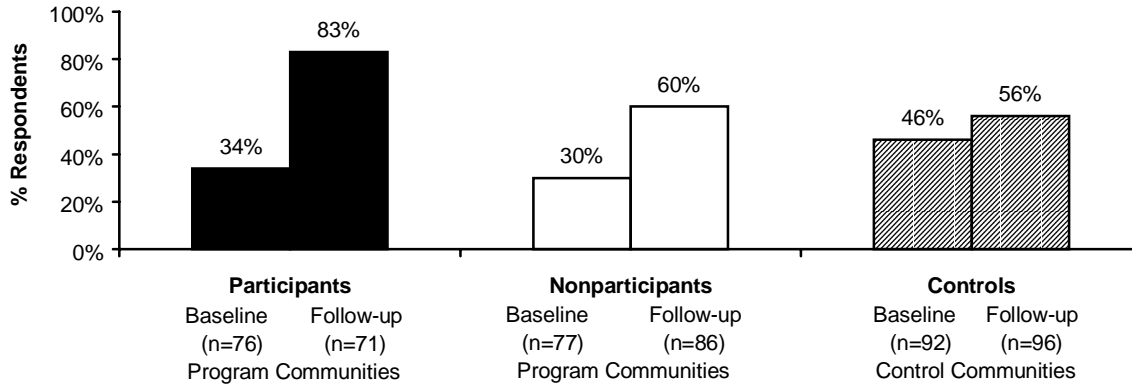
*Credit with Education* clients also significantly increased their helping contacts with friends and family. When controlling for distance from major market and month the survey was conducted, program participation had a positive and significant impact on whether

**Figure 6.6: Mean Number of Times Traveled to La Paz in the Last Month (1997 Only)**



Controlling for distance from major market, significant difference between participants and nonparticipants ( $p < .05$ ), participants and controls ( $p < .05$ ), but not for nonparticipants and controls.

**Figure 6.7: Gave Advice About Good Health or Nutrition Practices in Last Six Months**



**Comparing Baseline and Follow-up, by Group**

Significant difference for participants versus controls and participants versus nonparticipants when controlling for distance from major market and month the interview was conducted ( $p < .05$ ). Marginally significant difference for nonparticipants versus controls ( $p = .06$ ).

during the previous six months women offered advice to others about good health/nutrition practices and good income-generating activities (see Figure 6.7 and Figure 6.8).

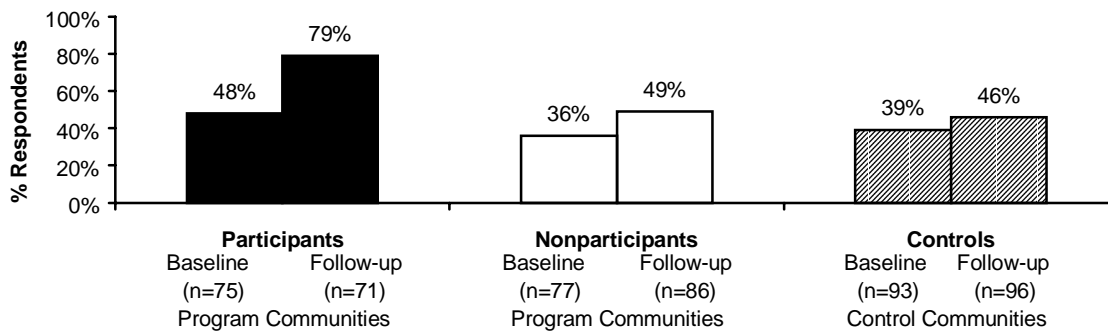
These types of helping contacts can enable the program to have a positive community-wide impact beyond the direct participants alone. There was a decline between the years, however, in whether participants had helped a friend with his/her work (see Figure 6.9). This difference was not significant between any of the groups when controlling for distance from major market and the timing of the survey.

Three additional measures of social status and networks were identified through qualitative research and added to the 1997 fol-

low-up survey. Reports that program participation had increased women's active involvement in their community was measured with three indicators (see Figure 6.10): first, whether the woman had spoken at a General Assembly Meeting (typically held monthly) in the previous six months; second, whether the woman had run for or held elected office on the *sindicato* (community-level administrative body); and finally, whether she or her family had hosted a community festival in the last six months.

For 1997 respondents, participants were significantly more likely than nonparticipants or residents in control communities to have spoken at a meeting or held elected office ( $p < .05$ ). However, there was no significant difference in whether they or their family had

**Figure 6.8: Gave Advice About Good Income-Generating Activity in Last Six Months**

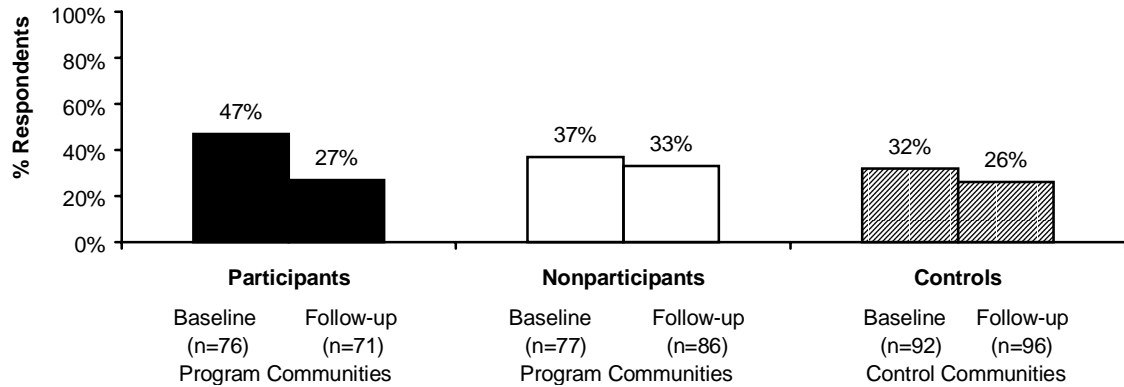


**Comparing Baseline and Follow-up, by Group**

Significant difference for participants versus nonparticipants and participants and controls controlling for month interview was conducted and distance from major market ( $p < .05$ ).



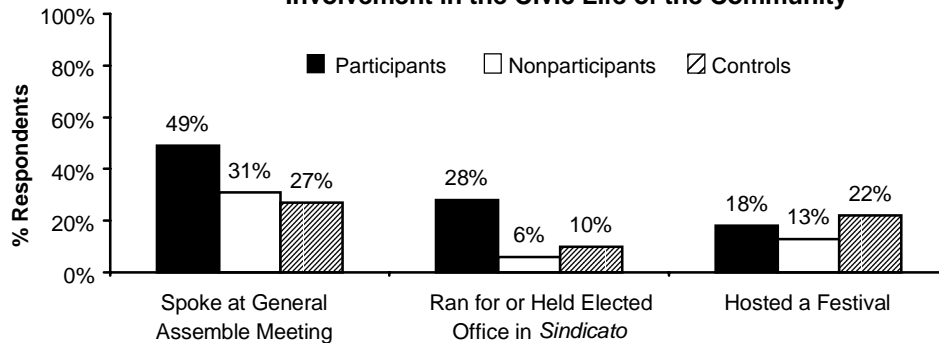
**Figure 6.9: Helped a Friend with His/Her Work in the Last Six Months**



**Comparing Baseline and Follow-up, by Group**

No significant difference controlling for month interview was conducted and distance from major market.

**Figure 6.10: Measures of Women’s Empowerment Involvement in the Civic Life of the Community**



**Follow-up Only, by Group**

Controlling for distance from major market, significant difference in those speaking at assembly meeting between participants versus nonparticipants and participants versus controls ( $p < .05$ ), but not for nonparticipants versus controls.

Controlling for distance from major market, significant difference in those running for or holding office between participants versus nonparticipants and participants and versus controls ( $p < .05$ ), but not for nonparticipants versus controls.

Controlling for distance from major market, no significant difference between groups for hosting a festival.

hosted a festival. These findings point to the possibility that the participatory involvement and self-management fostered by the *Credit with Education* program builds women’s confidence to play a more active role in the civic life of their communities. Of course, a problem in interpreting findings without a baseline measure is the possibility that these differences actually reflect self-selection bias rather than the impact of the program. It may be that women who tend to join the *Credit with Education* program are already more vocal and more politically active than women in general.

**Empowerment Score**

An overall score was developed for women’s status and social networks in the community. A respondent could receive a maximum score of seven—one point for each of the following: (1) membership in a group or association; (2) helping a friend with his/her work in the last six months; (3) offering health/nutrition advice in the last six months; (4) offering income-generating advice in the last six months; (5) speaking at a General Assembly Meeting; (6) holding or running for elected office; and (7) hosting a community

festival. With a maximum score of seven, the mean score for the 1997 participants was 4.2; for nonparticipants, 2.6 and for residents in control communities, 2.8. When controlling for distance from major market, the mean empowerment score for the participants was significantly greater than the mean score for nonparticipants or residents of control communities ( $p < .05$ ). However, there was no significant difference between nonparticipants and controls.

## Conclusions

Indicators of women's empowerment were developed to evaluate program impact at the level of the household and the community.

At the level of the household, efforts to quantify increases in women's reported economic contribution and intra-household bargaining power yielded few significant results. No significant difference between years was evident in participants' relative contribution to education expenses. In terms of intra-household bargaining power, no significant shift in decision-making was evident in participant households for decisions such as whether to send children to school, or how much to spend on clothing, medicine or agricultural inputs. However, there was a positive and significant difference in participants' "say" in how much to spend on house repairs relative to nonparticipants and residents in control communities. This was the type of expenditure more associated with male decision-making, so this finding supports the assumption that women will have greater say in areas characterized by relatively greater male control.

A significant and positive impact was also seen between the years in whether participants had discussed family planning with their spouses as compared to nonparticipants in program communities. Not all, but some of the Credit Associations included in the study had participated in family planning learning sessions facilitated at the group meetings. However, no differences were evident in some of the other variables meant to measure change at the household level: whether she had given her husband spend-

ing money; whether her husband had offered to help care for the children; and whether her husband had offered to help her with her income-generating activity.

At the level of the community, the program seemed to positively affect women's participation in the civic life of the community and helping contacts with family and friends. Participants were more likely to

- ❖ be members of a community group beyond their families;
- ❖ offer health/nutrition advice to others; and
- ❖ offer business advice to others.

The 1997 participants were also significantly more involved in the community's political life. They were significantly more likely to have spoken at the community's General Assembly meeting and run for or held office with the community *sindicato* than nonparticipants or residents in control communities. Without baseline measures, it is difficult to know whether this increased political involvement is a result of the program or a function of a self-selection bias for those women who tend to join *Credit with Education*.

## 7.0 IMPACT ON THE ULTIMATE GOALS: NUTRITIONAL STATUS AND FOOD SECURITY

The primary hypothesis tested by the impact evaluation research conducted in Bolivia and Ghana was whether *Credit with Education* had a positive impact on the nutritional status of mothers and their young children. Indicators of household food security and maternal and child nutritional status were included in both the baseline and follow-up data collection rounds.

### Household Food Security

Household food security was measured by whether the respondents' families had experienced a time in the last 12 months when it was necessary to eat less or less well.<sup>26</sup> A pre-harvest "hungry season" is a reality of life throughout much of the rural areas of the developing world. Agriculture is difficult in the Altiplano which is characterized by rocky soil, little rain and punishing frosts and wind. Hunger has a prevalent role in traditional culture and stories. It is said that on the barren, wind-swept expanse of the Altiplano one can encounter a spirit that will take your satiated appetite and forever consign you to feeling a gnawing hunger.

The staple food and cultural icon of the Altiplano is the potato. The growing season extends from December to April with the harvest typically beginning in March. A certain amount of the harvest is kept for seed stock to be used in the following planting season. To extend their availability throughout the year, potatoes are stored in cool, shady places and are processed into *chuño*. *Chuño* is a freeze-dried, blackened potato, most commonly eaten in soups, that is a favored food throughout the Altiplano.

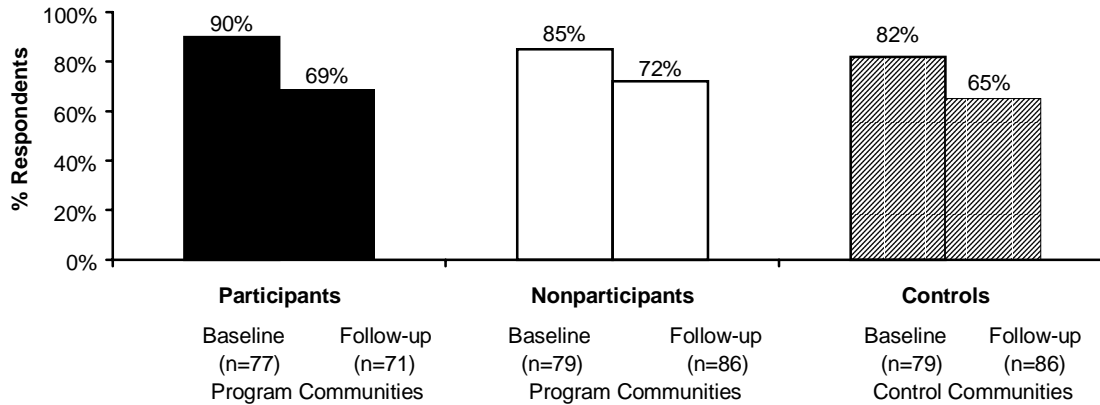
January through February tends to be a period of more pronounced food stress in the Altiplano program area. These months directly precede the harvest, when food stores from the previous year's harvest are dwindling. Food prices also tend to climb due to transportation difficulties and the relative food scarcity at this time of year.

In both the baseline and follow-up periods, women were asked if there had been a time in the last year when their families had to eat less or less well, and if so, the length of time this period lasted and the methods their households used to cope. Additional questions were also added to the follow-up survey pertaining to the household's experience with different aspects of "hunger;" e.g., did they have to limit the number of meals per day, limit the variety of foods, or limit the size of their meals.

Figures 7.1 and 7.2 show that the *Credit with Education* program had no significant impact using these measures of household food security. Across the three survey groups, women reported that the follow-up year had been a favorable one with especially good harvests. All three groups saw a decline in the percentage of households reporting that they had experienced a period when they had to eat less or less well during the preceding 12 months. While this decline between the baseline and follow-up periods was relatively greatest at 21% for the participant sample as compared to 13% for nonparticipants and 17% for controls, there were no significant differences between the groups when controlling for community. The mean duration of the hungry season in the follow-up period was also very similar—on average two months—for each of the three survey sample groups. While again the relative decline in the average length of the hungry season was greatest for participants, there was no significant difference between the years relative to nonparticipants or residents in control communities.

<sup>26</sup> Information on per capita food expenditures which is also a useful indicator of food security and diet quality was included and discussed in Section 4.0 of this report. Although there was no significant difference between years across the three groups in per capita food expenditures, evidence of program impact was most noticeable for more income-sensitive food purchases such as meat and fish. There was a positive and significant difference between years that participants spent at least some amount in the last week on meat or fish as compared to residents in control communities ( $p < .05$ ) and a marginal difference in the per capita amount spent ( $p = .06$ ).

**Figure 7.1: Percentage Whose Family Experiences a Hungry Season**



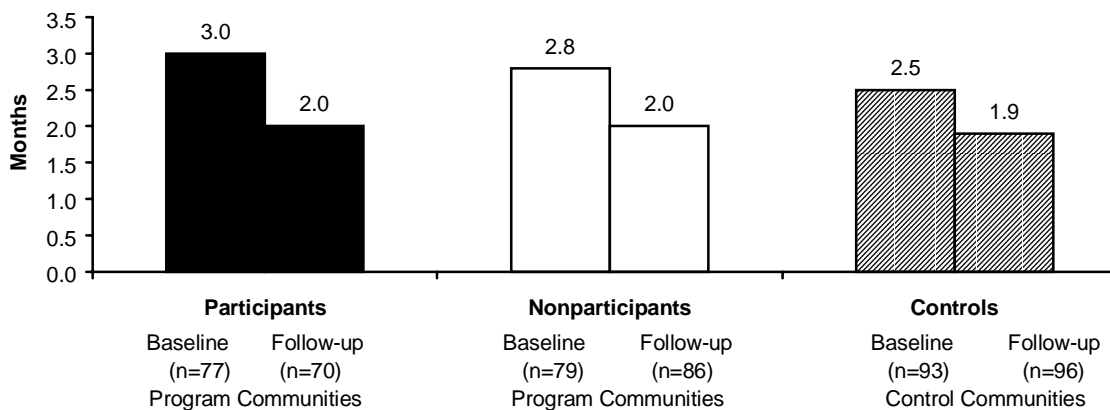
**Comparing Baseline and Follow-up, by Group**

No significant differences, when controlling for distance from major market.

The follow-up survey included a series of questions designed to capture more specific manifestations of food insecurity. Women were asked if in the last 12 months their families experienced a time when they were forced to eat fewer than three meals a day, reduce the amount they ate during a given meal or limit the types of food they fed their children. Again, the results in Figure 7.3 were very similar for the three sample groups with no significant differences between participants and nonparticipants or between participants and residents of control communities. It is indicative of the prevalence of poverty in the Altiplano program area that the majority of households in each of the three sample groups reported experiencing these types of hardships and dietary deprivation.

Although the incidence and duration of a hungry season was rather similar for the three survey sample groups, the *Credit with Education* program affects how participants cope with these periods of difficulty (see Table 7.4). The 1997 participants were significantly less likely to have sold off animals as a coping strategy than residents in control communities ( $p < .05$ ). While animals might be considered illiquid savings, they are also typically productive assets, the selling of which undermines the long-term food and livelihood security of the family. It seems that the program has helped households protect their assets and livelihood strategies during periods of economic hardship. Participants were also significantly more likely to have been able to use profits from their business

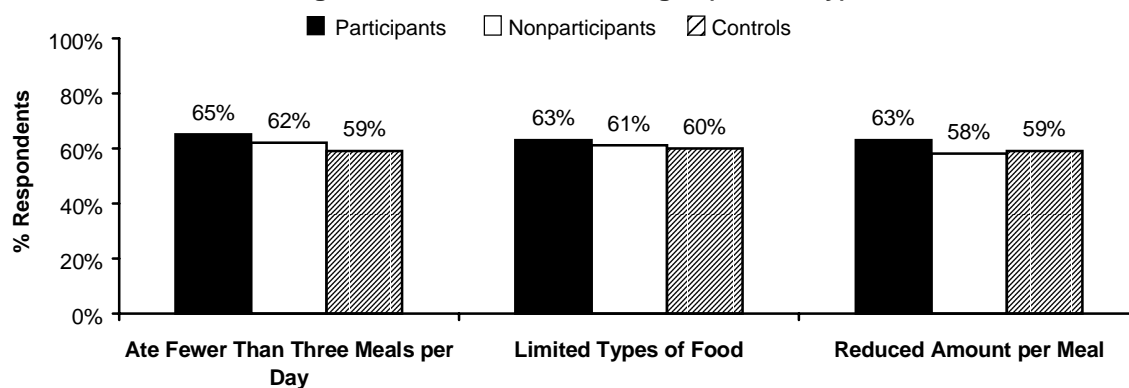
**Figure 7.2: Mean Length of "Hungry Season"**



**Comparing Baseline and Follow-up, by Group**

No significant differences, when controlling for distance from major market.

**Figure 7.3: Indicators of Hunger (1997 Only)**



No significant differences.

