

# FREEDOM FROM HUNGER

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*Impact of Credit with Education on Mothers and  
Their Young Children's Nutrition: Lower Pra Rural Bank  
Credit with Education Program in Ghana*

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## Contents

Executive Summary .....	1
1.0 Introduction .....	5
2.0 Impact Evaluation	
Design and Methods .....	9
3.0 Survey Results: Characteristics of the Respondent Sample Groups .....	14
4.0 Intermediate Benefits: Women's Economic Capacity .....	17
5.0 Intermediate Benefits: Women's Health/Nutrition Knowledge and Practice .....	31
6.0 Intermediate Benefits: Women's Empowerment .....	45
7.0 Ultimate Impact: Nutritional Status and Food Security .....	54
Résumé Analytique .....	60
Resumen Ejecutivo .....	65
Bibliography .....	69
Index of Figures and Tables .....	70
Appendix .....	72

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## *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.

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# IMPACT OF *CREDIT WITH EDUCATION* ON MOTHERS AND THEIR YOUNG CHILDREN'S NUTRITION: LOWER PRA RURAL BANK *CREDIT WITH EDUCATION* PROGRAM IN GHANA

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## 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> with the goal of improving 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 in *Credit with Education* program sites in Bolivia and Ghana. Financial support for this collaborative research was provided by an Innovations Grant from the Thrasher Research Fund, with supplemental funding from the Nutrition Division of UNICEF/New York.

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

This report presents the results from the evaluation research conducted in the Lower Pra Rural Bank *Credit with Education* program area in coastal Ghana. Two major survey and anthropometric (heights and weights) data collection rounds were carried out—a

1993 baseline and a 1996 follow-up—with different mother/child pairs participating in the two time periods. A quasi-experimental design was applied at the community level to minimize possible bias. Following baseline data collection, 19 study communities were 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 children under three years of age were included in the follow-up research: (1) *Credit with Education* program participants of at least one year, (2) nonparticipants in program communities and (3) residents in control communities selected not to receive the program for the period of the study. Women for the two non-participant groups were randomly selected from comprehensive lists of all women with children under three years of age.

Program impact is evaluated by comparing the differences between the responses and measurements in the two data collection rounds (1993 and 1996) 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-three-year-old children in both 1993 and 1996. Baseline

<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.

respondents in the program communities were later reclassified on the basis of whether they ever joined the program when it was ultimately offered in their community. Consequently, baseline respondents in the study communities that received the program are classified either as “future participants” or “future nonparticipants.” By comparing the 1993 baseline measures of “future participants” to actual participants in 1996, the difference between years can better be attributed to the impact of the program and not to inherent differences between women who self-select to join the *Credit with Education* program and those who do not.

There was no statistically significant difference in the socioeconomic status of households (as measured by consumer assets) or women’s education and literacy across the three sample groups in either of the time periods. However, participants in the follow-up period were significantly older, had more children and were more likely to have recently engaged in a nonfarm enterprise than nonparticipants or residents in control communities.

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

The vast majority of 1996 participants (90%) felt that their incomes had “increased” or “increased greatly” since they had joined the *Credit with Education* program. Most commonly, participants attributed this improvement to expansion of their businesses, reduced input costs as a result of buying in bulk or with cash, and new activities or products made possible by access to credit. There was a significantly greater increase between years for participants’ monthly nonfarm earnings as compared to nonparticipants and residents in control communities. The increase in net nonfarm monthly income (revenue minus costs) was \$36 for participants, \$18 for nonparticipants and \$17 for residents in control communities.

While the 1996 participants overall exhibited significantly greater improvement in their nonfarm earnings, there was considerable range in monthly profits. Some participants

had net monthly enterprise incomes as high as \$200 to \$300 per month, but 10% had net incomes of \$10 or less. Diversity of income impact was clear even within the same Credit Associations, with some women enjoying considerable improvement in their economic activities and others experiencing little change. A better understanding of the factors that allow some women to be relatively more successful—individual attributes, entrepreneurial skill, specific loan activities or program loan terms—could stimulate changes in program implementation, such as incorporating basic business management education, which might enhance the economic impacts for less successful borrowers.