**Table 7.4: Assistance Offered by Husband (1997 Only)**

Coping Strategies	Participants n= 71	Nonparticipants n= 86	Residents of Control Communities n= 96
Sold Animals	16 (22%)	28 (33%)	43 (45%)
Residents in control communities significantly more likely to have sold animals than participants $p < .05$ . Difference not significant for participants versus nonparticipants or nonparticipants versus controls.			
Ate less of certain foods <ul style="list-style-type: none"> <li>• Less potatoes/<i>chuño</i></li> <li>• Less fruit/vegetables</li> <li>• Less cereals—quinoa, rice</li> <li>• Less meat/animal products</li> </ul>	13 (18%)	14 (16%)	11 (12%)
Borrowed money at no cost from family or friends	9 (13%)	8 ( 9%)	14 (15%)
Borrowed money at cost	9 (13%) (7 referred to CRECER or their Credit Association)	-	1 ( 1%)
Participants significantly more likely to have borrowed money at cost than nonparticipants or residents in control communities ( $p < .05$ ). Difference not significant for nonparticipants versus controls.			
Used the profit from my business <ul style="list-style-type: none"> <li>• Sewing/knitting items</li> <li>• Selling cooked food, beverages and ice cream</li> <li>• Store, petty commerce</li> </ul>	11 (15%)	7 ( 8%)	4 ( 4%)
Participants significantly more likely to have used earnings from their business than residents in control communities ( $p < .05$ ). Difference not significant for participants versus nonparticipants or nonparticipants versus controls.			
Self or husband works for others for pay or for food	10 (14%)	6 ( 7%)	4 ( 4%)
Participants or their husbands significantly more likely to have worked for others than residents in control communities ( $p < .05$ ). Difference not significant for participants versus nonparticipants or nonparticipants versus controls.			
Ate more of certain foods <ul style="list-style-type: none"> <li>• More flour, barley, quinoa</li> <li>• More yucca, beans</li> <li>• More potatoes/<i>chuño</i></li> </ul>	1 ( 1%)	3 ( 4%)	3 ( 3%)

than residents in control communities to help them cope ( $p < .05$ ). However, the availability of program and internal loans to CRECER clients also seems to have increased the incidence of households assuming debt (most commonly to their Credit Association) to help their family through the hungry season. While a relatively similar percentage of households in each group reported borrowing from family or friends at no cost, participants were much more likely to take a loan from their Credit Association. The Credit Association is providing participant households with a relatively new type of “informal” consumption-borrowing but at a cost of approximately 3.5% per month or 5% if the loan is made from the group’s internal fund. The one respondent from a control community who reported taking a loan at cost borrowed from a family member at 3% per annum. Participants were also significantly more likely to report that their husbands or they themselves had gone to work for someone else or left the area looking for work than residents in control communities ( $p < .05$ ). However, this difference does not seem linked to the program because in most of these cases participants were living in one of two program communities surrounded by quarries. These same types of quarries were not present in any of the control communities.

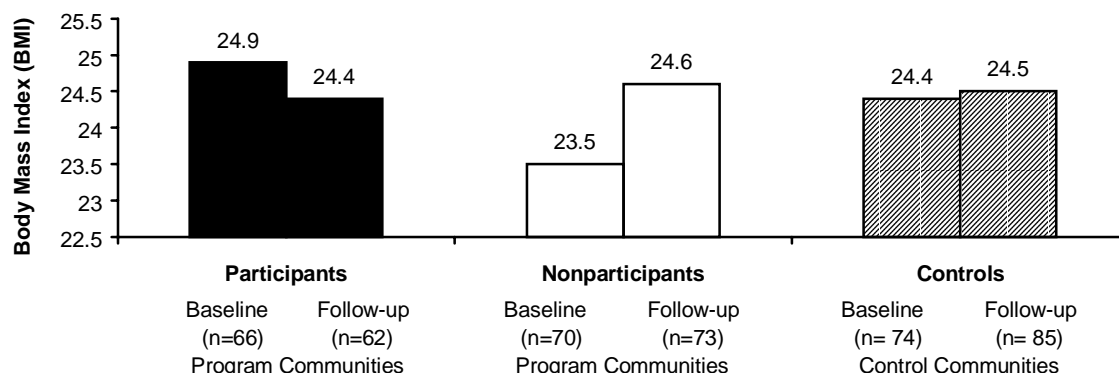
Households that had experienced a “hungry season” (see Table 7.4) also reported adjusting to this period of particular hardship by

eating differently. They ate less of certain foods (potato/*chuño*, vegetables, fruits, meat, cereals) and more of others (flour, yucca, and again potatoes and *chuño*). In part, these dietary changes reflect a shift to nutritionally inferior, less expensive foods (more yucca and less vegetables/fruit/meat). These changes also most likely reflect reduced seasonal availability of fresh produce, fruit and potatoes due to relatively undeveloped local markets and the expense and difficulty of transporting during the rainy season.

### Maternal Nutritional Status

Maternal nutrition is measured by the mother’s body mass index (BMI), which is derived from a calculation comparing a woman’s weight to her height. A BMI below 18.5 indicates moderate thinness and possible malnutrition. Figure 7.5 shows that the mean BMI for the nonparticipant and control groups was slightly higher in the follow-up period relative to the baseline, while slightly lower for the participant group. (Only women who were not pregnant were included in this analysis.) However, the interaction between year and participant status was not significant, indicating no positive impact on maternal nutrition when comparing the participant and control samples or the participant and nonparticipant samples. There was, however, a significant and positive difference for the nonparticipants versus the residents in control com-

Figure 7.5: Women’s Nutritional Status—Body Mass Index (BMI)



#### Comparing Baseline and Follow-up, by Group

Significant difference for nonparticipants versus control group, controlling for distance from major market ( $p < .05$ ).

munities when controlling for size of the community ( $p < .05$ ). A BMI of less than 18.5 is the cutoff of “moderate thinness” to indicate maternal malnutrition. There was only one woman in each of the data collection periods classified below this cutoff (a resident of a control community in the baseline and a nonparticipant in the follow-up). Given this very small incidence of maternal malnutrition, there is no significant difference in the prevalence of maternal malnutrition between the years comparing any of the three groups: participants versus nonparticipants, participants versus residents of control communities or nonparticipants versus residents.

### Children’s Nutritional Status

To evaluate program impact on nutritional status, children’s heights and weights were measured in the 1994/95 baseline and 1997 follow-up periods. These measurements were converted into height-for-age (HAZ) and weight-for-age (WAZ) and weight-for-height (WHZ) z-scores using National Center for Health Statistics (NCHS) reference data with the Centers for Disease Control statistical software Epi-Info. The z-score values were used because they control for the variation in heights and weights at different ages and by gender. The prevalence of malnutrition varies by age. For example, weaning-age children (8 to 12 months) are more likely to be malnourished than infants in their first months of life. Differences found in the nutritional status of the two groups when percentiles are used, for instance, may represent an age effect rather than a genuine difference in nutritional status. Using z-scores avoids this problem.

Z-scores represent the standard deviation (SD) from the NCHS median for children of that age and sex. For example, a z-score of 0 (zero) would indicate a height-for-age measurement that was the same as the NCHS median, while z-score values of 1 or -1 represent one SD above or below the NCHS me-

dian. The World Health Organization (WHO) and others classify measurements falling between -1 and -2 SD as “mildly malnourished,” between -2 and -3 SD as “moderately malnourished” and below -3 SD as “severely malnourished.”

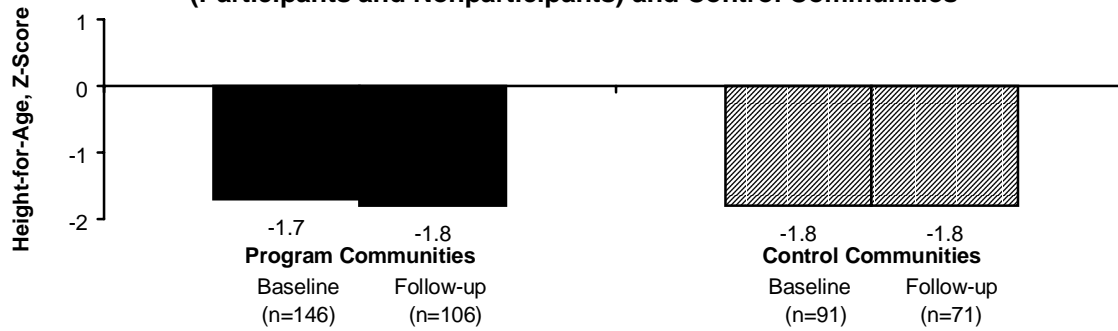
Height-for-age values are a measure of children’s longer-term or chronic nutritional status. Unlike the weight of a child, the stature will not exhibit short-term changes due to bouts of illness and/or periods of decreased appetite or food intake. Weight-for-height, or a child’s relative degree of wasting, is a measure of children’s shorter-term or acute nutritional status. Weight-for-age values, or the incidence of children being underweight, are influenced by both the relative stature of a child and the degree of wasting, so it is a more sensitive measure than height-for-age but less so than weight-for-height.

Overall, at the baseline period, the nutritional status of children in the program communities was relatively similar to children in the communities randomly selected not to receive the program. Figures 7.6 through 7.8 show the mean height-for-age, weight-for-age and weight-for-height z-scores in the program and control communities for the baseline and follow-up periods. For comparability, the analysis was limited to children in both time periods who were approximately one year of age (older than 11 months and younger than 26 months). Twins, who tend to be systematically smaller, and extreme outliers were excluded from this analysis.<sup>27</sup>

When controlling for a number of variables (mother’s height, child’s age, the square of child’s age, income quartile, distance from main road, month child was measured), there is no significant difference between the two time periods in the mean height-for-age (Figure 7.6) and weight-for-age (Figure 7.7) in the program and control communities. However, when controlling for these same variables, the mean weight-for-height z-score in Figure 7.8 shows a significant and posi-

<sup>27</sup> Of the 503 cases, 25 height-for-age measures were excluded from the analysis because of missing height or date-of-birth information or the height or date-of-birth information was highly suspect because either 1) the height-for-age measure was more than four standard deviations above or below the mean or 2) the case was flagged by the EPI-Info software because the HAZ value was less than -3.09 and the WHZ was greater than 3.09. Eight weight-for-age measures and 20 weight-for-height measures were also excluded due to missing data or because they represented extreme outliers using a similar criteria.

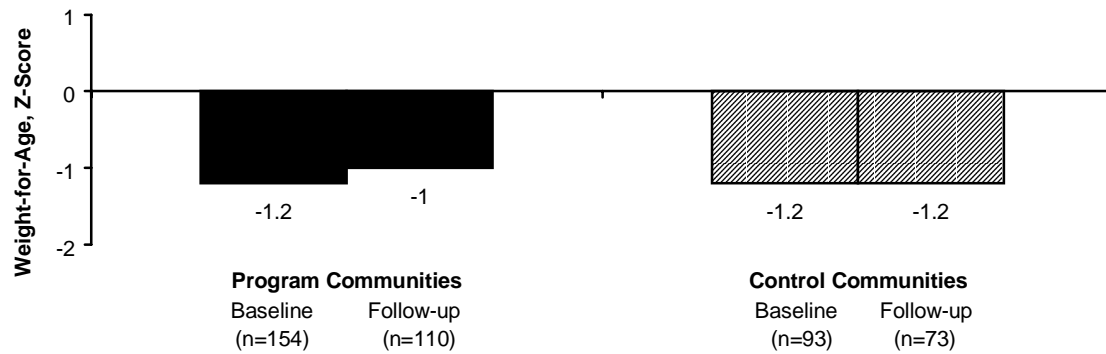
**Figure 7.6: Children’s Nutritional Status—Mean Height-for-Age Z-Score in Program (Participants and Nonparticipants) and Control Communities**



**Comparing Baseline and Follow-up, by Type of Community**

No significant differences, when controlling for child’s age, child’s age squared, month child measured, mother’s height, household’s income quartile, and distance from major market.

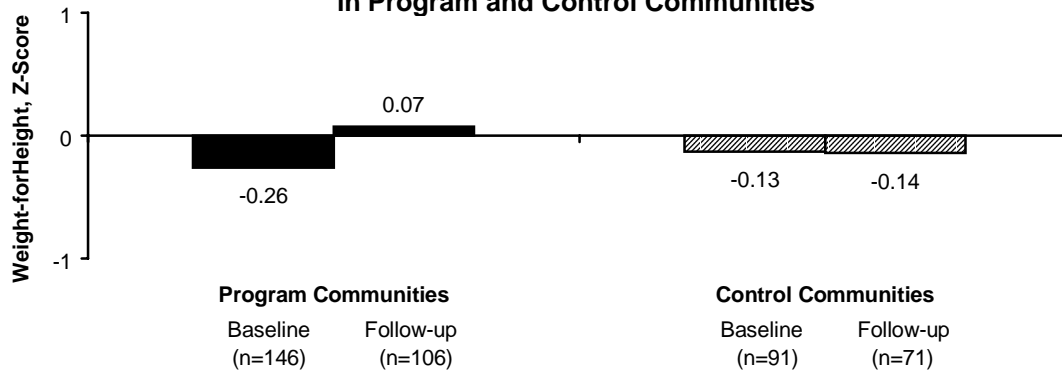
**Figure 7.7: Children’s Nutritional Status—Mean Weight-for-Age Z-Score in Program (Participants and Nonparticipants) and Control Communities**



**Comparing Baseline and Follow-up, by Type of Community**

No significant differences, when controlling for child’s age, child’s age squared, month child measured, mother’s height, household’s income quartile, and distance from major market.

**Figure 7.8: Children’s Nutritional Status—Mean Weight-for-Height Z-Score in Program and Control Communities**



**Comparing Baseline and Follow-up, by Type of Community**

Significant and positive differences for program versus control communities when controlling for child’s age, child’s age squared, month child measured, mother’s height, household’s income quartile, and distance from major market.



tive difference between years in the program communities relative to the control communities. Before this positive difference can be associated with the impact of the *Credit with Education* program, it is necessary to compare the patterns seen for the participants relative to nonparticipants in program communities. In fact, the positive difference between years is primarily explained by better nutritional status of the nonparticipant rather than the participant sample.

Figures 7.6 to 7.8 show a pattern that has been found in numerous other studies of the nutritional status of Aymara children living at the high altitudes of the Altiplano (de Meer, et al., 1993; Forste, 1998; Haas, et al., 1982; Mueller, et al., 1980). The low mean height-for-age values reflect the children's shorter stature relative to the international standards. The incidence of stunting is much greater than the prevalence of children being underweight or wasted. In fact, weight-for-height values are quite close to the international standards. Aymara children living in the Altiplano tend to be shorter but heavier for their height, or "fatter." Haas et al., (1982) compared the growth of infants living in the Bolivian highlands to those in the lowlands and found a number of differences. Children living at the higher altitudes were significantly smaller (both in terms of their weight and height) at birth than children in the lowlands. Because incremental growth rates between altitude groups showed little difference during the

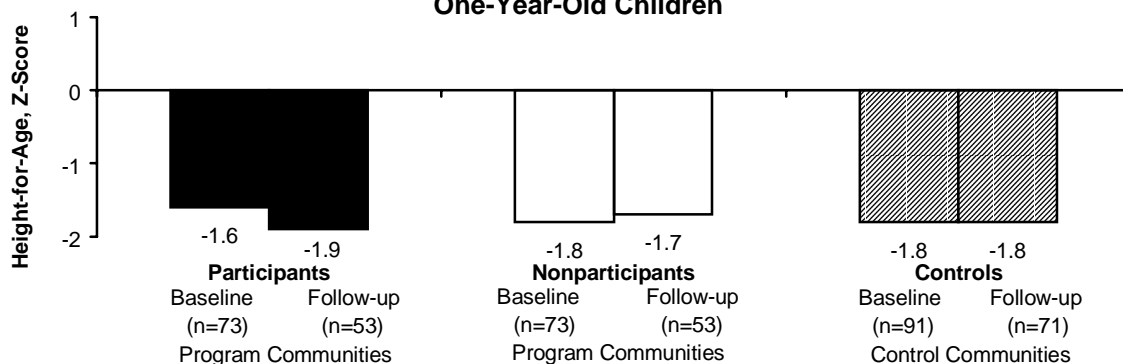
first year, the initial differences at birth were thought to account for the subsequent differences in attained size. However, the high-altitude children were found to have excess weight-for-height measures or increased "fatness."

An interplay of factors explain the high rates of stunting. The Altiplano is characterized by challenging environmental conditions (high altitude, cold and aridity) which support only a limited nutritional base. The region is also very underdeveloped with high rates of poverty and the attendant abject living conditions. A nationwide assessment of basic needs was conducted in the early 1990s in Bolivia applying an index based on indicators such as access to health care, quality of housing, water source, educational attainment and school enrollment. On average, for the five provinces in which the impact research was conducted, 70% of the population was classified as "extremely poor" and 24% as "moderately poor" (Ministerio de Desarrollo Humano, 1995). Only 6% of the population living in these five provinces were classified as non-poor or above the national median for basic needs attainment.

### Children's Nutritional Status by Group

Figure 7.9 shows that the 1997 participants' one-year-olds had a mean HAZ that was 0.3 lower than those in the baseline period. The mean HAZ was 0.1 higher for nonpartici-

**Figure 7.9: Children's Nutritional Status—Mean Height-for-Age Z-Score for One-Year-Old Children**



#### Comparing Baseline and Follow-up, by Group

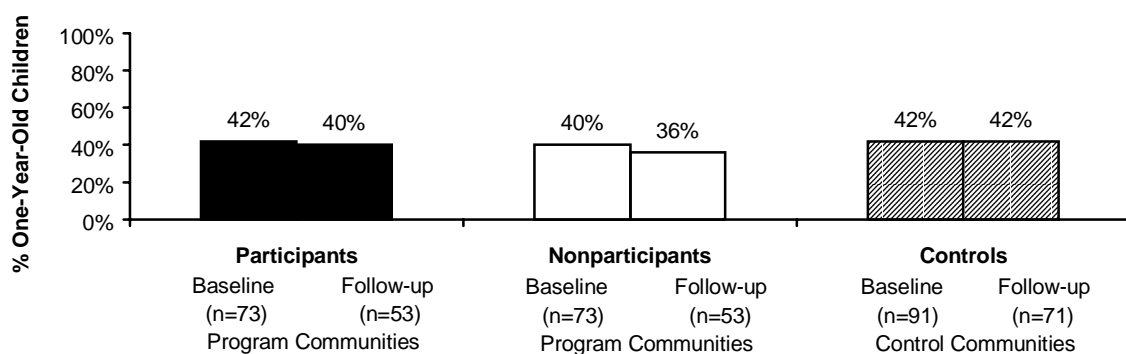
No significant differences, when controlling for child's age, child's age squared, month child measured, mother's height, income quartile and distance from major market.

pants and stayed the same in control communities between the baseline and follow-up periods. However, there were no significant differences between years in children's height-for-age z-scores across the groups when controlling for child's age, month child was measured, maternal height, income quartile and distance to major market. (Excluded from the analysis were twins and 25 HAZ measures that were extreme outliers.) Figure 7.10 shows the percentage of children having a height-for-age z-score less than -2 and subsequently categorized as "malnourished." Little change is evident between the years in the incidence of malnourished children based on their stature for their age. There is also

no significant difference between the years in comparisons among the three sample groups when controlling for child's age, child's age squared, month measured, mother's height, income quartile and distance from a major market.

More dramatic differences were evident, at least for the nonparticipant sample, in the weight-for-age measures of the one-year-old children between the baseline and follow-up periods. Figure 7.11 shows that the mean WAZ indicates a positive difference of 0.4 between the years for the nonparticipant sample but a negative difference of 0.2 for participants and no difference for controls. The difference is significant for nonpartici-

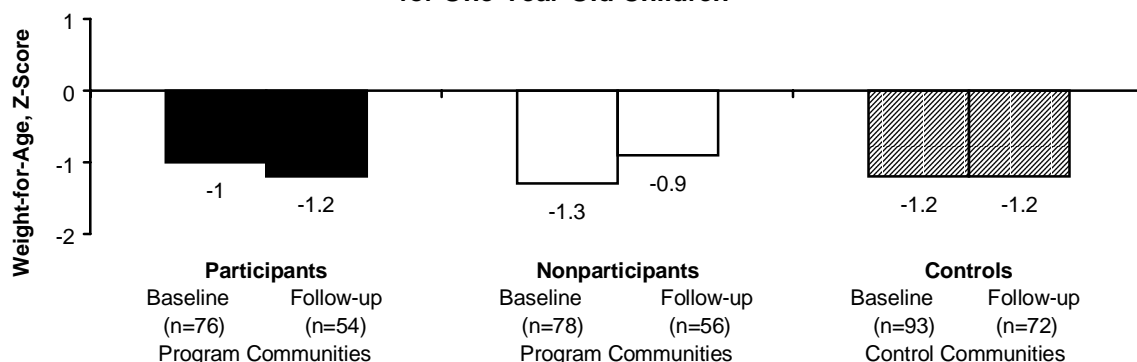
**Figure 7.10: Percentage of One-Year-Olds Moderately to Severely Malnourished—HAZ<-2SD**



**Comparing Baseline and Follow-up, by Group**

No significant differences, when controlling for child's age, child's age squared, month child measured, mother's height, income quartile, and distance from major market.

**Figure 7.11: Children's Nutritional Status—Mean Weight-for-Age Z-Score for One-Year-Old Children**



**Comparing Baseline and Follow-up, by Group**

Significant difference for nonparticipants versus participants and nonparticipants versus controls when controlling for child's age, child's age squared, month weighed, mother's height, income quartile and distance to major market ( $p < .05$ ). No significant difference between participants and residents of control communities when controlling for same variables.

pants versus participants and nonparticipants versus controls when controlling for child's age, the square of child's age, month the child was weighed, mother's height, income quartile and distance from major market. No significant difference is evident for participants versus residents of control communities, controlling for the same variables.

Similarly, the incidence of malnutrition—based on those who are underweight (Figure 7.12)—shows a significant and positive difference between years for nonparticipants versus participants when controlling for child's age, the square of child's age, month the child was weighed, mother's height, income quartile and distance from major market. However, the difference is not significant between nonparticipants and controls and only marginally significant ( $p < 0.1$ ) when comparing participants versus controls.

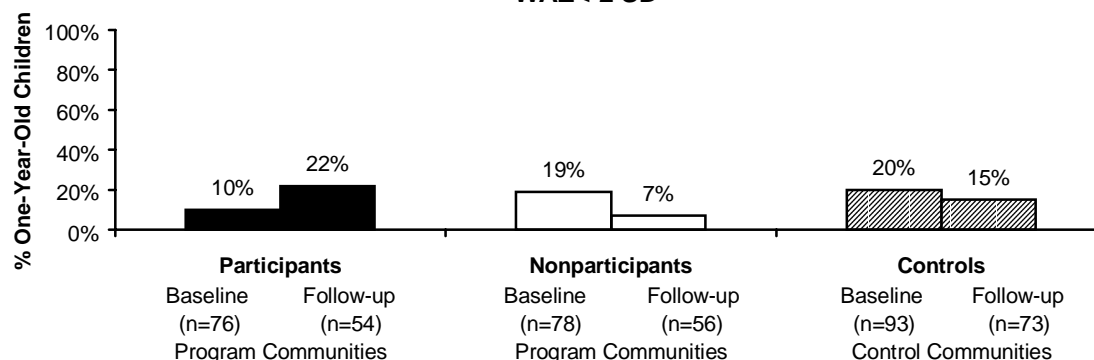
Given the improved weight-for-age measures, it is not surprising that a similar pattern is evident when comparing the weight-for-height measures of the three groups. Again, the one-year-olds of nonparticipants show the most pronounced positive difference between the baseline and follow-up periods (see Figure 7.13). In fact, the nonparticipants' mean weight-for-height z-score is above the international median. When controlling for child's age, the square of child's age, month the child was weighed, mother's

BMI, income quartile and distance from a major market, the difference between years is positive and significant for nonparticipants versus participants and for nonparticipants versus controls. There is no significant difference between years for participants versus controls. Given the tendency of indigenous children living on the Altiplano to be relatively stunted and relatively “fatter” as compared to the international standards, the incidence of malnutrition based on weight-for-height measures is relatively low. As seen in Figure 7.14, none of the one-year-old children included in the 1997 follow-up are classified as malnourished according to the individual's weight-for-height z-scores. Due to a rarity of malnutrition based on wasting, no significant differences were found between the years among any of the three surveyed groups.

From these results, the two most striking findings are 1) the apparent improvement in the nutritional status and particularly the weights of the nonparticipant samples in program communities, and 2) the lack of positive difference evident in the nutritional status of *Credit with Education* participants' children.

The rather dramatic positive change in nonparticipants' weight-for-age and weight-for-height measures between the baseline and follow-up period suggest either the effect of

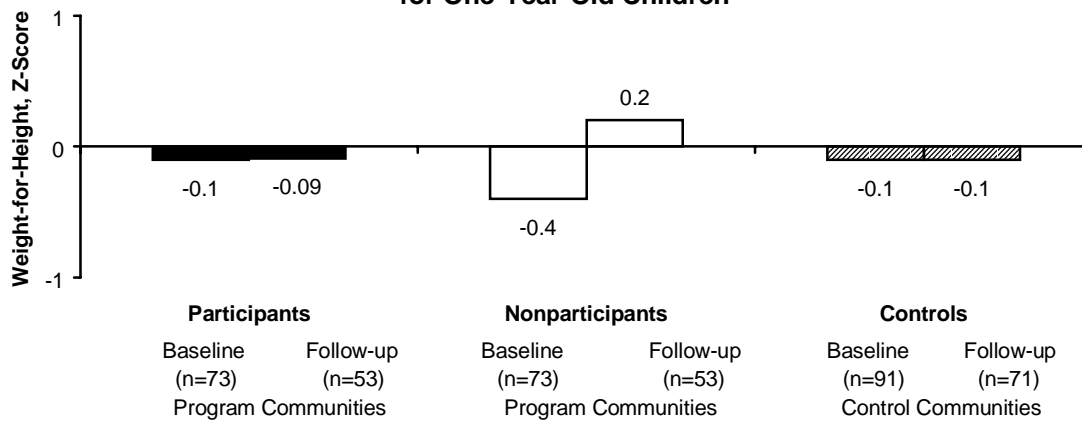
**Figure 7.12: Percentage of One-Year-Olds Moderately to Severely Malnourished—WAZ < -2 SD**



**Comparing Baseline and Follow-up, by Group**

Significant difference for nonparticipants versus participants and nonparticipants versus controls when controlling for child's age, child's age squared, month weighed, mother's height, income quartile and distance to major market ( $p < .05$ ). No significant difference between participants and residents of control communities when controlling for same variables.

**Figure 7.13: Children’s Nutritional Status—Mean Weight-for-Height Z-Score for One-Year-Old Children**



**Comparing Baseline and Follow-up, by Group**

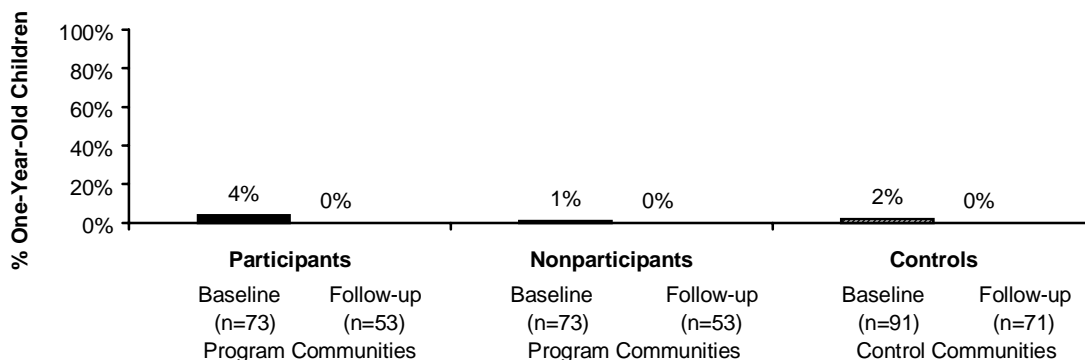
Significant difference for nonparticipants versus participants and nonparticipants versus controls when controlling for child’s age, child’s age squared, month weighed, mother’s body mass index, income quartile and distance to major market ( $p < .05$ ). No significant difference between participants and residents of control communities when controlling for same variables.

some nutritionally beneficial agent or circumstance or systematic differences in the baseline and follow-up nonparticipant samples. Because the women in the nonparticipant sample live in the very same communities as the participants, it is unlikely that an external agent or circumstance explains the improvement seen in the nonparticipant sample. If health education, feeding or economic development programs—other than *Credit with Education*—had positively affected the nonparticipant sample, similar improvement would be likely for the participant sample as well. More likely is that the nonparticipant sample in the follow-up

period is systematically different from the baseline nonparticipant sample either in terms of household or community characteristics.

There is some evidence that the nonparticipants in the follow-up were of a higher socioeconomic level than those in the baseline period. Maternal nutritional status was significantly better for the 1997 nonparticipants relative to the other groups. Also there was a highly significant difference ( $p = .001$ ) in the logarithmic value of nonparticipants’ per capita assets in the follow-up as compared to the baseline. For the participant and control samples, the per capita value of

**Figure 7.14: Percentage of One-Year-Olds Moderately to Severely Malnourished—WHZ < -2SD**



**Comparing Baseline and Follow-up, by Group**

No significant difference, when controlling for child’s age, child’s age squared, month child weighed, mother’s height, income quartile and distance from main road.

assets was also significantly higher in the follow-up period but to a lesser degree.

Additionally, it is possible that there were systematic community-level differences for the nonparticipants included in the baseline and follow-up surveys. An effort was made to sample approximately the same number of nonparticipants in both periods from each of the study communities. However, this was not always possible. In several cases, the proportion of nonparticipants coming from a specific community or province was unequal for the two time periods. For example, more nonparticipants were drawn from the relatively better-off province of Ingavi in the follow-up period than in the baseline. For this reason, a number of community-level variables (province, distance to major market, community size, access to a main road or health center) were included in the analysis of the children's nutritional status. Those variables with the greatest explanatory power were maintained in the analysis and are presented in Figures 7.9 to 7.14.

A second major finding is the apparently limited effect of *Credit with Education* on children's nutritional status as indicated by the lack of any difference between years for the participant sample. As with the nonparticipant sample, there may be systematic community-level differences between years for the participant group. For example, a relatively larger proportion of the 1997 participants were drawn from the most remote province of Pacajes than were drawn for the baseline period. Again, this is the reason a number of community-level variables were included in the analysis. However, other possible explanations for this lack of impact on children's nutritional status have more direct programmatic implications.

For example, little to no change was evident for height-for-age values. Based on the findings from other studies, it seems likely that the children included in this study had relatively short lengths at birth, which continues to affect their relative heights at one year of age. It may be that interventions that improve infants' birth weights and lengths, perhaps by improving maternal nutrition,

would have more dramatic impacts on the height-for-age values of one-year-olds. Although the CRECER *Credit with Education* program promotes good nutrition during pregnancy, maternal nutrition status is not greatly emphasized by the education component. However, other reasons for this lack of impact must also be considered. Even with the importance of birth size, if participants' incomes were improving and mothers were adopting the variety of ideal breastfeeding, child feeding and diarrhea treatment and prevention practices promoted by the program and using existing health services more, one would expect children's nutritional status to be positively affected.

It is possible that the degree of positive health and nutrition behavior change was not sufficient to affect children's nutritional status. As was discussed in Section 5.0, the quality of the education service delivery was inconsistent. Although the great majority of 1997 participants reported learning about new health and nutrition behaviors in the last year, for some this reflected the recent efforts of newly trained or hired field agents rather than longer-term influences that would have had the opportunity to affect the children's nutritional status. The potential influence of the quality of education can be better understood by comparing the relative nutritional status of participants' children according to the education services they received. This approach is taken in the next section of the report.

Another possible explanation might be that the economic impact of the program was insufficient to result in improved nutritional status. As was discussed in Section 4.0, many clients used their loans to acquire animals. This loan-use strategy allows clients to accumulate assets and potentially improve their long-term economic security, but its short-term effects on income are not great. Investment in animals is unlikely to affect dietary quality and quantity in the short-term, unless a milk cow is acquired. In addition, while the program did have a significant impact on clients' nonfarm earnings, the effect on women's own income was negligible. An as-

sumption underlying the design of *Credit with Education* is that the nutritional impacts of general household income are less than income specifically controlled by women. The potential influence of loan-use strategies on children's nutritional status can be better understood by more detailed analysis of the participant sample. Again, this approach is taken in the next section of the report.

### **Children's Nutritional Status by Quality of Education Received by Their Mothers**

One possible explanation for the apparent lack of positive impact of the *Credit with Education* program on children's nutritional status was that participation in the program did not lead to sufficient change in clients' health and nutrition behaviors to improve their children's growth. Assuming that the maternal and child health behaviors promoted by the program are associated with better child health and nutrition, the amount and quality of health education services provided through the program might be related to caregiver practices and ultimately child growth.

As described in Section 5.0 of this report, the health/nutrition education offered to the Credit Associations in this evaluation study was of a variable quality. *Credit with Education* clients in some of the study communities participated in several loan cycles of participatory and interactive learning sessions on a variety of health topics—diarrhea management and prevention, breastfeeding, child feeding, immunization and family planning. Members of other Credit Associations, however, received little to no health education due to implementation problems such as limited supervision and lack of training of field agents and a high field agent turnover rate.

To assess the effect of the relative quality of education received, each Credit Association in the study was given a score based on an assessment of the performance of the field agent(s) assigned to that Credit Association over the period of the study. For the follow-up period, clients were divided into two groups—those who received “average” to

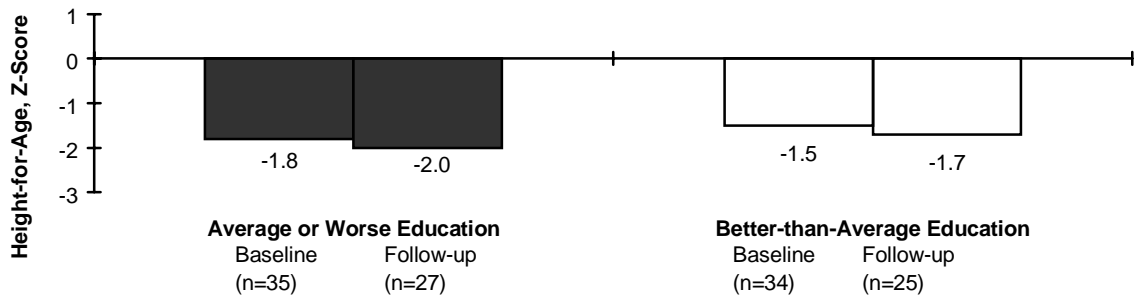
“worse-than-average” education and those who received “better-than-average” education—using the median score as the dividing point between the two groups. Similarly, the education scores were used to divide clients into three groups of approximately equal number—those who received the “worst,” “average” or “best” education. Baseline participants were assigned to the same education-quality categories as the follow-up participants living in the same community.

Unfortunately, the sample sizes are relatively small when the clients are divided into three categories based on the quality of education received. Still, over the study period, the trend in children's nutritional status shows a pattern of improvement that is more favorable among those who received better-quality education than those who received the relatively “worst”-quality education.

Figures 7.15 and 7.16 show the results of the mean height-for-age and weight-for-age z-scores of clients' one-year-old children divided into **two** groups depending on whether their mother had been a member of a Credit Association that received average or worse-than-average education versus better-than-average education. Regardless of the quality of education received, mean height-for-age is .2 z-scores lower for both groups in the follow-up as compared to those of the baseline period. For weight-for-age, the mean value is the same in both periods for children of participants who received “better-than-average” education but .2 z-scores less for those who received “average” or “worse-than-average” education. No significant difference was evident between years for those receiving “better” education when controlling for child's age, month child measured, mother's height, per capita value of household assets (logarithmic value), and distance from La Paz.

Figures 7.17 and 7.18 show the mean height-for-age and weight-for-age z-scores of children divided into **three** groups—those whose mothers received the relatively “worst,” “average” or “best” education. In these graphs, the relative decline in nutritional status for

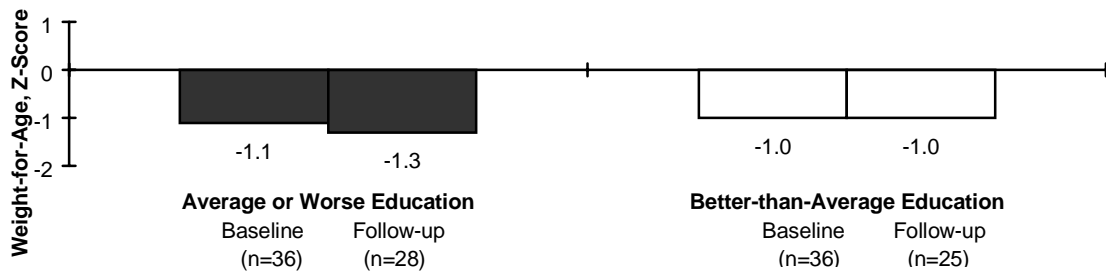
**Figure 7.15: One-Year-Olds' Nutritional Status—Mean Height-for-Age Z-Score (HAZ) by Quality of Education Received, Two Groups (Participants Only)**



**Comparing Participants by Quality of Education Received, Two Groups**

No significant difference, when controlling for child's age, month child measured, mother's height, per capita value of household assets and distance from La Paz.

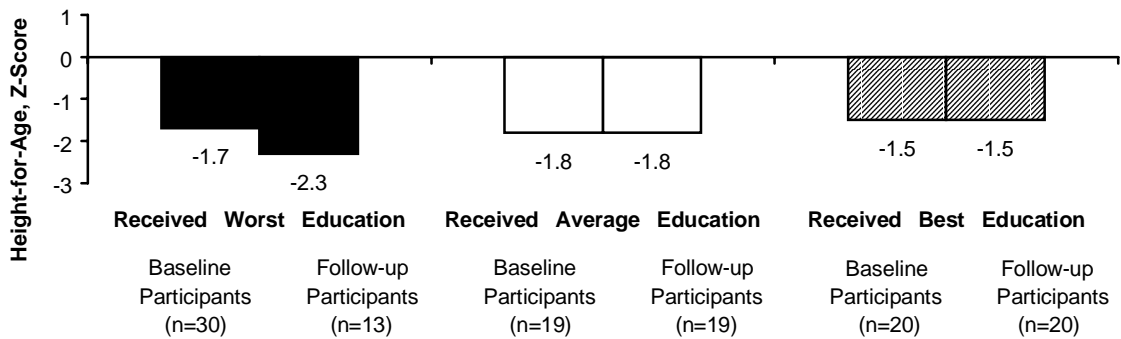
**Figure 7.16: One-Year-Olds' Nutritional Status—Mean Weight-for-Age Z-Score (WAZ) by Quality of Education Received, Two Groups (Participants Only)**



**Comparing Participants by Quality of Education Received, Two Groups**

No significant difference, when controlling for child's age, month child measured, mother's height, per capita value of household assets and distance from La Paz.

**Figure 7.17: One-Year-Olds' Nutritional Status—Mean Height-for-Age Z-Score (HAZ) by Quality of Education Received, Three Groups (Participants Only)**



**Comparing Baseline and Follow-up, by Quality of Education**

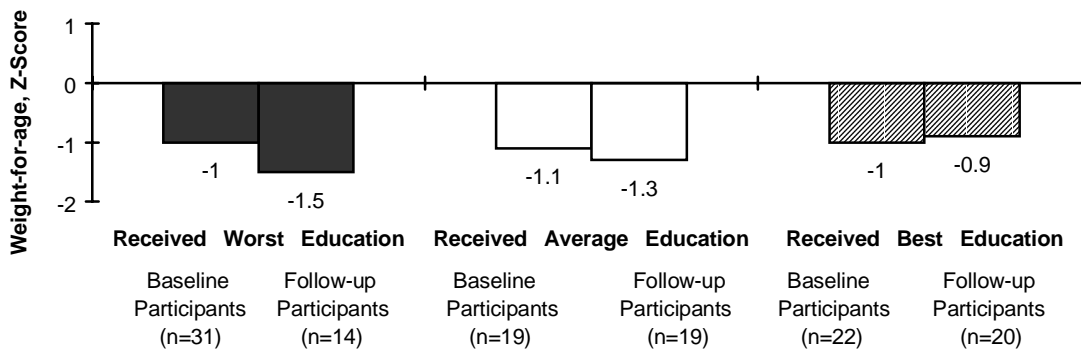
No significant difference, when controlling for child's age, month child measured, mother's height, per capita value of household assets, distance from La Paz and community population.

the “worst” group is more pronounced than for those who received “average” or “best” education. The children whose mothers received the “worst”-quality education have a mean height-for-age that is .6 z-scores lower and a mean weight-for-age that is .5 z-scores lower in the follow-up relative to the baseline period. In contrast, the children in the group that received the “best” education show constant or slightly higher mean z-scores in the follow-up as compared to the baseline period. Comparison between those receiving the “worst” versus “best” education is significantly different between years for children’s mean weight-for-age z-scores when controlling for a variety of variables

associated with child, household, community and province.