There was evidence that the program was fostering the entrepreneurial skills of participants. Between years, participants were significantly more likely to consider demand and profitability when deciding upon income-generating activities. There was also a significant difference in the percentage having savings and the value of cash savings between years for participants versus controls and participants versus nonparticipants.

Although nonfarm incomes had increased, there was no significantly different change in participants’ assessment of their relative contribution to their households’ total income as compared to the two nonparticipant groups. There were also few significant differences across the groups in change of household expenditures on food, clothing, medicine, school expenses, house repair or business assets. It is possible that substitution of responsibility for food purchases within participant households might be undermining program impact on per capita food expenditures.

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

Among women who had more than one child, participants in 1996 were significantly more likely to report positive change in how they breastfed or fed their younger children included in the study than were nonparticipants or residents in control communities.

Relative to nonparticipants and/or residents in control communities, participants reported significantly greater positive change in a variety of the health/nutrition practices promoted by the *Credit with Education* program:

- ❖ Giving newborns the antibody-rich first milk (colostrum).
- ❖ Introducing liquids and first foods (in addition to breastmilk) closer to the ideal age of about six months.
- ❖ Not using feeding bottles.
- ❖ Enriching the traditional complementary food, koko, with bean/cowpea, egg, fish, groundnut, milk and palm oil.
- ❖ Enriching Weanimix (a complementary food promoted and distributed by the Ministry of Health) with fish powder.
- ❖ Rehydrating children who had diarrhea by giving them either ORS (made from the packets) or home liquids (like tea or rice water).
- ❖ Not “treating” children who had diarrhea by giving them enemas.
- ❖ Knowing ways to prevent diarrhea, such as “covering food to avoid flies” and “keeping food clean.”

Despite involvement in their loan-financed activities, participants did not wean their children any earlier than did nonparticipants and were just as likely to breastfeed their babies into the child’s second year of life.

However, no statistically significant difference was found in the following areas, indicating a need for greater nonformal education in these topic areas:

- ❖ Other diarrhea prevention practices promoted by the program, such as hand washing, reheating cooked food before serving/not keeping cooked food long before serving, and using clean water.
- ❖ Limiting or withholding food from children with diarrhea, as reported by the majority of women in each of the three groups.
- ❖ Immunization coverage.

The children of participants also experienced significantly greater improvement in feeding frequency as compared to the children of the two nonparticipant groups, with a marginally significant difference in egg and meat/fish consumption.

### **Impact on Women’s Empowerment**

Indicators of women’s empowerment were developed to evaluate program impact on women’s self-confidence and vision of the future, their status and bargaining power within the household, and their status and networks in the community.

Compared to the two nonparticipant groups, the 1996 participants rated themselves as being significantly more confident that they would be able to

- ❖ feed their child the good foods that they know they need;
- ❖ prevent their child from getting diarrhea and other illnesses; and
- ❖ earn more money next year than this year.

However, they were not more confident that they could educate their children to their children’s full potential.

At the level of the household, participants’ bargaining power did not significantly improve as compared to the other two groups in decisions regarding a number of household investments, such as how much to spend on clothing, medicine, agricultural inputs or fixing the house. However, there was a significant increase in participants’ “say” in whether or not children went to school as compared to nonparticipants, and a marginally significant difference as compared to residents in control communities.

Participants’ husbands were significantly more likely to have offered to help their wives with child care and with their income-generating activities during the previous six months as compared to nonparticipants’ husbands; however, there was no significant difference between participants and residents in control communities. There was also no significant difference across the groups in

women reporting they had discussed family planning with their husbands.

At the level of the community, the program seemed to have positively affected women's participation in the community and their helping contacts with family and friends. There were significantly greater changes between the years for participants as compared to the two nonparticipant groups, in that participants were more likely to

- ❖ be members of a community group beyond their families;
- ❖ have helped a friend with his/her work;
- ❖ have offered health/nutrition advice to others; and
- ❖ have offered business advice to others.