A higher percentage of one-year-old children were categorized as malnourished ( $HAZ < -2$  and  $WAZ < -2$ ) in the follow-up as compared to the baseline period for mothers receiving the “worst” education. As shown for this group in Figure 7.20, the percent of children malnourished ( $WAZ < -2$ ) is only 6% in the baseline period but 50% at the follow-up. Even with these small sample sizes, a significant difference is evident in children’s nutritional status between these client groups. The difference between years is significant ( $p < .05$ ) for children in the “worst” as com-

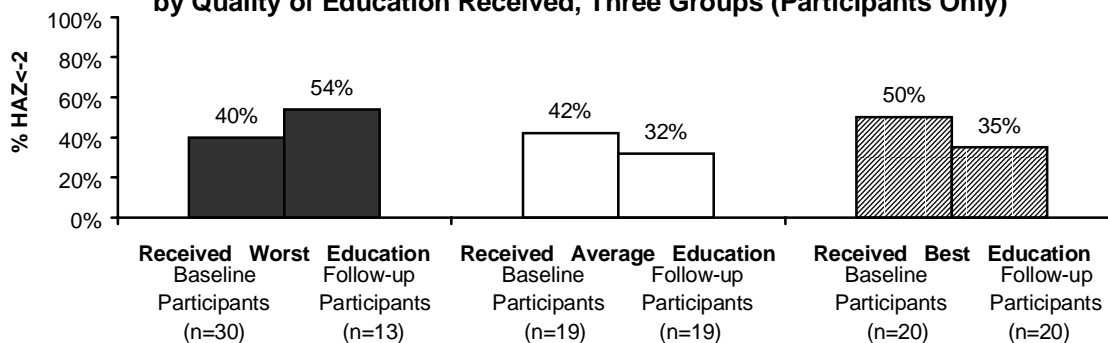
**Figure 7.18: One-Year-Olds’ Nutritional Status—Mean Weight-for-Age Z-Score (WAZ) by Quality of Education Received, Three Groups (Participants Only)**



**Comparing Baseline and Follow-up, by Quality of Education Received**

Significant difference ( $p=.04$ ) for those receiving worst and best education when controlling for child’s age, month child measured, mother’s height, per capita value of household assets, distance from La Paz and poverty level of the province.

**Figure 7.19: Percentage of One-Year-Old Children Malnourished ( $HAZ < -2$ ) by Quality of Education Received, Three Groups (Participants Only)**

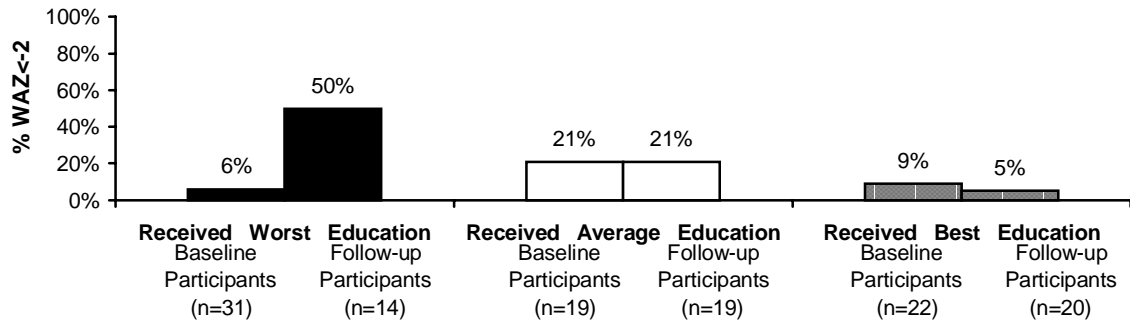


**Comparing Baseline and Follow-up, by Quality of Education Received**

No significant difference, when controlling for child’s age, mother’s height, per capita value of household assets, distance to La Paz and poverty level of province.



**Figure 7.20: Percentage of One-Year-Old Children Malnourished (WAZ<-2) by Quality of Education Received, Three Groups (Participants Only)**



**Comparing Baseline and Follow-up, by Quality of Education Received**

Significant difference ( $p < 0.05$ ) for those receiving worst and average education when controlling for child's age, mother's height, per capita value of household assets and distance to market. Marginally significant difference ( $p = 0.06$ ) between years for those receiving worst and best education controlling for same variables.

pared to the “average” group and very close to significant ( $p = .06$ ) for the “worst” compared to the “best” group when controlling for a variety of variables associated with child, household, and community. Particularly in terms of children’s weight-for-age, better quality of education services provided through the *Credit with Education* program seems positively associated with better nutritional status.

**Children’s Nutritional Status by Loan Activity**

Another possible explanation for the apparent lack of positive impact of the *Credit with Education* program on children’s nutritional status (see Figures 7.9 to 7.14) is that certain loan-use strategies were unlikely to translate into short-term impacts on nutritional status. As discussed in Section 4.0, many clients used their loans to acquire animals such as sheep, goats and cows. Clients used their loans to buy small animals that they would raise either to sell or to add to their family’s stock, and to buy animal feed. Investment in animals might be very important for a household’s longer-term economic security but—particularly if the animal is kept by the family—the short-term effect on

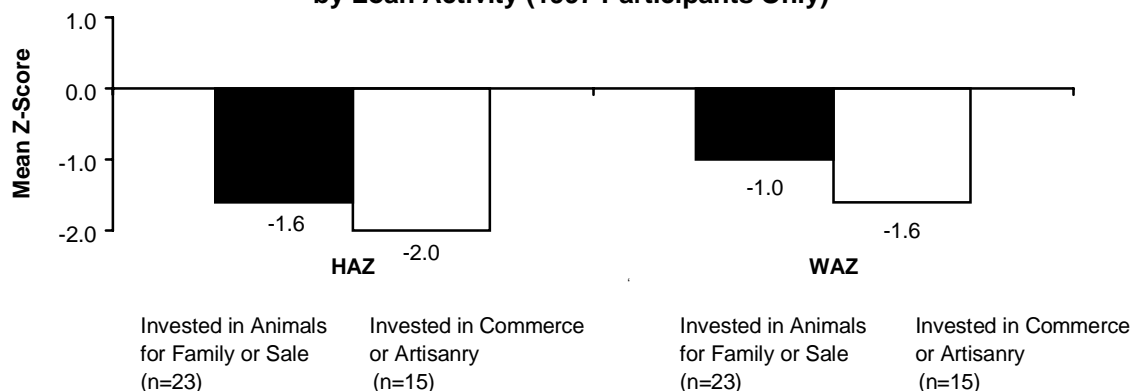
household income and basic needs like diet is likely to be minimal.<sup>28</sup>

Figures 7.21 and 7.22 show information pertaining to one-year-olds’ nutritional status by the mother’s reported loan activity. (These graphs summarize information for clients in 1997 only, because baseline participants had not yet taken loans.) Participants were divided into several groups depending on their reported use of their most recent CRECER loan. Clients who had used all or some of their loan to buy animals for their household, animals for resale, or animal feed were organized into one group. Women who reported investing their loans in an income-generating activity that was more likely to earn a steady return—small stores, make/sell cooked food, buy/sell cheese or agricultural products—were organized into another group.<sup>29</sup> Both in terms of their height-for-age and weight-for-age measures, one-year-olds whose mothers had invested in animals had higher mean z-score values than children whose mothers had invested in activities that earned a more steady return. In fact, investment in animals was significantly and positively related to children’s mean weight-for-age z-scores and significantly and negatively related to the prevalence of malnutrition when controlling for a

<sup>28</sup> An exception to this assumption would be if a client used her loan to buy a milk cow. Daily milk sales are an important and steady source of income in several of the study communities.

<sup>29</sup> Women who invested part of their loan in animals and another portion in commerce or artisanry were not included in this analysis.

**Figure 7.21: One-Year-Olds' Nutritional Status—Mean HAZ and WAZ by Loan Activity (1997 Participants Only)**



**Comparing Participants by Loan Activity**

For HAZ, no significant effect by loan activity when controlling for child's age, mother's height, per capita value of household assets and distance to market. For WAZ, investment in animals significantly and positively related ( $p=0.03$ ) to child's WAZ when controlling for same variables.

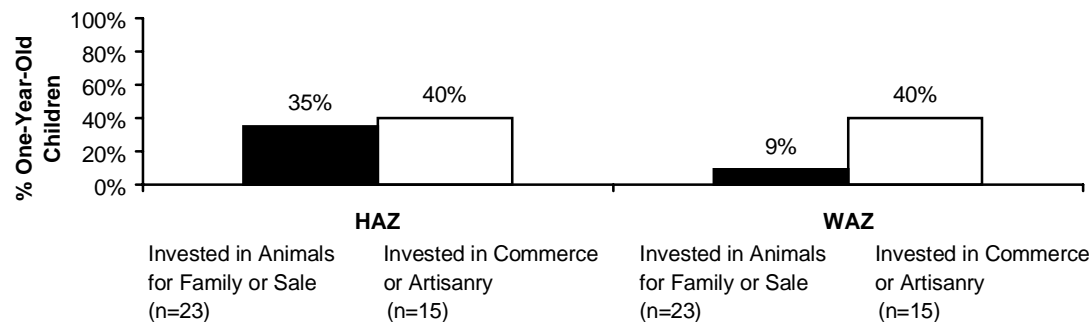
variety of variables associated with child, mother, household and community.

It seems unlikely that investment in animals per se had a positive impact on children's nutritional status over the relatively short duration of the study period. It is more likely that this loan-use strategy is pursued by households relatively better-off than those who engage in commerce or artisanry. Still, these results do not support the idea that the apparent lack of improvement in the nutritional status of clients' children is related to the prevalence of loan-use strategies more likely to yield longer-term benefits than short-term nutritionally beneficial change.

**Children's Nutritional Status by Whether the Mother Had Her Own Business**

A third area for additional inquiry was whether women's control of an income-generating activity was related to her child's nutritional status. Based on evidence from a variety of contexts and cultures around the world, one of the assumptions underlying the design of the *Credit with Education* strategy is that income earned and controlled by women is more likely to be positively associated with children's nutritional status than general household income. In the follow-up period,

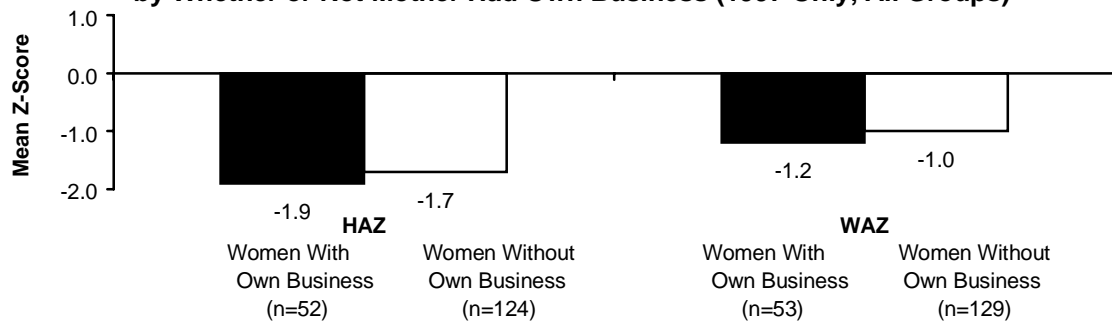
**Figure 7.22: Percentage of One-Year-Olds Malnourished—(HAZ<-2 or WAZ<-2) by Loan Activity (1997 Participants Only)**



**Comparing Participants by Loan Activity**

For HAZ, no significant effect of loan activity when controlling for child's age, mother's height, per capita value of household assets and distance to market. For WAZ, investment in animals significantly ( $p=0.03$ ) and negatively related to percent children malnourished when controlling for same variables.

**Figure 7.23: One-Year-Olds' Nutritional Status—Mean HAZ and WAZ by Whether or Not Mother Had Own Business (1997 Only, All Groups)**



**Comparing Participants by Whether or Not Mother Had Own Business**

For HAZ and WAZ, no significant effect of whether mother has own business when controlling for child's age, mother's height, mother's marital status, per capita value of assets and distance to market.

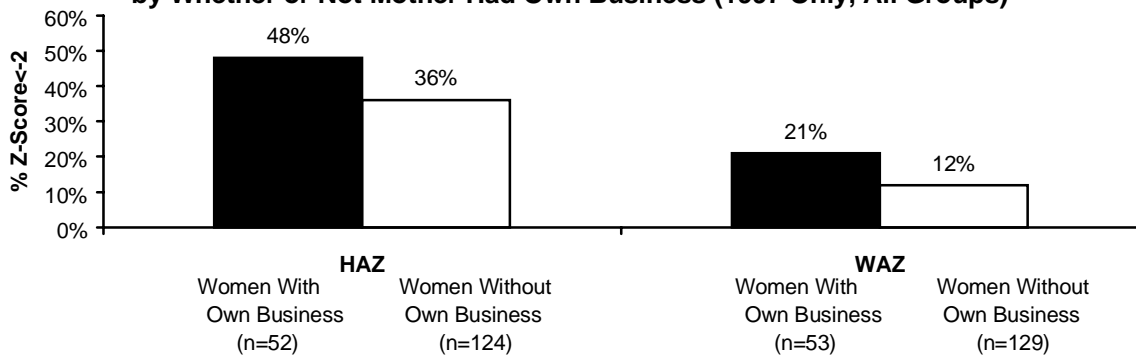
women who engaged in an income-generating activity other than farming over the previous four weeks were asked whether this activity was primarily their own or a household activity.

Figures 7.23 and 7.24 show the nutritional status of children grouped according to whether or not the mother engaged in her own enterprise activity. For this analysis, the results of participants, nonparticipants and residents of control communities were pooled. Both in terms of height-for-age and weight-for-age, the children of mothers with their own enterprises had mean z-scores that were lower than children of mothers who did not engage in their own enterprise. In fact, whether a woman had her own business was

significantly and positively associated with the percentage of children categorized as malnourished according to their weight-for-age measures (less than -2 z-score) when controlling for child's age, mother's height, mother's marital status, per capita value of household assets and the community's distance to market.

Again, it may be that women having their own income-generating activity is less a direct cause of children's relatively poorer nutritional status than it is a marker for other household characteristics more directly related to poor growth. For example, women who reported having their own enterprise were significantly less likely to be married than those without their own activity

**Figure 7.24: Percentage of One-Year-Olds Malnourished (HAZ<-2 and WAZ<-2) by Whether or Not Mother Had Own Business (1997 Only, All Groups)**



**Comparing Participants by Whether or Not Mother Had Own Business**

For WAZ, significant effect ( $p < .05$ ) whether mother had own business when controlling for child's age, mother's height, mother's marital status, per capita value of household assets and distance to market. For HAZ, no significant effect when controlling for the same variables.

( $p = .001$ ). In this context, a woman who invested in her “own” rather than in a family business was more likely to be divorced or widowed and consequently more economically insecure. Still, these results do not support the idea that the apparent lack of improvement in the nutritional status of clients’ children is related to the low prevalence of clients engaging in their own rather than family enterprise activities.

## Conclusion

In terms of *Credit with Education’s* ultimate goals, the evaluation research provides little direct evidence of improved household food security and better nutritional status for children of mothers participating in the program.

In the follow-up as compared to the baseline period, the incidence and duration of a “hungry season” was less pronounced for each of the three study groups—participants, nonparticipants in program communities and residents in control communities. Participants’ households were also no less likely to report experiencing manifestations of “hunger” such as reduced number of meals, smaller meal size or limited variety over the last year. In general, it seemed that for all groups the agricultural season and food security situation was better in 1997 than for the baseline period. There was, however, some evidence that *Credit with Education* program participation improved a household’s ability to deal with periods of food stress. Among those who had experienced a hungry season in the previous 12 months, the 1997 participant households were significantly less likely to have sold off animals as a coping strategy than residents in control communities. Participants also reported taking internal loans from their Credit Associations to deal with periods of food stress, and approximately one quarter of the 1997 participants reported using either all or some of their most recent loan for family consumption purposes—often buying foodstuffs in bulk at a lower unit price.

No positive effect of the program was found over the course of the study on maternal nutritional status as measured by body mass

index (BMI). BMI is derived from a calculation comparing a woman’s weight to her height or relative “thinness.” When applying this type of anthropometric indicator of maternal nutrition, the prevalence of maternal malnutrition is extremely low—only two women of the more than 400 who were measured had BMI values indicating malnutrition. An indicator that perhaps measured dietary quality or iron deficiency might have found higher rates of poor nutrition among women. The lack of a programmatic effect on women’s BMI is not surprising given the very low prevalence of maternal malnutrition (when measured by “thinness”). In addition, the program’s education component does not emphasize maternal nutrition, with the exception of promoting good diets during pregnancy and lactation. However, it is interesting to note that the nonparticipant sample showed a significant and positive difference in mean BMI values relative to the control group between the baseline and follow-up period.

In addition, no positive effect of the *Credit with Education* program was found on the nutritional status of clients’ children as measured by their height-for-age, weight-for-age or weight-for-height. Over the period of the study, the nutritional status of clients’ one-year-olds remains relatively constant or is even lower in the follow-up period. The pattern seen for participants’ children is quite similar to the one seen for the children of residents in control communities. However, in the follow-up period the children of nonparticipants in program communities have better nutrition relative to the baseline period especially in terms of their weight-for-age measures. In terms of socioeconomic characteristics like asset ownership and years in school, the 1997 nonparticipants were not significantly “better off” than the 1997 participants or residents in control communities (see Table 3.2). However, given the significantly higher BMI values, 1997 nonparticipants may represent a better nourished group which might in part explain why the nonparticipants’ children also have better nutritional status in the follow-up period.

Further analysis explored three possibilities for the apparent lack of effect of the program

on children's nutritional status: 1) variable quality of the health/nutrition education services provided to *Credit with Education* clients; 2) loan-use strategies that yield long-term rather than relatively short-term nutritional benefits; and 3) the prevalence of household- rather than primarily women-controlled income-generating activities.

Of these three, the factor that is perhaps most amenable to programmatic adjustments is the relationship seen between the quality of education services clients received and the relative improvement in children's nutritional status over the period of the study. This was also the only explanation of the three which was supported by the data in this study. Children of clients who received the relatively "worst" education services had poorer nutritional status in the follow-up relative to those in the baseline period. Those who received "average" or "better-than-average" education either had a more constant nutritional status or better nutrition. Between the baseline and follow-up, there was a significant and positive relationship between the quality of education

received and children's mean weight for age z-scores as well as the prevalence of moderate to severe malnutrition when controlling for a variety of variables associated with child, household, community and province. Particularly in terms of children's weight-for-age, the quality of education services provided through the *Credit with Education* program was associated with better nutritional status.

Loan-use strategies such as investment in animals and animal feed were not related to relatively poorer nutritional status. In fact, investment in animals was significantly and positively related to children's mean weight-for-age z-scores and negatively related to the prevalence of malnutrition. In addition, children of women who reported engaging in income-generating activities that they primarily controlled were less well-nourished than those who either had no activity or who engaged in a family activity. It seemed that a woman's owning a business might be a marker for other characteristics, such as being unmarried and consequently more economically insecure, that might be more directly related to children's poor growth.

## RÉSUMÉ ANALYTIQUE

Depuis 1989, Freedom from Hunger travaille avec des partenaires locaux au développement et à la diffusion d'une stratégie rentable de programme intégré appelée le *Crédit avec Éducation*<sup>1</sup>. L'objectif du *Crédit avec Éducation* est d'améliorer le statut nutritionnel et la sécurité alimentaire de ménages ruraux démunis en Afrique, Amérique Latine et Asie. En collaboration avec le programme de nutrition internationale de l'université de Californie à Davis, Freedom from Hunger a entrepris une étude sur plusieurs années des sites du programme du *Crédit avec Éducation* en Bolivie et au Ghana. Le soutien financier pour cette recherche en collaboration provient d'une subvention d'innovation du fond de recherche Thrasher et par un financement complémentaire de la division de nutrition de l'UNICEF/New York. PLAN International a apporté un financement supplémentaire pour la recherche conduite en Bolivie.

L'étude d'évaluation a été conçue pour tester les hypothèses d'impact positif du programme sur le statut nutritionnel des enfants, sur la capacité économique de leurs mères, leur acquisition d'autonomie et leur adoption de pratiques sanitaires et nutritionnelles essentielles pour la survie de l'enfant.

Ce rapport présente les résultats de l'étude d'évaluation d'impact du programme du *Crédit avec Éducation* de CRECER (Crédito con Educación Rural). La mission de CRECER est d'améliorer la sécurité alimentaire et le bien-être de ses clients, de leurs familles et de leurs communautés en apportant des services financiers et éducatifs, abordables et de haute qualité, en priorité à des femmes vivant en milieu rural. En juin 1999, les services du *Crédit avec Éducation* étaient offerts à plus de 15 500 femmes dans trois départements de Bolivie — La Paz, Cochabamba et Oruro. L'étude d'évaluation a été réalisée dans 28 communautés réparties

dans cinq provinces de l'Altiplano (Aroma, Ingavi, Los Andes, Omasuyos et Pacajes) dans le département de La Paz.

L'enquête et la collecte des données anthropométriques (tailles et poids) ont été réalisées avec des paires mère/enfant différentes entre l'enquête de base en 1994/1995 et l'enquête de suivi en 1997. Un schéma quasi expérimental a été appliqué au niveau de la communauté afin de minimiser les déviations possibles. Après la collecte des données de base, les communautés ont été séparées aléatoirement en deux groupes : un groupe « programme » et un groupe « témoin » ; ce dernier groupe ne devant pas recevoir le *Crédit avec Éducation* avant la fin de l'étude d'évaluation.

Trois groupes échantillons de femmes ayant au moins un enfant de 6 à 24 mois ont été inclus dans la collecte des données de suivi : (1) les participantes au programme du *Crédit avec Éducation* depuis au moins un an ; (2) les non-participantes dans les communautés où le programme est présent ; (3) les résidentes des communautés témoins sélectionnées pour ne pas recevoir le programme pendant la période de l'étude. Les femmes des deux groupes de non-participantes ont été sélectionnées aléatoirement à partir de listes de toutes les femmes ayant des enfants de moins de trois ans. Dans les communautés plus petites, il a souvent été nécessaire d'interroger toutes les femmes ayant des enfants de l'âge désiré.

L'impact du programme est évalué en comparant les différences dans les réponses et les mesures entre les périodes de base et de suivi pour les participantes du programme avec celles des non-participantes dans les communautés ayant le programme et les résidentes des communautés témoins. Des femmes différentes ont été incluses dans les deux périodes de collecte des données parce que peu de femmes avaient des enfants de moins de deux ans à la fois pendant la période de l'enquête de base et pendant celle de suivi. Étant donné que les enquêtes de base ont été réalisées avant la mise en œuvre du *Crédit*

<sup>1</sup> *Crédit avec Éducation* est une marque de service protégée par Freedom from Hunger pour l'usage exclusif des organisations membres de l'Échange d'Apprentissage du *Crédit avec Éducation*.

*avec Éducation* dans les communautés allant avoir le programme, les femmes qui ont répondu à l'enquête de base dans ces communautés ont ensuite été reclassifiées en fonction de leur participation au programme quand il a été présent dans leur communauté par la suite. Les femmes qui ont répondu à l'étude de base dans les communautés recevant le programme ont été classifiées soit comme « participantes de base », soit comme « non-participantes de base ». Lors de la comparaison des mesures de base des personnes qui ont ensuite participé au programme (participantes de base) à celles des participantes actuelles en 1997, la différence entre la période de base et celle de suivi peut plus directement être attribuée à l'impact du programme et non à des différences inhérentes entre les femmes qui ont décidé de participer au programme du *Crédit avec Éducation* et celles qui ont refusé.

Quelque soit la période, il n'existait aucune différence statistiquement significative entre les statuts socio-économiques des ménages (mesurés par les biens de consommation) ou entre l'instruction et le niveau d'illettrisme des femmes des trois groupes échantillons. Les participantes à l'étude de base avaient plus tendance à avoir commencé récemment leurs propres activités non-agricoles génératrices de revenus par rapport aux non-participantes des communautés ayant le programme.

En moyenne, les participantes de 1997 avaient souscrit à quatre prêts, avaient un prêt en cours auprès de CRECER d'un peu plus de 1 000 Bolivianos (environ 200 \$US) et avaient 281 Bolivianos (environ 50 \$US) en dépôt dans leur Association de Crédit <sup>2</sup>. Quatre-vingt-cinq pour cent (85 %) des participantes de 1997 avaient au moins souscrit à un « prêt interne » (prêt provenant de l'épargne ou des versements de remboursement de leurs groupes d'emprunteuses) d'en moyenne 814 Bolivianos (environ 150 \$US). Les participantes de 1997 ont déclaré avoir utilisé une partie ou la totalité de leur prêt le

plus récent auprès de CRECER de la manière suivante (par ordre décroissant de fréquence) : commerce, achat d'animaux pour la consommation de la famille ou pour les engraisser et les vendre, achat de matières premières pour l'agriculture et l'élevage d'animaux, activité artisanale.

### **Impact sur la capacité économique des femmes**

La majorité des participantes de 1997 (67 %) estimaient que leurs revenus avaient « augmenté » ou « fortement augmenté » depuis qu'elles avaient adhéré au programme du *Crédit avec Éducation*. Le plus couramment, les participantes attribuaient cette amélioration à l'expansion de leurs activités génératrices de revenus, à la diminution des coûts des matières premières résultant de l'achat en gros ou avec des espèces ; ou au fait que les nouvelles activités ou produits rendaient possible l'accès au crédit ou à la vente sur de nouveaux marchés. Il n'existait pas de différence significative entre les périodes de base et de suivi dans le bénéfice mensuel non-agricole personnel des participantes en comparaison avec celui des non-participantes et des résidentes des communautés témoins. Toutefois, en additionnant le revenu non-agricole personnel des femmes et le revenu non-agricole général des ménages, les bénéfices mensuels estimés des participantes de 1997 étaient significativement supérieurs aux revenus non-agricoles totaux des résidentes des communautés témoins.

En 1997, le bénéfice mensuel non-agricole moyen pour l'échantillon de participantes était deux fois et demi supérieur au bénéfice gagné par les non-participantes et plus de cinq fois supérieur au bénéfice gagné par les résidentes des communautés témoins. D'une manière générale, les participantes de 1997 ont connu des améliorations significatives de leurs revenus non-agricoles, avec une grande diversité des bénéfices mensuels. Alors que certaines participantes ont déclaré avoir eu des bénéfices aussi élevés que 800 à 1 200

<sup>2</sup> Les équivalences en dollars ont été calculées en utilisant les taux de change au moment de l'étude. Le taux de change pour la période de suivi était : 1 \$US = 5,3 Bs.

Bs. par mois (environ 150 à 225 \$US), un quart ont déclaré avoir eu des bénéfices inférieurs à 500 Bs. (environ 10 \$US). La stratégie d'utilisation du prêt d'une femme et le développement commercial de sa communauté influencent le degré de bénéfice économique qu'elle en retire.

L'impact a aussi été positif sur l'épargne personnelle. Les participantes avaient significativement plus tendance que les non-participantes et les résidentes des communautés témoins à avoir de l'épargne personnelle et avaient significativement plus tendance que les non-participantes à avoir plus de 200 Bs. d'épargne. Rien n'a montré que la participation au programme favorisait les compétences entrepreneuriales des participantes et notamment la prise en compte de facteurs liés à la demande et à la rentabilité lors de la prise de décision de commencer une activité génératrice de revenus.

Quarante pour cent (40%) des participantes de 1997 ont déclaré que le nombre d'animaux appartenant à leur famille avait augmenté depuis qu'elles avaient adhéré au programme de CRECER. Toutefois, le nombre moyen d'animaux (moutons, chèvres, vaches) acquis le plus couramment avec les prêts (selon les déclarations des participantes) n'était pas significativement différent entre les trois groupes. Une préoccupation croissante était évidente chez les emprunteuses investissant dans des animaux pour leur famille. Quand le montant du prêt augmente, beaucoup de femmes veulent acheter des vaches laitières — un des biens de production le plus important dans la région de l'étude. La courte période de prêt et la nécessité de rembourser toutes les semaines devient alors plus difficile pour les emprunteuses, en particulier quand les remboursements sont effectués, au moins en partie, à partir de sources de revenus autres que l'activité dans laquelle le prêt a été investi (comme le bétail).

Certaines différences dans les dépenses ont été observées entre les trois groupes. Les participantes de 1997 avaient significativement plus tendance que les résidentes des communautés témoins à avoir dépensé de

l'argent pour des frais médicaux pendant la dernière année. Les participantes avaient aussi dépensé pour des vêtements un montant par personne plus important que les non-participantes ou les témoins ( $p < 0,05$ ). Aucune différence significative n'a été observée en ce qui concerne les dépenses d'éducation, d'amélioration du logement ou de nourriture par personne. Toutefois, entre les périodes de base et de suivi, il existait une différence positive significative entre les participantes et les résidentes des communautés témoins : les premières avaient au moins dépensé un certain montant pour de la viande ou du poisson au cours de la semaine précédente, avec une différence marginale significative dans le montant moyen dépensé par personne.

### **Impact sur les pratiques sanitaires et nutritionnelles des mères**

Pendant les six à dix mois précédant la période de collecte des données de suivi, les responsables et le personnel de CRECER ont entrepris diverses améliorations de la formation et ont développé du matériel afin de renforcer le volet éducatif. Ce travail commençait à produire des résultats. Une augmentation importante et significative a été observée entre les périodes de base et de suivi dans le nombre de participantes déclarant avoir appris des pratiques de bonne santé et de nutrition, en comparaison avec les non-participantes et les résidentes des communautés témoins. Une très forte majorité des participantes de 1997 (98 %) ont classé les informations qu'elles avaient acquises pendant les séances d'apprentissage comme étant « utiles » ou « très utiles ». Mais la qualité de l'éducation reçue par les participantes pendant la durée de l'étude variait encore beaucoup. Étant donné cette variabilité à l'intérieur de l'échantillon de clientes, il a été possible de rechercher si la qualité de l'éducation reçue par les clientes avait un effet sur leurs connaissances et leurs pratiques.

Les comparaisons des réponses entre les périodes de base et de suivi montrent que les participantes, en comparaison avec les non-participantes et/ou les résidentes des



communautés témoins, ont significativement augmenté leur utilisation des pratiques sanitaires et nutritionnelles suivantes promues par le programme du *Crédit avec Éducation* :

- ❖ Donner le colostrum, lait riche en anticorps, au nouveau-né.
- ❖ Retarder l'introduction de liquides et des premiers aliments en complément du lait maternel jusqu'à l'âge idéal d'environ six mois.
- ❖ Ne pas utiliser de biberons.
- ❖ Introduire des aliments complémentaires à l'âge idéal d'environ six mois.
- ❖ Alimenter les enfants avec des aliments tels que de la viande ou du poisson.
- ❖ Donner plus de liquides que d'habitude aux enfants qui souffrent de diarrhée.
- ❖ Vacciner les enfants (à partir de déclarations personnelles, sans vérification).
- ❖ Terminer les dernières séries de vaccinations comme celle du DPT3 (attesté par le carnet de santé).

Les participantes de 1997 connaissaient aussi mieux la prévention de la diarrhée, en comparaison avec les non-participantes ou les résidentes des communautés témoins, et identifiaient en particulier « couvrir la nourriture » et « garder la nourriture propre » comme étant des moyens de prévention de la diarrhée.

Une mesure importante consistait à savoir si les femmes ayant eu plus d'un enfant avaient changé positivement la manière dont elles alimentaient ou allaitaient leurs enfants les plus jeunes inclus dans l'étude d'évaluation. Significativement plus de participantes de 1997 (21 %), par rapport aux résidentes des communautés témoins (seulement 19 %), ont mentionné des différences qui sont le reflet de changements positifs.

La qualité des services d'éducation reçus par les participantes au programme du *Crédit avec Éducation* était en relation directe avec le fait qu'elles avaient ou non changé positivement

la manière dont elles alimentaient ou allaitaient leurs enfants les plus jeunes. Les participantes ayant reçu une éducation de « meilleure » qualité avaient significativement plus tendance (38 %) à déclarer avoir apporté des changements par rapport aux participantes ayant reçu une éducation « moyenne ou moins bonne » (8 %). En divisant l'échantillon de participantes en trois groupes, celles ayant reçu la « meilleure » éducation avaient significativement plus tendance à avoir apporté des changements positifs que celles ayant reçu la « plus mauvaise » éducation.

Relativement peu d'autres différences significatives ont été observées en relation avec la qualité de l'éducation reçue par les participantes. Les enfants d'un an dont les mères avaient reçu une éducation « meilleure que la moyenne » avaient une plus grande fréquence de consommation de carottes ou de courges dans les trois jours précédant la collecte des données, en comparaison avec les enfants des participantes ayant reçu une éducation « moyenne ou moins bonne ». La consommation de légumes verts était aussi significativement supérieure pour les enfants dont les mères avaient reçu la « meilleure » éducation, en comparaison avec ceux dont les mères avaient reçu une éducation « moyenne ». Pour le thème de l'allaitement maternel, un score total basé sur plusieurs pratiques recommandées était en fait significativement supérieur pour celles ayant reçu la « plus mauvaise » éducation par rapport à celles ayant reçu l'éducation « moyenne » ou « meilleure ». Pour le thème de la diarrhée et des vaccinations, la tendance positive ou les améliorations étaient plus importantes pour les femmes ayant reçu l'éducation de « meilleure » qualité, bien qu'il n'y ait pas de différences significatives dans leurs connaissances et leurs pratiques par rapport à celles ayant reçu une éducation « moyenne » ou « moins bonne ».

### **Impact sur l'acquisition d'autonomie des femmes**

Les indicateurs d'acquisition d'autonomie des femmes ont été conçus pour évaluer

l'impact du programme au niveau du ménage et de la communauté.

Au niveau du ménage, la mesure du nombre de femmes déclarant une augmentation de leur contribution économique et de leur pouvoir de négociation au sein du ménage n'a pas montré de résultat significatif. Entre les périodes de base et de suivi, aucune différence significative n'a été trouvée dans la participation des femmes aux dépenses d'éducation. En termes de pouvoir de négociation au sein du ménage, aucun changement dans les prises de décisions n'a été évident dans les ménages des participantes en ce qui concerne les décisions telles que d'envoyer ou non les enfants à l'école, combien dépenser pour les vêtements, pour les médicaments ou pour les matières premières agricoles. Toutefois, il existait une différence positive significative dans les « dire » des participantes, en comparaison avec les non-participantes et les résidentes des communautés témoins, à propos de combien dépenser pour les réparations de la maison. Étant donné que ce type de dépenses est plutôt associé à une prise de décision masculine, ce résultat conforte l'hypothèse que quand les femmes contribuent plus au revenu du ménage, leur influence augmente dans des domaines étant habituellement plus sous le contrôle des hommes.

Un impact positif significatif a aussi été observé entre les périodes de base et de suivi en ce qui concerne les discussions des participantes avec leurs époux à propos de planification familiale, en comparaison avec les non-participantes des communautés ayant le programme. La plupart des Associations de Crédit incluses dans l'étude avaient participé à des séances d'apprentissage, pendant les réunions de groupe, portant sur la planification familiale. Aucune différence n'a été observée pour d'autres variables destinées à mesurer les changements au niveau du ménage : si la femme a donné de l'argent à son mari, si le mari lui a proposé de l'aider à s'occuper des enfants ou si le mari lui a proposé de l'aider dans son activité génératrice de revenus.

Au niveau de la communauté, le programme a semblé avoir eu une influence positive sur la participation des femmes à la vie de la communauté et sur leurs contacts avec la famille et les amis. Entre les périodes de base et de suivi, il existait une différence positive significative entre les participantes et les non-participantes ou les résidentes des communautés témoins dans le pourcentage de celles qui :

- ❖ étaient membres de groupes communautaires autre que leurs familles ;
- ❖ avaient, dans les six derniers mois, donné des conseils à d'autres sur des pratiques nutritionnelles ou de bonne santé ;
- ❖ avaient, dans les six derniers mois, donné des conseils à d'autres sur des bonnes activités génératrices de revenus.

Les participantes de 1997 étaient aussi significativement plus impliquées dans la vie politique des communautés. Elles avaient significativement plus parlé à la réunion de l'assemblée générale de la communauté et s'étaient plus portées candidates ou avaient plus exercé de fonctions officielles au *sindacato* de la communauté, en comparaison avec les non-participantes ou les résidentes des communautés témoins. Toutefois, en l'absence de mesures de base, il est difficile de savoir si cette augmentation de l'implication politique est un résultat du programme ou un biais d'auto-sélection de ces femmes qui avaient plus tendance à participer au *Crédit avec Éducation*. Il est possible que la décision des non-participantes de ne pas participer au programme dans leur communauté soit en soi le reflet de leur manque de confiance en elles et de leur moindre implication dans la vie publique communautaire.

### ***Impact sur les objectifs fondamentaux — statut nutritionnel et sécurité alimentaire***

L'incidence et la durée d'une « période de famine » étaient moins prononcées pour chacun des trois groupes de l'étude — les participantes, les non-participantes des communautés ayant le programme et les

résidentes des communautés témoins. En général, il semble que la saison agricole et la sécurité alimentaire étaient meilleures en 1997 que pendant la période de base. Certaines mesures ont montré que la participation au programme du *Crédit avec Éducation* avait augmenté la capacité des ménages à gérer les périodes de stress alimentaire. Les ménages participant en 1997 avaient significativement moins tendance à avoir vendu un animal comme stratégie de réponse à un stress alimentaire, en comparaison avec les résidentes des communautés témoins. Presque le quart des participantes de 1997 ont déclaré avoir utilisé leur prêt le plus récent pour acheter de la nourriture pour leurs familles — achetant souvent des aliments en gros à un prix unitaire inférieur. Entre les périodes de base et de suivi, les participantes ont aussi eu significativement plus tendance que les résidentes des communautés témoins à avoir dépensé de l'argent pour de la viande ou du poisson pendant la semaine précédant la collecte des données.

Aucun effet positif du programme n'a été observé pendant la durée de l'étude sur le statut nutritionnel des mères, mesuré par l'indice de masse corporelle (IMC). Le manque d'effet du programme n'est pas surprenant étant donné la faible prévalence de la sous-alimentation maternelle lorsque cet indicateur qui mesure le poids d'une femme par rapport à sa taille (sa « minceur » relative) est utilisé. Seulement deux femmes parmi les plus de 400 femmes mesurées ont eu des valeurs de l'IMC indiquant une sous-alimentation.

De plus, aucun effet positif du programme du *Crédit avec Éducation* n'a été observé sur le statut nutritionnel des enfants des clientes, mesuré par la taille pour l'âge, le poids pour l'âge ou le poids pour la taille. Tout au long de la période d'étude, le statut nutritionnel des enfants des clientes âgés d'un an est resté relativement constant et était même inférieur pendant la période de suivi. La tendance observée pour les enfants des participantes est presque semblable à celle observée pour les enfants des résidentes des communautés témoins. Par contre, pendant la période de suivi, les enfants des non-participantes des

communautés ayant le programme avaient une meilleure alimentation, mesurée par le poids pour l'âge, en comparaison avec celle mesurée pendant la période de base. L'échantillon des non-participantes a aussi montré une différence positive significative par rapport au groupe témoin dans les valeurs moyennes de l'IMC entre les périodes de base et de suivi. En termes de caractéristiques socio-économiques, telles que la possession de biens et le nombre d'années d'école, les non-participantes de 1997 n'étaient pas significativement « plus aisées » que les participantes de 1997 ou les résidentes des communautés témoins (voir tableau 3.2). Il semble que les non-participantes de 1997 aient été un échantillon systématiquement mieux nourri que celui de la période de base.