Participants were also contributing more money to non-kin funerals, which is important to an individual's social status and to the reputation of one's family.

Using these three aspects of women's empowerment, participants were significantly more "empowered" than the two nonparticipant groups, especially at the individual and community levels. However, it is interesting to note that residents in control communities were more confident and enjoyed relatively greater assistance from their husbands than nonparticipants in program communities. 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 greater degree of inequity in marital relations.

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

Participant households reported a reduced vulnerability to the "hungry season" relative to the baseline period as compared to the two nonparticipant groups. The nutritional status of participants' one-year-old children—both in terms of weight-for-age and height-for-age—was also significantly improved between the years relative to the children of residents of control communities. For example, the mean height-for-age z-score

(HAZ) for participants' one-year-olds was almost 0.3 greater than the baseline HAZ of future participants' one-year-old children. The mean HAZ for children in control communities was 0.2 less for the same period of time. A similar positive effect was not found for maternal nutritional status as measured by women's body mass index (BMI).

### **Conclusions**

The impact evaluation research in Ghana 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, empower women, and ultimately improve household food security and children's nutritional status. Further analysis is planned to examine the relationship between the various intermediate impacts and their relative contribution to children's better nutritional status.

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 from October 1996 through March 1997, the program had an operating self-sufficiency ratio of 81%, meaning that the interest paid by borrowers covered 81% of the Lower Pra Rural Bank's costs of delivering the credit and education, covering all operating costs including financial costs such as interest on debt, but not loan loss reserve. While not yet fully financially sustainable, this represents 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 nutrition and food security.

## 1.0 INTRODUCTION

Freedom from Hunger, in collaboration with the Program in International Nutrition at the University of California, Davis, undertook a three-year impact evaluation of *Credit with Education* as implemented by the Lower Pra Rural Bank in coastal Ghana. Funding was provided primarily by an Innovations Grant from the Thrasher Research Fund and a smaller grant from the Nutrition Division of UNICEF/New York.

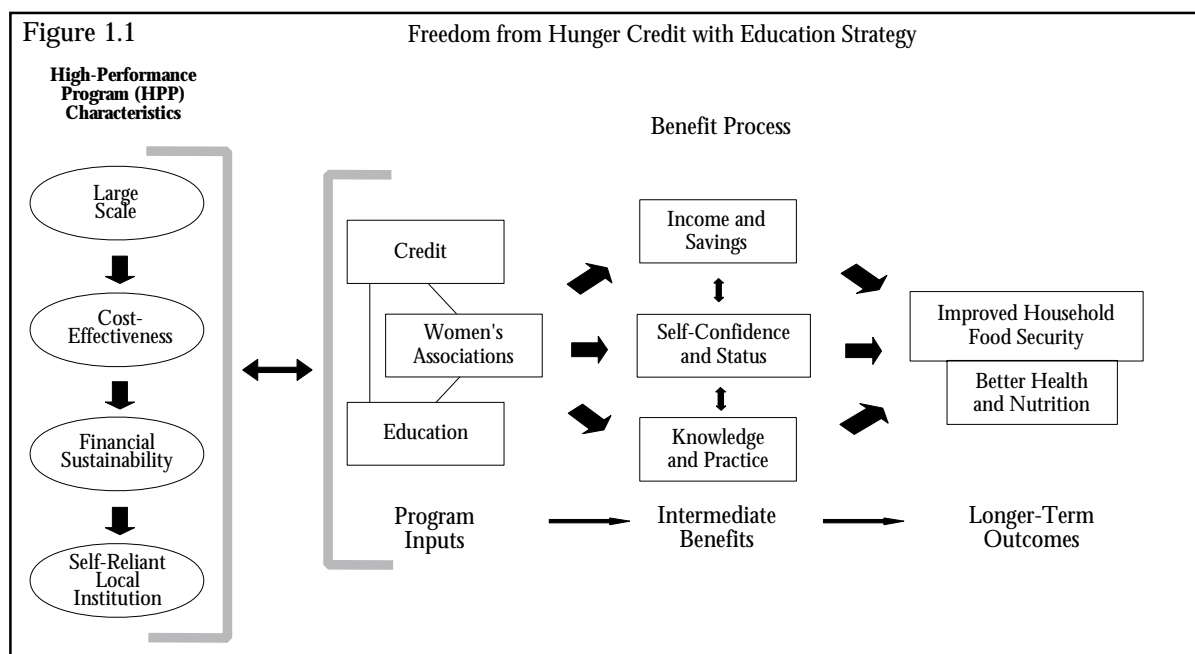
The evaluation research was designed to test four hypotheses:

- ❖ *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—require first that the intermediate benefits of poverty alleviation, empowerment and behavior change be achieved. For this reason, qualitative and quantitative methods were used in addition to measures of nutritional status (maternal and child heights and weights) to investigate impact on the program's intermediate goals—women's economic resources, their health/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 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 delivered at each meeting to provide important knowledge on basic health and nutrition practices, family planning and small business management.

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:

- ❖ 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/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.

In terms of program sustainability, a high degree of loan recovery (as of March 1997, the repayment rate across all *Credit with Education* programs was 99%) and the use of real interest rates and savings build a loan fund that can be recycled again and again. 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 microcredit 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; MckNelly 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 three-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 Ghana survey.

## **Background on the Lower Pra Rural Bank's *Credit with Education* Program**

In 1992, Freedom from Hunger and the Lower Pra Rural Bank embarked upon a partnership to provide *Credit with Education* services to poor, rural women in Shama Ahanta East District of the Western Region. This was



the first Rural Bank in Ghana with which Freedom from Hunger partnered. Currently, there are five Rural Banks implementing *Credit with Education* with a total membership of approximately 6,000 borrowers (see map, Figure 1.2).

Rural Banks are autonomous, community-based organizations regulated by the Bank of Ghana. They were originally set up as community-managed development banks to mobilize rural savings, furnish credit to rural entrepreneurs and support community initiatives. Rural Banks are committed, by mandate, to serve small-scale economic enterprises in their service areas, although few of their clients are women and most loans are much larger than the less-than-\$300 characteristic of poverty lending programs such as *Credit with Education*. However, the purpose, philosophy and organization of the Rural Banks fit well with Freedom from Hunger's goals and strategies.

Freedom from Hunger provides training and technical assistance to the boards and staffs of participating Rural Banks to implement the program. Freedom from Hunger's Technical Support Center in Accra assists the Rural Banks in the organization and management of Credit Associations and in the establishment of a system to manage the delivery of financial services, health/nutrition education and microenterprise education. The Rural Banks are responsible for housing and staffing the program. They must provide a significant portion of the loan capital required, and they must apply all interest earned on program loans to program costs.

### **The Credit Component**

As of March 1997, the Lower Pra Rural Bank had made over 9,000 individual loans with a total value of just under \$600,000 to women participating in the *Credit with Education* program since its inception in 1992. Although liquidity constraints have greatly hindered the expansion of the program to include