Des analyses supplémentaires ont permis d'examiner trois possibilités pour expliquer le manque apparent d'effet du programme sur le statut nutritionnel des enfants des clientes : 1) la qualité variable des services d'éducation nutritionnelle et sanitaire reçus par les clientes du *Crédit avec Éducation* ; 2) les stratégies d'utilisation des prêts ont des effets à plus long terme plutôt que des effets nutritionnels à relativement plus court terme ; 3) la prévalence d'entreprises du ménage plutôt que d'entreprises prioritairement contrôlées par les femmes. Parmi ces trois facteurs, le facteur qui est le plus sensible à des ajustements du programme est la relation observée entre la qualité des services d'éducation reçus par les clientes et l'amélioration relative du statut nutritionnel des enfants pendant la période d'étude. Il s'agissait aussi de la seule explication parmi les trois qui était confirmée par les données de cette étude. Les enfants des clientes ayant reçu les services d'éducation les « plus mauvais » avaient un statut nutritionnel inférieur pendant la période de suivi que pendant la période de base. Ceux dont les mères avaient reçu une éducation « moyenne » ou « meilleure que la moyenne » avaient un statut nutritionnel similaire ou meilleur. Entre les périodes de base et de suivi, une relation positive significative a été observée entre la qualité de l'éducation reçue par les mères et les scores

Z du poids pour l'âge des enfants, ainsi que pour la prévalence d'une sous-alimentation modérée ou sévère mesurée par diverses variables au niveau de l'enfant, du ménage, de la communauté et de la province.

## Conclusion

L'étude d'évaluation d'impact en Bolivie apporte la preuve que les services de crédit et d'éducation apportés ensemble à des groupes de femmes peuvent augmenter le revenu et l'épargne, améliorer les connaissances et les pratiques sanitaires et nutritionnelles, ainsi que favoriser l'acquisition d'autonomie des femmes. Un impact positif sur le statut nutritionnel des clientes et de leurs enfants n'a pas été évident, sauf quand une analyse plus approfondie du groupe de clientes a montré que le poids pour l'âge des enfants était positivement associé avec la qualité des services d'éducation reçus par les mères. Ce résultat conforte une des hypothèses principales sous-jacente à l'élaboration de la stratégie du *Crédit avec Éducation* — que sans amélioration dans les pratiques de soins, les augmentations de revenus et même l'acquisition d'autonomie sont peu susceptibles de générer des améliorations importantes du statut nutritionnel des enfants. Ce résultat souligne aussi l'importance de l'attention apportée par les responsables des programmes à la qualité des services d'éducation offerts afin de favoriser des améliorations dans les pratiques de soins.

Bien qu'il ne s'agissait pas d'une cible de l'étude d'impact, il est aussi important de noter les performances du programme en termes de pérennisation financière. Pendant la période de six mois — de janvier 1999 à juin 1999 — le programme a eu un ratio d'autosuffisance financière de 95 %. Ce ratio indique que les intérêts payés par les emprunteuses couvrent 95 % des coûts de CRECER pour livrer le crédit et l'éducation, y compris les coûts financiers tels que les intérêts sur la dette et la réserve de perte de prêts. Cet excellent statut financier a été atteint tout en ayant une forte croissance du programme. Au 30 juin 1999, CRECER avait 15 595 emprunteuses et un portefeuille

de prêts en cours de plus de 2,4 millions de dollars. Bien que le programme ne soit pas encore financièrement pérenne, les chiffres de CRECER représentent un niveau de recouvrement des coûts plus élevé que pour la plupart des interventions générant des revenus et certainement plus que pour les programmes traditionnels de santé et de nutrition. La combinaison d'impacts positifs et de pérennisation financière font que le *Crédit avec Éducation* est une stratégie qui a un potentiel d'impacts nombreux et durables sur la capacité économique des ménages, sur l'acquisition d'autonomie des femmes et, finalement, sur la sécurité alimentaire des ménages.

## RESUMEN EJECUTIVO

Desde 1989, Freedom from Hunger ha trabajado con socios locales para desarrollar y diseminar la estrategia para un programa integrado y rentable, llamado *Crédito con Educación*.<sup>1</sup> El propósito de *Crédito con Educación* es mejorar el estado nutricional y la seguridad alimentaria de hogares pobres en áreas rurales de África, América Latina y Asia. En colaboración con el Programa de Nutrición Internacional de la Universidad de California, Davis, Freedom from Hunger realizó un estudio de varios años sobre sitios del programa *Crédito con Educación* en Bolivia y Ghana. El apoyo financiero para esta investigación cooperativa fue suministrado por la División de Nutrición de UNICEF/ Nueva York. PLAN International también suministró apoyo adicional para el estudio realizado en Bolivia.

El estudio de evaluación estuvo diseñado para demostrar hipótesis de impactos positivos en el estado nutricional de los niños, en la capacidad económica y el fortalecimiento de sus madres y la adopción por las madres de prácticas clave para la salud y nutrición de sus hijos.

Este informe presenta los resultados de la evaluación de impactos del programa CRECER (Crédito con Educación Rural) de *Crédito con Educación*. La misión de CRECER es la de mejorar la seguridad alimentaria y el bienestar de sus clientes, sus familias y sus comunidades, brindando servicios financieros y educativos de alta calidad y accesibles, primordialmente a mujeres que viven en áreas rurales. Al mes de junio de 1999, los servicios de *Crédito con Educación* estaban siendo brindados a más de 15 500 mujeres en tres departamentos de Bolivia: La Paz, Cochabamba y Oruro. El estudio de evaluación fue realizado en 28 comunidades ubicadas en cinco provincias del Altiplano

(Aroma, Ingavi, Los Andes, Omasuyus y Pacajes) en el departamento de La Paz.

Las rondas de encuestas y recolección de información antropométrica (alturas y pesos) se llevaron a cabo con diferentes pares de madre-hijo para la encuesta de línea de base en 1994/1995 y de seguimiento en 1997. Se utilizó un diseño cuasi experimental a nivel de comunidad para minimizar predisposiciones posibles. Después de recoger la información de línea de base, las comunidades en el estudio fueron asignadas al azar ya fuese a un grupo "programa" o a un grupo "control," el último no podía recibir *Crédito con Educación* hasta haber terminado el estudio de evaluación.

En la ronda de seguimiento para recoger información fueron incluidos tres grupos de muestra con mujeres que tenían por lo menos un niño de 6 a 24 meses de edad: (1) participantes de por lo menos un año en el programa de *Crédito con Educación*; (2) no participantes en comunidades del programa; y (3) residentes en comunidades de control, seleccionadas para no recibir el programa durante el período de estudio. Las mujeres de los dos grupos no participantes fueron seleccionadas al azar de listas comprensivas de todas las mujeres con niños menores de tres años de edad. En las comunidades más pequeñas, muchas veces fue necesario entrevistar a todas las mujeres con niños de la edad deseada.

Se evalúa el impacto del programa comparando las diferencias entre las respuestas y las medidas en los períodos del estudio de línea de base y de seguimiento para las participantes del programa, con respecto a las no participantes en comunidades del programa y residentes en comunidades de control. Se incluyeron diferentes grupos de mujeres en las dos rondas de recolección de información porque pocas mujeres tenían niños menores de dos años tanto en el período del estudio de línea de base, como en el de seguimiento. Ya que las encuestas de línea de base fueron

<sup>1</sup> *Crédito con Educación* es una marca de servicio protegida por Freedom from Hunger para el uso exclusivo de las organizaciones miembros del Intercambio de Aprendizaje de *Crédito con Educación*.

realizadas antes de la implementación de *Crédito con Educación* en las comunidades del programa, aquellas que contestaron en las comunidades del programa fueron posteriormente reclasificadas en base a si posteriormente ingresaron en el programa cuando fue brindado en su comunidad. Las entrevistadas en el estudio de línea de base en las comunidades de estudio que reciben el programa fueron clasificadas ya fuese como “participantes de línea de base” o “no participantes de línea de base.” Al comparar las medidas de línea de base de individuos que posteriormente ingresarían en el programa (participantes de línea de base) con respecto a las participantes de 1997, la diferencia entre los períodos de línea de base y de seguimiento puede ser mejor atribuida al impacto del programa y no a las diferencias inherentes entre mujeres que decidieron ingresar al programa *Crédito con Educación*, y aquellas que no.

No hubo diferencia estadística significativa en el estado socioeconómico de los hogares (medido por activos de consumo) o en la educación de las mujeres y sus niveles de alfabetización en los tres grupos de muestra, en cualquiera de los períodos de tiempo. Las participantes en el período de línea de base fueron significativamente más propensas a haber participado recientemente en una actividad no agrícola generadora de ingresos, que las no participantes en las comunidades del programa.

Como promedio, las participantes de 1997 habían obtenido cuatro préstamos y tuvieron un préstamo actual de CRECER por un poco más de 1 000 bolivianos (aproximadamente \$200)<sup>2</sup> y tenían un promedio de 281 bolivianos (aproximadamente \$50) en depósito con su Banco Comunal. El ochenta y cinco por ciento (85%) de las participantes de 1997 también había obtenido por lo menos un “préstamo interno” (préstamo obtenido de los ahorros de su grupo de prestatarias y/o cuotas de reembolso) de, en promedio, 814 bolivianos (aproximadamente \$150). Las participantes de 1997 manifestaron haber

usado la totalidad o parte de su último préstamo con CRECER de las formas siguientes: comercio; compra de animales para el consumo familiar o para engordar y vender; recursos para agricultura o cría de ganado; y actividad artesanal (en orden decreciente de frecuencia).

### **Impacto en la capacidad económica de las mujeres**

La mayoría de las participantes de 1997 (67%) reportó que sus ingresos habían “aumentado” o “aumentado considerablemente” desde que ingresó al programa de *Crédito con Educación*. Las participantes usualmente atribuyeron este aumento a la expansión de su actividad generadora de ingresos, reducción de los costos de materiales como resultado de comprar al por mayor o con efectivo, o las nuevas actividades o productos hechos posible por el acceso a crédito y a vender en nuevos mercados. No hubo diferencia significativa entre los períodos de línea de base y de seguimiento en los ingresos mensuales propios no agrícolas de las participantes, cuando fueron comparados con las no participantes y las residentes en comunidades de control. Sin embargo, combinando los ingresos propios no agrícolas de las mujeres, con el ingreso no agrícola general del hogar, el estimado de ingresos mensuales de las participantes de 1997 fue significativamente más alto que el ingreso combinado no agrícola devengado por residentes de comunidades de control.

En 1997, el ingreso promedio mensual no agrícola para la muestra de participantes fue dos y media veces mayor que el ingreso devengado por las no participantes y más de 5 veces mayor que el devengado por las residentes de las comunidades de control. En general, las participantes de 1997 mostraron aumentos significativos en sus ingresos no agrícolas, con una variación considerable en sus ganancias mensuales. Mientras que algunas participantes tuvieron ganancias tan altas como de Bs. 800 a Bs. 1 200 mensuales (aproximadamente \$150-\$225), un cuarto

<sup>2</sup>Las equivalencias con el dólar han sido suministradas utilizando tasas de cambio actuales. La tasa de cambio para el período de seguimiento fue de US\$1 = Bs. 5.3.

reportó ganancias menores de Bs. 500 (aproximadamente \$100). La estrategia de uso del préstamo de cada mujer y el desarrollo comercial de su comunidad, influyeron en el grado de beneficio económico que disfrutó.

Las participantes también demostraron impactos positivos en sus ahorros personales. Las participantes eran significativamente más propensas a tener ahorros personales que las no participantes y las residentes en comunidades de control, y más propensas a tener ahorros por más de Bs. 200, que las no participantes. No hubo evidencia que la participación en el programa esté promoviendo las habilidades empresariales de las participantes para que consideren factores relacionados con la demanda y la rentabilidad, cuando deciden dedicarse a una actividad generadora de ingresos.

Cuarenta por ciento (40%) de las participantes de 1997 reportaron que el número de animales que posee su familia ha aumentado desde ingresar al programa CRECER. Sin embargo, no hubo diferencias significativas entre los tres grupos en el número medio de animales (como ovejas/cabras o ganado) que las participantes comúnmente reportaron que adquieren con sus préstamos. Una tensión más grande fue evidente para prestatarias que invierten en animales para sus familias. Mientras el monto del préstamo aumentó, muchas mujeres deseaban comprar vacas lecheras, uno de los activos productivos más importantes del área de estudio. El período corto del préstamo y el requisito de pagos semanales es mucho más difícil de cumplir para la prestataria, mientras aumenta el tamaño del préstamo, especialmente cuando el pago proviene, por lo menos parcialmente, de fuentes distintas a la actividad en que fue invertido el préstamo, como ganado por ejemplo.

Algunas diferencias fueron notadas en los gastos de los tres grupos. Las participantes de 1997 fueron significativamente más propensas que las residentes en comunidades de control a gastar dinero en gastos médicos durante el último año. Las participantes

también gastaron una suma per capita significativamente mayor en vestido, que las no participantes o controles ( $p < .05$ ). No hubo evidencia de diferencias significativas en el gasto de educación, mejoras al hogar y comida total per capita de las participantes. Sin embargo, entre el período de línea de base y el de seguimiento, hubo una diferencia significativa y positiva en que las participantes gastaron por lo menos alguna suma en carne o pescado en la última semana, en comparación con las residentes en comunidades de control, con una diferencia marginalmente significativa en el monto medio per capita gastado.

### **Impacto en las prácticas de salud/nutrición de las madres**

En los seis a diez meses que precedieron la ronda de seguimiento de recolección de datos, la dirección y el personal de CRECER habían emprendido una serie de mejoras en la capacitación y el desarrollo de materiales para fortalecer el componente educativo de la estrategia. Estos esfuerzos estaban empezando a producir resultados. Un aumento dramático y significativo fue evidenciado entre los períodos de línea de base y de seguimiento en el aprendizaje reportado por las participantes acerca de las prácticas de buena salud y nutrición, comparado con las no participantes y las residentes en comunidades de control. Una mayoría abrumadora de las participantes de 1997 (98%), catalogó la información adquirida a través de las sesiones educativas como “útil” o “muy útil.” A pesar de esto, la calidad de la educación recibida por las participantes a lo largo del curso del período de estudio varió notablemente. Dada esta variabilidad dentro de la muestra de clientes, existe una oportunidad para explorar si la calidad de la educación que reciben las clientes afecta su conocimiento y práctica.

Una comparación de las respuestas entre los períodos de línea de base y de seguimiento, evidenció que las participantes demostraron aumentos positivos y significativos con relación a las no participantes y/o las residentes en comunidades de control, en el

uso de las siguientes prácticas de salud/nutrición, promovidas por el programa de *Crédito con Educación*:

- ❖ Darles a los recién nacidos el calostro, la primera leche rica en anticuerpos.
- ❖ Atrasar la introducción de líquidos y primeras comidas en adición a la leche materna, hacia la edad ideal, que es alrededor de los seis meses.
- ❖ No usar biberones.
- ❖ Introducir comidas complementarias a la edad ideal de alrededor de los seis meses.
- ❖ Alimentar a los niños ciertas comidas como carne y pescado.
- ❖ Darles más líquido de lo usual a los niños que sufren de diarrea.
- ❖ Hacer inmunizar a los niños (según lo que reportaron ellas mismas, sin verificación).
- ❖ Completar series de vacunas posteriores, como DPT3 (verificado por la tarjeta de salud).

Las participantes de 1997 también tenían mejor conocimiento de la prevención de diarrea, especialmente identificando prácticas como “cubrir las comidas” y “mantener limpias las comidas,” como medidas que pueden usar para prevenir la diarrea, comparadas con las no participantes y/o las residentes en comunidades de control.

Una medida compuesta importante fue si las mujeres que tenían más de un hijo hicieron un cambio positivo en la forma en que alimentaron o amamantaron al hermano más pequeño, incluido en el estudio. Significativamente más participantes (21%) en 1997 reportaron diferencias que reflejaron cambios positivos, que las residentes en comunidades de control (sólo el 9%).

La calidad de los servicios de educación que recibieron las participantes a través del programa de *Crédito con Educación* fue

directamente relacionada con el hecho de si habían hecho cambios positivos en la forma en que habían alimentado o amamantado a su hijo más pequeño. Las participantes que recibieron la mejor calidad de educación fueron significativamente más propensas (38%) a reportar haber hecho cambios positivos, que las participantes que recibieron una “educación de calidad media o peor” (8%).

Cuando la muestra de participantes es dividida en tres grupos, aquellas que recibieron la “mejor” educación eran significativamente más propensas a hacer cambios positivos, que aquellas que recibieron la “peor” educación.

Pocas otras diferencias significativas fueron notadas como resultado de la calidad de educación que recibieron las participantes. Los niños de un año de edad, cuyas madres recibieron una educación “mejor que la de calidad media,” tenían una mayor frecuencia de consumo de zanahorias y zapallo en los últimos tres días, que los niños de las participantes que recibieron una educación “de calidad media o peor.” El consumo de vegetales verdes en hojas fue también significativamente mayor para los niños cuyas madres recibieron una educación “mejor,” con respecto a la “de calidad media.” Sin embargo, en el área de lactancia materna, un resultado compuesto basado en varias prácticas recomendadas, fue en realidad significativamente mayor para aquellas que recibieron la “peor” educación, que para aquellas que recibieron una educación “de calidad media” o “mejor.” En las áreas de diarrea e inmunizaciones, las tendencias positivas o de mejoramiento tendieron a ser mayores para las mujeres que recibieron la mejor calidad de educación, aunque no hubo diferencias significativas en su conocimiento y prácticas, con relación a aquellas que recibieron una educación de calidad media o peor.

### **Impacto en el fortalecimiento de las mujeres**

Se desarrollaron indicadores del fortalecimiento de las mujeres para evaluar



el impacto del programa a nivel del hogar y de la comunidad.

A nivel del hogar, un esfuerzo por cuantificar los aumentos en las contribuciones económicas que reportaron las mujeres y en su poder de convencimiento dentro del hogar, dio pocos resultados significativos. No se evidenció diferencia significativa alguna entre los períodos de línea de base y de seguimiento en las contribuciones de las participantes relacionadas con gastos de educación. En términos del poder de convencimiento dentro del hogar, no se evidenció un cambio de dirección en la toma de decisiones en los hogares de las participantes para decisiones tales como la de enviar los hijos a la escuela, cuánto gastar en vestido, medicinas o recursos agrícolas. Sin embargo, sí hubo una diferencia positiva y significativa en el valor de la opinión de las participantes en cuánto debiera gastarse en reparaciones del hogar, en comparación con las no participantes y las residentes en comunidades de control. Ya que este tipo de gastos está más relacionado con la toma de decisión masculina, este descubrimiento sirve de base al supuesto que a medida que la mujer contribuye más ingresos en efectivo al hogar, su influencia aumenta en áreas caracterizadas por un mayor control masculino.

También se notó un impacto significativo y positivo cuando se compararon los períodos de línea de base y de seguimiento en cuanto a si las participantes habían discutido la planificación familiar con sus compañeros, en relación con las no participantes en comunidades del programa. Muchos de los Bancos Comunales incluidos en el estudio habían participado en sesiones educativas sobre la planificación familiar en las reuniones de grupo. No se evidenciaron diferencias en algunas de las otras variables destinadas a medir cambios a nivel del hogar: si una mujer le había dado a su esposo dinero para gastar; si el esposo había ofrecido ayudar en el cuidado de los niños; y si el esposo había ofrecido ayudarla con su actividad generadora de ingresos.