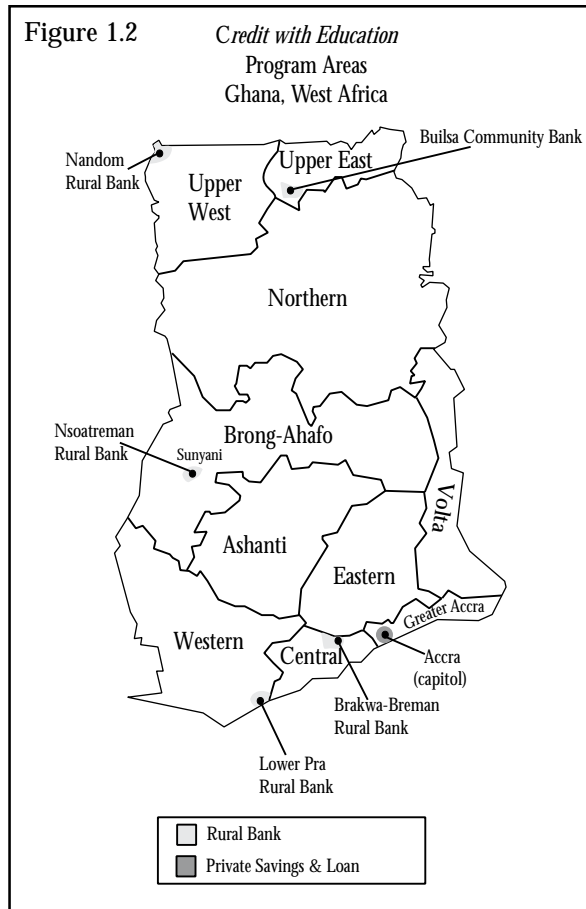
new borrowers, the loan repayment performance of the existing clientele has been excellent—never falling below 92% for any quarter over the life of the program.

As of March 1997, there were 1,491 women organized in 55 Credit Associations in the communities surrounding the Lower Pra Rural Bank. While the majority (1,131) of the women were taking loans, approximately one quarter (360) of the women were participating in the education sessions and depositing savings only. The total amount of loans outstanding to these

women was \$88,173, and their savings on deposit with the Rural Bank was \$10,471. The average loan size was the cedis equivalent of \$78 for a four-month period. Table 1.3 summarizes the most common loan activities reported by borrowers taking loans during the first quarter of 1997.

### **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



**Table 1.3: Loan Activities Reported by Borrowers Beginning a Loan Cycle  
January - March 1997**

<b>Loan Activities</b>	<b>Borrowers</b>
Make/Sell Oils (coconut, palm oil)	36%
Buy/Sell Fish (fresh or smoked)	22%
Make/Sell Cooked Food (kenkey, banku, chop bar)	11%
Buy/Sell Non-Food Items (utensils, charcoal, clothing, cosmetics, jewelry)	8%
Buy/Sell Maize	8%
Tabletop Store (milk, sugar, toffees, etc.)	6%
Buy/Sell Fruit (oranges, bananas, blackberries)	5%
Make/Sell Local Gin (akpeteshie)	4%

sessions addressing three areas: health and nutrition, microenterprise development and Credit Association management. The same field agents that 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. Lessons are also sequenced and field agents trained so that within each topic area participants are encouraged to identify problems, then analyze, test and adopt ap-

propriate solutions for themselves and their families.

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/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.

## Financial Performance

A recent programmatic review undertaken by Price Waterhouse for UNICEF/Ghana assessed the profitability of the *Credit with Education* program for the Rural Banks implementing this strategy (Price Waterhouse, 1997). (UNICEF/Ghana has been a major supporter of *Credit with Education* in Ghana and of the Lower Pra Rural Bank program in particular.) The review concluded that *Credit with Education*, relative to the Lower Pra Rural Bank's other lines of business, had higher operational and financial self-sufficiency ratios and efficiency (operating cost per amount lent). The assessment concluded that for the calendar year 1996, the *Credit with Education* program was operationally self-sufficient (interest income covered all of the Lower Pra's operating costs to deliver the credit and education services), but not yet financially self-sufficient (covering all financial costs including imputed cost of capital and devaluation of the loan capital due to inflation).

Freedom from Hunger's own assessment indicates that, at least for the last six months of 1996, the Lower Pra program was not yet achieving full operational self-sufficiency. The discrepancy between the two ratios indicate the difficulty of assessing a program's operational and financial self-sufficiency within the context of a larger institution. However, it is important to note that the Lower Pra no longer receives any external subsidy (from Freedom from Hunger or UNICEF/Ghana or any other donor) to implement the program and therefore must find the program sufficiently cost-effective and profitable to sustain. While not yet fully financially sustainable, *Credit with Education*, as implemented by the Lower Pra Rural Bank, 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. Two major survey and anthropometric (heights and weights) data collection rounds were carried out—a 1993 baseline and a 1996 follow-up—with different mother/child pairs participating in the two time periods. Much of this report is dedicated to the presentation of the more quantifiable findings provided by the survey and measurements. However, more qualitative techniques, such as in-depth individual or group interviews with participants, nonparticipants and program staff, were also employed and provided key information at each stage of the study.