A nivel de la comunidad, el programa parece haber afectado positivamente la participación de las mujeres en la vida cívica de la comunidad y en propiciar contactos con familiares y amigos. Entre los períodos de línea de base y de seguimiento, hubo una diferencia positiva y significativa para las participantes, comparadas con las no participantes o residentes en comunidades de control en el porcentaje de aquellas que

- ❖ eran miembros de un grupo comunal adicional a sus familias;
- ❖ dieron consejos sobre prácticas de salud/nutrición a otros en los últimos seis meses; y
- ❖ dieron consejos acerca de buenas actividades generadoras de ingresos a otros en los últimos seis meses.

Las participantes de 1997 también estaban significativamente más involucradas en la vida política de sus comunidades. Estaban significativamente más propensas a haber expresado su opinión durante la asamblea general de la comunidad y a haber sido candidata o haber efectivamente ejercido alguna posición en el sindicato comunal, con relación a las no participantes o las residentes en comunidades de control. Sin embargo, al no tener medidas de línea de base, es difícil saber si este aumento en la participación política es un resultado del programa o una función del prejuicio de auto selección para aquellas mujeres que tienden a ingresar a *Crédito con Educación*. Es posible que la decisión de no participantes de no ingresar el programa en sus comunidades de por sí refleje una falta inicial de auto confianza y menor participación en la vida pública de la comunidad.

### **Impacto en los objetivos fundamentales: Estado nutritivo y seguridad alimentaria**

La incidencia y duración de un “período de hambre” fueron menos pronunciadas para cada uno de los tres grupos de estudio: participantes, no participantes en comunidades del programa y residentes en comunidades de control. En general, parece

que la estación agrícola y la situación de seguridad alimentaria fue mejor en 1997 que para el período de línea de base. Hubo evidencias que la participación en el programa de *Crédito con Educación* mejoró la habilidad del hogar para manejar los períodos de escasez de alimentos. Los hogares de las participantes de 1997 fueron significativamente menos propensos a tener que vender animales como estrategia de supervivencia, con relación a las residentes en comunidades de control. Casi un cuarto de las participantes de 1997 reportaron usar ya fuese la totalidad o parte de su último préstamo para comprar comida para sus familias, usualmente comprando alimentos al por mayor a un precio unitario menor. Entre los períodos de línea de base y de seguimiento, las participantes fueron también significativamente más propensas a haber gastado dinero en carne/pescado en la última semana, que las residentes en comunidades de control.

No se encontró a lo largo del curso del estudio, un cambio positivo del programa en cuanto al estado de nutrición materna, medido por el índice de masa corporal (“BMI”). La falta de un efecto programático no es sorprendente dada la muy baja presencia de desnutrición materna cuando se aplica este indicador que mide el peso de la mujer en comparación con su estatura (su “delgadez” relativa). Sólo dos mujeres de las más de 400 medidas, tenían valores de BMI que indicaban desnutrición.

En adición a esto, no se encontró efecto positivo alguno del programa de *Crédito con Educación* en el estado nutricional de los hijos de las clientes, evaluado al medir su altura por edad, peso por edad y peso por altura. A lo largo de todo el período de estudio, el estado nutricional de los niños de un año de las clientes, se mantuvo relativamente constante o fue incluso peor en el período de seguimiento. El patrón evidenciado para los hijos de las participantes es bastante similar al que se presentó en los hijos de las residentes en comunidades de control. Sin embargo, en el período de seguimiento los niños de las no participantes en comunidades del programa tenían una mejor nutrición, con

relación a aquellos del período de línea de base en sus medidas de peso por edad. La muestra de no participantes también mostró una diferencia positiva y significativa en los valores medios de BMI relativos al grupo de control entre los períodos de línea de base y de seguimiento. En términos de características socioeconómicas, tales como propiedad de activos y años en la escuela, las no participantes de 1997 no estaban significativamente mejores que las participantes de 1997 o las residentes en comunidades de control. Tal parece que las no participantes de 1997 representan una muestra sistemáticamente mejor alimentada que la que fue medida en el período de línea de base.

Un análisis posterior exploró tres posibilidades para la aparente falta de efectos del programa en el estado nutricional de los hijos de las clientes: 1) calidad variable de los servicios de educación en salud/nutrición brindados a las clientes de *Crédito con Educación*; 2) estrategias de uso de préstamos que dan beneficios nutricionales a largo plazo, en vez de a corto plazo; 3) que las empresas de hogar son más comunes que las empresas controladas principalmente por mujeres. De estas tres, el factor que sea quizás el más adaptable a los ajustes programáticos es la relación que se observa entre la calidad de los servicios educativos que recibieron las clientes y la mejora relativa del estado nutricional de los niños a lo largo del período de estudio. De las tres, ésta es también la única explicación que tiene fundamento en la información recogida en este estudio. Los niños de las clientes que recibieron los “peores” servicios de educación tuvieron estados nutricionales peores en el período de seguimiento, con relación al período de línea de base. Aquellas que recibieron una educación “de calidad media” o “mejor que la calidad media,” tuvieron un estado nutricional más constante o una mejor nutrición. Entre los períodos de línea de base y de seguimiento hubo una relación significativa y positiva entre la calidad de la educación recibida y el índice z medio (peso por edad) de los niños, así como la presencia de desnutrición moderada a severa cuando

se controlaron varias variables del niño, el hogar, la comunidad y la provincia.

## **Conclusión**

El estudio de evaluación de impacto en Bolivia nos muestra que los servicios de crédito y educación, cuando se brindan juntos a grupos de mujeres, pueden aumentar los ingresos y los ahorros, mejorar el conocimiento y las prácticas de salud/nutrición, y potenciar a las mujeres. No se evidenció un impacto positivo en el estado nutricional de las clientes y sus hijos pequeños, excepto cuando un análisis más profundo del grupo de clientes aislado, reveló que la relación peso por edad de los niños era positivamente asociada con la calidad de los servicios de educación brindados. Este descubrimiento fundamenta una de las presunciones básicas del diseño de la estrategia de *Crédito con Educación*: que sin mejoras importantes en las prácticas de las madres, los aumentos de ingresos y el fortalecimiento no traerán mejoras significativas en el estado nutricional de los niños. Este descubrimiento también resalta la importancia de la atención prestada por la dirección del programa a la calidad de los servicios educativos que se brinden, para propiciar mejoras en las prácticas de las madres.

Aunque no es objeto del estudio de impacto, es también importante señalar el rendimiento del programa en términos de sostenibilidad financiera. En el período de seis meses entre enero y junio de 1999, el programa tenía un porcentaje de autosuficiencia del 95%. Esto indica que el interés pagado por las prestatarias cubrió el 95% de los costos de CRECER de brindar crédito y educación, incluyendo costos financieros, tales como intereses sobre deudas y una reserva para pérdidas de préstamos. Este excelente estado financiero ha sido logrado de la mano con un crecimiento substancial del programa. Al 30 de junio de 1999, CRECER tenía 15 595 prestatarias y un saldo de su cartera de préstamos de más de 2,4 millones de dólares. Aunque el programa no es todavía completamente sostenible financieramente, las cifras de

CRECER representan un nivel mucho más alto de recuperación de costos que la mayoría de las intervenciones generadoras de ingresos, y ciertamente más que los programas educativos tradicionales de salud/nutrición. La combinación de un impacto positivo y la sostenibilidad financiera, hacen de *Crédito con Educación* una estrategia con un potencial excelente para un impacto amplio y sostenible en la capacidad económica de los hogares, en el fortalecimiento de las mujeres, y a largo plazo, en la seguridad alimentaria y nutritiva del hogar.

## Bibliography

- Berger, Marguerite and Mayra Buvinic, eds. *Women's Ventures: Assistance to the Informal Sector in Latin America*. Connecticut: Kumarian Press, 1989.
- Blumberg, Rae Lesser. "Income under Female Versus Male Control; Hypotheses from a Theory of Gender Stratification and Data from the Third World." *Journal of Family Issues* 9, N° 1 (March 1988): 51-84.
- Bruce, Judith. "A Home Divided." *World Development* 17, no. 7 (July 1989): 979-91.
- Guyer, J. "Household Budgets and Women's Incomes." African Studies Center Working Papers N° 28, Boston University, 1980.
- Hoodfar, H. "Household Budgeting and Financial Management in a Lower-Income Cairo Neighborhood," edited by Bruce and Dwyer. *Homes Divided; Women and Income in the Third World. California*; Stanford Press, 1988:
- Forste, Renata. "Infant Feeding Practices and Child Health in Bolivia". *Journal of Biosocial Science*. (1998) 30, pp. 107-125. Cambridge University Press, 1998.
- Haas, Jere D., Geraldine Moreno-Black, Edward A. Frongillo, JR., Javier Pabon A., Gerardo Pareja L., Jorge Ybarnegaray U., and Luis Hurtado G. "Altitude and Infant Growth in Bolivia: A Longitudinal Study." *American Journal of Physical Anthropology* 59:251-262 (1982).
- K. de Meer, R. Bergman, J.S. Kusner, and H.W.A Voorhoeve. "Differences in Physical Growth of Aymara and Quechua Children Living at High Altitude in Peru." *American Journal of Physical Anthropology* 90:59-75 (1993).
- Ministerio de Desarrollo Humano. (1995) *Mapa de Pobreza: Una Guia para la Accion Social*, 2<sup>nd</sup> ed. La Paz.
- MkNelly, Barbara and Christopher Dunford. "Are Credit and Savings Services Effective Against Hunger and Malnutrition? A Literature Review and Analysis." *Freedom from Hunger Research Paper No. 1* (February 1996), 51 pp.
- Mueller, William H., Federico Murillo, Hernan Palamino, Michael Badzioch, Ranajit Chakraborty, Paul Fuerst and William J. Schull. "The Aymara of Western Bolivia: V. Growth and Development in an Hypoxic Environment." *Human Biology*, September 1980, Vol. 52, No 3, pp. 529-546. Wayne State University Press, 1980.
- Sebstad, J. and G. Chen. "Overview of the Studies on the Impact of Microenterprise Credit." Paper submitted to USAID by Assessing the Impact of Microenterprise Services (AIMS) Management Systems International, Washington, DC, 1996.
- Schuler, Sidney and Syed Hasssemi. "Conceptual Framework: Rural Credit, Women's Empowerment, Reproductive Health and Fertility in Bangladesh." December 16, 1991.
- UNICEF/Nepal, "Production Credit for Rural Women: An Impact Evaluation Study," 1989.
- Yunus, Muhammed. "Grameen Bank: Organization and Operations." *World Conference on Support for Microenterprise*. USAID/World Bank/IADB, Washington, DC, June 1988.

## Index of Figures and Tables

1.1	Freedom from Hunger <i>Credit with Education</i> Strategy .....	7
1.2	CRECER <i>Credit with Education</i> Program Areas— Bolivia, South America .....	9
1.3	Loan Activities Reported by Borrowers Beginning a Loan Cycle October-December 1997 .....	10
2.1	Bolivia Impact Evaluation Study Communities .....	14
2.2	Program Communities and Credit Associations Included in the 1997 Follow-up Survey .....	15
2.3	Sample Sizes for Baseline and Follow-up Data Collection .....	16
3.1	Baseline Survey: Household and Mothers' Characteristics Across Sample Groups .....	17
3.2	Follow-up Survey: Household and Mothers' Characteristics Across Sample Groups .....	18
4.1	Bolivia—Principal Work Activity .....	21
4.2	Bolivia—Secondary Work Activity .....	21
4.3	Participants' Program Loans and Savings .....	22
4.4	Program Loans versus Internal Loans .....	23
4.5	Participants' Internal Loans .....	23
4.6	Alternative Sources of Credit .....	24
4.7	Loan-Use Strategies of Selected Borrowers for Their Most Recent Program and Internal Loans .....	26
4.8	Percentage of Participants Reporting Increases in Savings, Income and Animals Since Joining the CRECER Program .....	27
4.9	Personal Cash Savings .....	27
4.10	How Participants Invested Their Most Recent <i>Credit with Education</i> Loan .....	29
4.11	Estimated Profit from Women's Own Nonfarm Earnings in the Preceding Four Weeks .....	29
4.12	Estimated Profit from Women's Own or Family Nonfarm Earnings in the Preceding Four Weeks .....	30
4.13	Animal Raising .....	31
4.14	Selling Cooked Food .....	32
4.15	Commerce—Selling Meat .....	33
4.16	Artisans .....	34
4.17	Factors Women Considered When Selecting an Income-Generating Activity .....	35
4.18	Per Capita Food Expenditures in Bolivianos—mean .....	35
4.19	Spending on Clothing in last 12 Months .....	36
4.20	Spending on School Fees and Materials in Last 12 Months .....	36
4.21	Spending on Medical Costs in Last 12 Months .....	37
4.22	Spending on Housing Improvement in Last 12 Months .....	37
4.23	Spending on Veterinary Services in Last Six Months .....	37
4.24	Spending on Animal Feed in Last 12 Months .....	37
4.25	Animal Ownership .....	38
5.1	Health/Nutrition Education Offered the Credit Associations Included in the Impact Study .....	42
5.2	Women Reporting They Had Learned About a Good Health Practice or Feeding Practice in Last Six Months .....	44

*(Continued on Page 106)*

5.3	Health and Nutrition Topics 1997 Respondents Mentioned Learning About During the Previous Six Months .....	44
5.4	Participants (1997) Rated Usefulness of Nutrition/ Health Information Received Through the <i>Credit with Education</i> Program .....	45
5.5	Differences in How the Study Child Was Fed .....	46
5.6	Positive Difference in How Study Child Was Breastfed or Fed, Compared to Participants' Other Children, by Quality of Education Received (Two Groups) .....	47
5.7	Positive Difference in How Study Child Was Breastfed or Fed Compared to Participants' Other Children, by Quality of Education Received (Three Groups) .....	47
5.8	Mothers Who Gave Colostrum to Newborns.....	48
5.9	Mothers Who Breastfed Newborns Within the First Hour After Birth.....	49
5.10	Percentage Who Introduced No Other Liquids in Addition to Breastmilk Before the Child Was Six Months (180 days) .....	49
5.11	Percentage Who Introduced No Foods in Addition to Breastmilk Before the Child Was Six Months (180 days) .....	50
5.12	Percentage Who Ever Used a Bottle to Feed the Baby .....	50
5.13	Age of Child When "First" Foods Were Introduced in Addition to Breastmilk .....	51
5.14	Feeding Frequency and Dietary Quality— Children 12 to 24 Months Only.....	53
5.15	Reported Giving More Liquids When Child Had Diarrhea .....	54
5.16	Reported Giving No or Less Food When Child Had Diarrhea .....	55
5.17	Reported Giving More Food Than Usual to a Child Who Has Recovered From a Recent Illness.....	55
5.18	Mentioned Methods for Preventing Diarrhea.....	56
5.19	Mean Number of Appropriate Methods to Prevent Diarrhea Mentioned .....	56
5.20	Percentage Who Knew That Immunization Was a Way to Protect Their Child From Measles.....	57
5.21	Immunization Coverage for Children 5-24 Months Old .....	58
5.22	Immunization Coverage for One-Year-Old Children— by Vaccination.....	58
5.23	Mothers Indicating a Demand for Family Planning— Either Wants No Children or Wants to Wait .....	60
5.24	Knew of No Way—Either Modern or Natural Method—to Prevent or Space Births.....	60
5.25	Family Planning Knowledge—Percentage Who Mentioned .....	61
6.1	Intra-Household Spending on School Expenses .....	64
6.2	Intra-Household Decision-Making for Basic Needs Expenditures .....	66
6.3	Assistance Offered by Husband (1997 Only) .....	66
6.4	Whether Has Discussed With Spouse Ways to Space or Avoid Pregnancies .....	67
6.5	Was a Member of a Group or Association in the Last Six Months .....	68

(Continued on Page 107)

6.6	Mean Number of Times Traveled to La Paz in the Last Month .....	68
6.7	Gave Advice About Good Health or Nutrition Practices in Last Six Months.....	69
6.8	Gave Advice About Good Income-Generating Activity in Last Six Months .....	69
6.9	Helped a Friend with His/Her Work in the Last Six Months .....	70
6.10	Measures of Women’s Empowerment— Involvement in Civic Life of the Community .....	70
7.1	Percentage Whose Family Experiences a Hungry Season.....	73
7.2	Mean Length of “Hungry Season” .....	73
7.3	Indicators of Hunger and Food Insecurity .....	74
7.4	Assistance Offered by Husband .....	74
7.5	Women’s Nutritional Status—Body Mass Index (BMI) .....	75
7.6	Children’s Nutritional Status—Mean Height-for-Age Z-Score in Program .....	77
7.7	Children’s Nutritional Status—Mean Weight-for-Age Z-Score in Program .....	77
7.8	Children’s Nutritional Status—Mean Weight-for-Height Z-Score in Program and Control Communities .....	77
7.9	Children’s Nutritional Status—Mean Height-for-Age Z-Score for One-Year-Old Children by Group.....	78
7.10	Percentage of One-Year-Olds Moderately to Severely Malnourished—HAZ< -2SD .....	79
7.11	Children’s Nutritional Status—Mean Weight-for-Age Z-Score for One-Year-Old Children by Group.....	79
7.12	Percentage of One-Year-Olds Moderately to Severely Malnourished—WAZ< -2 SD .....	80
7.13	Children’s Nutritional Status—Mean Weight-for-Height Z-Score for One-Year-Old Children by Group.....	81
7.14	Percentage of One-Year-Olds Moderately to Severely Malnourished—WHZ< -2 SD .....	81
7.15	One-Year-Olds’ Nutritional Status—Mean Height-for-Age Z-Score (HAZ) by Quality of Education Received, Two Groups (Participants Only) .....	84
7.16	One-year Olds’ Nutritional Status—Mean Weight-for-Age Z-Score (WAZ) by Quality of Education Received, Two Groups (Participants Only) .....	84
7.17	One-Year-Olds’ Nutritional Status—Mean Height-for-Age Z-Score (HAZ) by Quality of Education Received, Three Groups (Participants Only) .....	84
7.18	One-Year-Olds’ Nutritional Status—Mean Weight-for-Age Z-Score (WAZ)by Quality of Education Received, Three Groups (Participants Only) .....	85
7.19	Percentage of One-Year-Old Children Malnourished (HAZ< -2) by Quality of Education Received, Three Groups (Participants Only) .....	85
7.20	Percentage of One-Year-Old Children Malnourished (WAZ< -2) by Quality of Education Received, Three Groups (Participants Only) .....	86
7.21	One-Year-Olds’ Nutritional Status—Mean HAZ and WAZ by Loan Activity .....	87
7.22	Percentage of One-Year-Olds Malnourished—(HAZ< -2 or WAZ< -2) by Loan Activity .....	87

(Continued on Page 108)

7.23 One-Year-Olds' Nutritional Status—Mean HAZ and WAZ by Whether or Not Mother Had Own Business.....	88
7.24 Percentage of One-Year-Olds Malnourished (HAZ< -2 and WAZ< -2) by Whether or Not Mother Had Own Buisness .....	88





**APPENDIX A**

**BOLIVIA IMPACT SURVEY - November 1997**

Community: \_\_\_\_\_ Survey I.D.: \_\_\_\_\_

**ANTHROPOMETRY:**

	Date Measured	Date of Birth	SEX	WEIGHT	HEIGHT
Child#1			1= Male 2= Female	_____ kg	_____ cm
Child#2			1= Male 2= Female	_____ kg	_____ cm
Mother		IS Mother Pregnant? [ ] = 1 YES [ ] = 2 No		_____ kg	_____ cm

**INFORMATION FOR PARTICIPANTS ONLY FROM BANCO COMUNALE RECORDS**

Name of Banco Comunale: \_\_\_\_\_ BC Current Loan Cycle: \_\_\_\_\_  
 Date Participant Joined the BC: \_\_\_\_\_ (mo/yr) No# Cycles Part. Completed: \_\_\_\_\_  
 Amount of 1st program loan: \_\_\_\_\_ Amount of Current Loan: \_\_\_\_\_  
 Amount Internal Loans this Cycle: \_\_\_\_\_ Amount of Current Savings: \_\_\_\_\_

Interviewers Name: \_\_\_\_\_ Date of Interview: \_\_\_/\_\_\_/\_\_\_

**Consent Form was Read and Agreed to by Respondent:** [ ] 1. Yes [ ] 2. No

**MOTHER'S INFORMATION**

1. What is your name?(nickname) \_\_\_\_\_

2. Do you remember participating in a similar interview three years ago?  
 [ ] 1. Yes [ ] 2. No [ ] 99. Don't know

3a. Did you ever participate in the Lower Pra Rural Bank *Credit with Education* program?  
 [ ] 1. Yes (if thought to be nonparticipant discontinue interview) [ ] 2. No (3b)

3b. Why didn't you ever join the CRECER *Credit with Education* program?  
 [ ] 1= I didn't hear about the program  
 [ ] 2= I was afraid to take a loan  
 [ ] 3= I didn't know what to invest in  
 [ ] 4= I wanted to join but my husband or others in my family would not let me  
 [ ] 5= I belong to another credit program; specify name: \_\_\_\_\_  
 [ ] 6= The CRECER *Credit with Education* program is not in my community  
 [ ] 7= other (specify): \_\_\_\_\_

4a. Do you have at least one child born after October 31, 1995 who would be under two years of age?  
 [ ] 1. Yes [ ] 2. No (discontinue interview) [ ] 99. Don't Know

**For those under two years**

4b	Name	Sex	Date of Birth	Source of Date of Birth (circle)
#1				1= Recall 2= Health Card/certif. 3= _____
#2				1= Recall 2= Health Card/certif. 3= _____

## APPENDIX A

- 5a. In total how many living children do you have? [ ] number of children
- 5b. How many are under five years? [ ] number of preschoolers
- 6a. What is your marital status? (read)
- [ ] 1. married/free union [ ] 3. single
- [ ] 2. divorced/separated [ ] 4. widowed
- 6b. (If married or free union) Is your husband away six months of the year or more?
- [ ] 1. Yes [ ] 2. No [ ] 99. Don't Know
- 6c. (If married or free union) What is your husbands' principal occupation?
- [ ] 1. Farming [ ] 4. Salaried Worker
- [ ] 2. Own business [ ] 5. Other specify \_\_\_\_\_
- [ ] 3. Casual laborer
- 7a. How many persons are in your household - those who share economic resources and eat together at least one time a day?
- number of adults (16 years or older)
- number of children (15 years or younger)
- [ ] TOTAL
- 7b. Does anyone in your household have salaried employment? [ ] 1. Yes [ ] 2. No
- 8 How old are you? [ ] (in years) [ ] 99. Don't Know
- 9a. How many years of school did you attend?
- [ ] number of years [ ] 99. Don't Know
- 9b. If someone sent you a letter could you read it?
- [ ] 1. Yes [ ] 2. No [ ] 99. Don't Know
- ### FOOD SECURITY
- 10a. In the last 12 months, was there a time of year when it was more difficult to feed yourself and your family?
- [ ] 1. Yes (go to #10b) [ ] 2. No (go to #11) [ ] 99. Don't Know (go to #11)
- 10b. How many months? [ ] number of months
- 10c. How did your household cope? (read answers)
- [ ] 1. borrowed money from family/friend with no cost
- [ ] 2. borrowed money at cost (specify)
- [ ] 3. ate less of certain foods like (specify)
- [ ] 4. ate more of certain foods like (specify)
- [ ] 5. sold something (specify)
- [ ] 6. other (specify)
- [ ] 99. Don't know
- 11a. In the last 12 months, was there ever a time when your family did not have enough food to eat three times in the day because you lacked food or money to buy food?
- [ ] 1. yes [ ] 2. no [ ] 99. don't know
- 11b. In the last 12 months, did you ever have to limit the types of foods to feed your children because you lacked these foods or the money to buy them?
- [ ] 1. yes [ ] 2. no [ ] 99. don't know
- 11c. In the last 12 months, did you ever have to reduce the amount of food in your children's meals because you lacked food or the money to buy it?
- [ ] 1. yes [ ] 2. no [ ] 99 don't know
12. In the last week, who in your household purchased food? (read answers)
- [ ] 1. self [ ] 3. spouse and self
- [ ] 2. spouse [ ] 4. other (specify) \_\_\_\_\_

## APPENDIX A

13. How much money would you estimate your family spent on the following items in the last week?

Maize/Rice	[ _____ ]	amount in bolivianos
Wheat/Quinoa	[ _____ ]	amount in bolivianos
Potatoes/Chuzo	[ _____ ]	amount in bolivianos
Vegetables/Fruit	[ _____ ]	amount in bolivianos
Meat/Fish	[ _____ ]	amount in bolivianos
Oils	[ _____ ]	amount in bolivianos
Dried Goods (sugar, salt, tinned goods)	[ _____ ]	amount in bolivianos
Cooked Foods	[ _____ ]	amount in bolivianos
Beverages	[ _____ ]	amount in bolivianos
Haba/Groundnuts	[ _____ ]	amount in bolivianos
Bread/Dried Pasta	[ _____ ]	amount in bolivianos
<b>Figure TOTAL and read</b>	[ _____ ]	amount in bolivianos

[ ] 99. Don't know

13a. How much of that amount was money you earned yourself?

[ ] amount in bolivianos [ ] 99. DK [ ] 98. not able to separate

13b. (If has spouse) How much of that amount was money your spouse contributed?

[ ] amount in bolivianos [ ] 99. DK [ ] 98. not able to separate

14. How many persons in your household shared that food?

[ ] - number adults (16 years or older)

[ ] - number children (15 years or younger)

[ ] - TOTAL

15. How much would you estimate that your household spent on the following:

a. school fees and school materials like uniforms

and books in the last school year [ ] in bolivianos

b. roofing or other house improvements in the last 12 months [ ] in bolivianos

c. clothing for yourself in the last 12 months [ ] in bolivianos

d. clothing for your children in the last 12 months [ ] in bolivianos

e. Tools for work other than farming or a place to sell  
in last 12 months [ ] in bolivianos

f. medical costs and medicine in the last 6 months [ ] in bolivianos

g. agricultural inputs and hired labor for farm in the last 6 months [ ] in bolivianos

## INFANT FEEDING PRACTICES

I am interested in knowing more about (Name of study child under 2 years).

16. Is he/she still breastfeeding? (Read answers)

[ ] 1. Yes - GO TO QUESTION #18

[ ] 2. No - GO TO QUESTION #17 [ ] 3. Never Breastfed - GO TO QUESTION #18

17. (If No to #16) How old was he/she when you stopped breastfeeding?

[ ] age in months [ ] 99. Don't Know

18. In your opinion, how long should a child be breastfeed?

[ ] age in months [ ] 99. Don't Know



## APPENDIX A

27. In the last 24 hours, how many times did (name of study child) have a meal and/or a snack other than breastmilk?

Number of times                       98. Not eating yet                       99. Don't know

28. In the last three days, how many times did (name of study child) have the following?

meat/fish	0	1	2	3	4	5	6	7	8	9	DK
eggs	0	1	2	3	4	5	6	7	8	9	DK
carrots/squash	0	1	2	3	4	5	6	7	8	9	DK
swiss chard	0	1	2	3	4	5	6	7	8	9	DK
lentils/beans/peanuts	0	1	2	3	4	5	6	7	8	9	DK

29. Has there been any difference in how you fed or breastfed (name of study child) as compared to your other children?

1. Yes             2. No             98. Has no other children             99. Don't Know

30a. What was different about how you breastfed or fed (name of study child)?

1= difference in how child was breastfeed specify \_\_\_\_\_

2= difference in how child was fed specify \_\_\_\_\_

30b. What caused this difference(s)?

1= learned to do this from *Credit with Education* program

2= learned to do this from some other source specify source \_\_\_\_\_

3= able to do this because had more money due to *Credit with Education* program

4= able to do this because had more money due to factor other than *Credit with Education* program

5= had less money; specify why: \_\_\_\_\_

31. Do you know of any protection that you can give your child to prevent him/her from measles?

1. immunizations

2. other, specify \_\_\_\_\_

99. Don't know

32. Has (name of study child) received any immunizations?

1. Yes            (if yes, ask to see health/immunization card)

2. No             99. Don't know

33. Referring to health card, put a check beside each immunization the child received.

1. DPT1             3. Measles             5. Polio 1             99. DK

2. DPT3             4. BCG             6. Polio 3             98. No card

## DIARRHEA

34. What treatments or actions, if any, do you take when (name of study child) has diarrhea? (Don't read answers. Check all mentioned. Probe twice by saying: Anything else?)

1. mix and give them ORS packet

2. mix and give them Sugar/Salt solution

3. Cereal Water - rice water or corn water

4. home liquid (tea, water with guava, water with avocado pit, water with toasted bread, water with sweet potato or water with herbs)

5. take to health center

6. give them modern medicine (pills, specify) \_\_\_\_\_

7. take to traditional healer

8. other (specify) \_\_\_\_\_

99. don't know

**APPENDIX A**

35. When your child has diarrhea do you give him or her more, less, the same, or none of.....?

ITEMS	1= MORE	2= THE SAME	3= LESS	4= NONE	99= Don't Know
a. liquids					
b. breastmilk					
c. food					

36. What can you do to prevent diarrhea? (Do not read answers. Multiple answers possible)

- 1. keep food clean
- 2. cover food
- 3. don't keep food long before serving
- 4. breastfeed children
- 5. measles immunizations
- 6. don't use bottles
- 7. wash hands
- 8. other, specify \_\_\_\_\_
- 99. don't know

37. How often do you feed a child who has been sick but is now better? (read answers)

- 1. less than usual
- 2. same as usual
- 3. more than usual
- 99. Don't know

38. What causes a child to grow poorly (do not read answers, multiple answers accepted)

- 1. illness
- 2. not enough food
- 3. not enough good food
- 4. food of poor quality
- 5. child's nature
- 6. God
- 7. other (specify) \_\_\_\_\_
- 99. Don't know

39. How can you help them to grow well? (do not read answers, multiple answers accepted)

- 1. medicine
- 2. vitamins
- 3. more food
- 4. better quality food
- 5. praying
- 6. other (specify) \_\_\_\_\_
- 99. Don't know

**MATERNAL HEALTH AND NUTRITION**

40. When you are breastfeeding, do you eat (read answers)

- 1. less than usual
- 2. same as usual
- 3. more than usual
- 99. Don't know

41. When you are pregnant, do you eat (read answers)

- 1. less than usual
- 2. same as usual
- 3. more than usual
- 99. Don't know

42. What foods are good for a woman to eat when she is pregnant? (don't read answers multiple answers possible)

- 1. Vegetables (carrots, leafy greens)
- 2. Legumes (beans)
- 3. Meat, eggs, fish
- 4. Fruits
- 5. Groundnuts
- 6. Milk
- 7. Other specify \_\_\_\_\_
- 99. Don't know

**APPENDIX A**

43. If it were up to you, when would you want another child? (do not read answers)

- 1. Am pregnant now
- 2. As soon as possible
- 3. After one year
- 4. After two or more years
- 5. I don't want more children
- 6. When God sends them
- 7. When my husband wishes
- 8. Other specify \_\_\_\_\_
- 99. Don't Know

44. What ways do you know to space or avoid pregnancies? (do not read answers)

- 1. Prolonged lactation
- 2. Abstinence
- 3. Rhythm
- 4. Pill
- 5. Condom
- 6. IUD
- 7. Depo-provera
- 8. Male Sterilization
- 9. Female Sterilization
- 99. Don't know

45. (For women with spouses) Have you ever discussed ways to space or avoid pregnancies with your spouse?

- 1. Yes
- 2. No
- 99. Don't know or No Answer

46a. Do you practice any ways to space or avoid pregnancies?

- 1. Yes
- 2. No
- 99. Don't know or No Answer

46b. If yes, what method(s) do you practice? specify \_\_\_\_\_

46c. (If participant only) Did you begin to practice this métodos para espaciar o prevenir embarazos since you joined the CRECER *Credit with Education* program?

- 1 Yes
- 2. No
- 99. Don't Know

47. In the last six months, do you remember hearing or being told about any good feeding or health practices for yourself or your children?

- 1. Yes
- 2. No
- 99. Don't know or No Answer

48. If Yes what were these practices?

- 1. \_\_\_\_\_
- 2. \_\_\_\_\_
- 3. \_\_\_\_\_
- 4. \_\_\_\_\_

**INCOME EARNING ACTIVITIES**

49. What was your primary work in the last year? \_\_\_\_\_

50. What was your secondary work in the last year? \_\_\_\_\_

51. In the last year, how much of your household income did you contribute? (**read answers**)

- 1. All of it
- 2. Most of it
- 3. Half of it
- 4. Some but less than half
- 5. Very small portion
- 6. No income
- 99. Don't Know



## APPENDIX A

### Questions 52a - 53b for *Credit with Education* participants only

52a. (If participant only) How did you use the last loan that you took from the program? (Probe for multiple responses)

- |   |  |
|---|--|
| <input type="checkbox"/> 1. To buy and sell cheese                        | <input type="checkbox"/> 9. Gave it to my husband or other family member |
| <input type="checkbox"/> 2. To buy a sheep or pig for my family           | <input type="checkbox"/> 10. Bought food for my family                   |
| <input type="checkbox"/> 3. To buy a cow or bull for my family            | <input type="checkbox"/> 11. Bought clothing or other items for family   |
| <input type="checkbox"/> 4. To buy sheep or pigs to sell or butcher       | <input type="checkbox"/> 12. Invested in agricultural inputs             |
| <input type="checkbox"/> 5. To buy cows or bulls to sell                  | <input type="checkbox"/> 13. Buy alfalfa or other animal feed            |
| <input type="checkbox"/> 6. To make and sell food                         | <input type="checkbox"/> 14. Other _____                                 |
| <input type="checkbox"/> 7. To make and sell woven, knitted or sewn items |  |
| <input type="checkbox"/> 8. Invested in my tienda                         |  |

52b. (Only if participant) Was the activity that you invested the majority of the loan money one that you would consider to be a family economic activity or primarily your own economic activity?

- |  |   |
|--|---|
| <input type="checkbox"/> 1. Family economic activity | <input type="checkbox"/> 98. Didn't invest in an enterprise |
| <input type="checkbox"/> 2. Own economic activity    | <input type="checkbox"/> 99. Don't know                     |

53a. (Only if participant) During the last loan cycle did you take an internal loan?

- |                                 |                                |   |
|---------------------------------|--------------------------------|---|
| <input type="checkbox"/> 1. Yes | <input type="checkbox"/> 2. No | <input type="checkbox"/> 99. Don't Know |
|---------------------------------|--------------------------------|---|

53b. (Only if participant) How did you use the internal loan that you took? (Probe for multiple responses)

- |   |  |
|---|--|
| <input type="checkbox"/> 1. To buy and sell cheese                        | <input type="checkbox"/> 9. Gave it to my husband or other family member |
| <input type="checkbox"/> 2. To buy a sheep or pig for my family           | <input type="checkbox"/> 10. Bought food for my family                   |
| <input type="checkbox"/> 3. To buy a cow or bull for my family            | <input type="checkbox"/> 11. Bought clothing or other items for family   |
| <input type="checkbox"/> 4. To buy sheep or pigs to sell or butcher       | <input type="checkbox"/> 12. Invested in agricultural inputs             |
| <input type="checkbox"/> 5. To buy cows or bulls to sell                  | <input type="checkbox"/> 13. Buy alfalfa or other animal feed            |
| <input type="checkbox"/> 6. To make and sell food                         | <input type="checkbox"/> 14. Other _____                                 |
| <input type="checkbox"/> 7. To make and sell woven, knitted or sewn items |  |
| <input type="checkbox"/> 8. Invested in my tienda                         |  |

### Questions for all Respondents

54. In the last 4 weeks, did you earn any salary or work as a wage laborer for someone else?

- |                                 |  |   |
|---------------------------------|--|---|
| <input type="checkbox"/> 1. Yes | <input type="checkbox"/> 2. No (go to #56) | <input type="checkbox"/> 99. Don't know (go to #56) |
|---------------------------------|--|---|





**APPENDIX A**

61. In the last 12 months, did any member your household take a loan from a source other than the CRECER *Credit with Education* program?     1.Yes     2. No

	62a. Who took Loan	62b.Source of Loan	62c. Amount of Loan	62d. Interest Owed	62e. Purpose
Loan #1					
Loan #2					
Loan #3					

63a. In the last 6 months, were any of your household members ill or hurt so that they required treatment that would cost at least 1,000 bolivians?  
 1. Yes     2. No     99. Don't know

63b. Were you able to pay for the medical treatment? (read answers)  
 1. Yes     2. No     99. Don't know

63c. Where did you get the money? specify \_\_\_\_\_

64. Does any member of your household own any of the following?

	<i>Circle Y/N</i>	<i>Number</i>	<i>Total Estimated Value</i>
Radio/Tape Player	Y / N		
Television	Y / N		
Bicycle	Y / N		
Tractor	Y / N		
Motorcycle	Y / N		
Car/Truck	Y / N		

65. Does your household own any... *Circle Y/N*    *Number*    *Number that are yours*

Chickens/Ducks	Y / N		
Goats/Sheep	Y / N		
Pigs	Y / N		
Cows/Bull	Y / N		
Oxen	Y / N		
Burro/Horse	Y / N		
Llama	Y / N		
Land	Y / N		

66. (For women with school-aged children)

	How many of your children are.... M F	How many go to school? M F	Who decided if they go to school or not?	Who pays school fees?	Who pays for clothing, supplies and food?
Primary sch. age					
Junior High age					
High School age					

**APPENDIX A**

67a. (For married women only) In your family who decides how much to spend on each item:

CHECK BOX	Husband only	Mostly Husband	Husband and self equally	Mostly Self	Only Self
Clothing for children					
Medicine					
Food for the Family					
Agricultural Inputs					
Repair house					

68. In the six months.....

- a. were you a member of a group or association? [ ] 1. yes [ ] 2. no [ ] 99. don't know
- b. did you help a friend with his or her work? [ ] 1 yes [ ] 2 no [ ] 99. don't know
- c. did you advise a friend/family member about good health or nutrition practices?  
[ ] 1. Yes [ ] 2. No [ ] 99
- d. did you advise a friend/family member about good income-generating activity?  
[ ] 1. Yes [ ] 2. No [ ] 99.
- e. did you speak out at a General Assembly meeting of your community?  
[ ] 1. Yes [ ] 2. No [ ] 99.
- f. did you run for election or hold an elected position in your community's sendicato?  
[ ] 1. Yes [ ] 2. No [ ] 99.
- g. did you host and your family host a community festival? [ ] 1. Yes [ ] 2. No [ ] 99

69. (For women with spouses) In the last six months....

- a. Did you ever give your husband spending money because he wanted something but he had no money at that time? Circle Y / N
- b. Did your husband offer to watch your younger children because you were busy? Circle Y / N
- c. Did your husband offer to help you in some way with your nonfarm business? Circle Y / N

70. How many times have you traveled to La Paz in the last month? [ ] number of times

71. How would you rate your confidence about the following: (read responses)	Very Confident	Somewhat Confident	Hopeful but Not Confident	Don't Know
a. That you will be able to prevent your child from getting diarrhea and other illnesses				
b. That you will be able to feed your child the good foods that you know he/she needs				
c. That you will be able to educate your children to their full potential				
d. That you will earn more next year than you earned this year.				



**APPENDIX A**

79. How useful have you found the information in the health/nutrition education sessions to be? (read answers)

1. very useful       3. not very useful  
 2. useful             99. don't know

80. What would you like to learn more about during the education sessions — old or new topics?

---

81a. Did you face any difficulties in the last loan cycle?

1. Yes             2. No       99. Don't Know

81b. What difficulties did you face? (Don't read. Probe)

1. difficulty making weekly payments (specify why) \_\_\_\_\_  
 2. difficulty repaying at the end of loan cycle (specify) \_\_\_\_\_  
 3. difficulty making mandatory savings requirement \_\_\_\_\_  
 4. difficulty attending weekly meetings \_\_\_\_\_  
 5. loan disbursement was late \_\_\_\_\_  
 6. Other (specify) \_\_\_\_\_  
 99. Don't Know

82. If you could change something about the program — either the credit or education aspects — to make it even better, what would you change?