### Qualitative Methods—In-depth Interviews

During the baseline period, in-depth interviews provided rich information on women's income-generating activities, women's previous credit experience, and the reasons behind common maternal and child health/nutrition beliefs and practices. In the interim period between the two survey rounds, 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, and (3) assess the adequacy of delivery of the credit and education services, in particular the quality of the learning sessions designed to motivate behavior change. Informal discussion groups, observations of program meetings, and in-depth individual interviews with field agents, participants and nonparticipants were undertaken. In the 1996 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*

In August 1993, a baseline survey was conducted in 19 communities in the Lower Pra Rural Bank service area. (Study communities were identified by the Lower Pra Rural Bank as communities that were appropriate and interested in the program but which had not yet been offered *Credit with Education*.) Communities were classified as either being “large” or “small” on the basis of whether the total estimated population was greater or less than 800 persons. Ten mother/child pairs were randomly selected to be included in the baseline survey in the “small” communities, and 30 mother/child pairs were randomly selected in the “large” communities. Women were randomly selected from a comprehensive list prepared in each community of all the women having a one-year-old child (12 to 23 months of age). A total of 370 women was interviewed, although two women were ultimately dropped when it became clear that their child was outside the age range. In all cases, a consent form, approved by the University of California, Davis, Human Subjects Research Committee, was read to all potential respondents and their voluntary consent sought before the interviews were conducted.

The one-year-old age group (12 to 23 months) had been selected as the focus of the study, because it is among the most nutritionally sensitive and frequently malnourished age group. There is a common pattern among children in the developing world—nutritional status deteriorates beginning when they are about 5 to 6 months through approximately 12 months of age. Many of the health/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. However, this decision made it unfeasible to in-

clude the same women in the two time periods, since few women had children of the desired age in both years.

The baseline survey collected information on a variety of topics:

- ❖ About the household—demographics, assets, food security, food expenditures and decision making.
- ❖ About the mother—her education, literacy, birth history, knowledge and practice of key breastfeeding and complementary feeding behaviors, diarrhea treatment and prevention, immunizations and family planning behaviors, income-earning activities, microenterprise and wage income, savings, assets and expenditures.
- ❖ About the child—breastfeeding and eating history, estimates of diet quality and quantity in the last 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 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 height reading, to increase 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 that 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 commu-

nity-level differences rather than the impact of the program. In preparation 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, the 19 study communities were stratified into four groups on the basis of their size and access to a main road. For each stratification, the study communities were assigned to a program or control group. The majority of study communities, 13 of 19, were assigned randomly. In three cases, the Rural Bank felt obligated to offer the program to a particular study community. For these cases, matched controls were selected on the basis of their similarity to program communities in terms of proximity, commercial development, size and access to main roads.

Communities in the program sample were offered *Credit with Education* as soon as possible after the baseline research, while those in the control sample were not offered the program until after completion of the research. In one of the “program” communities, Dwomo, there was insufficient interest among women to organize a Credit Association. Dwomo and only one other community, Botodwina, made up the stratification “large community/off main road.” For this reason, this entire stratification was dropped from the study. In addition, the assignments of one of these matched program/control pairs was ultimately reversed when, for political reasons, it was not possible for the Rural Bank to begin the program in one of the three communities to which it had expressed an early commitment.

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

The August 1996 follow-up survey was conducted in 17 of the original 19 study communities, although with different mother/child pairs. Virtually the same survey was used, with the addition of questions to mea-

sure 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 Annex A. The Fante version of the survey is also available upon request.)

Three types of women were included in the follow-up: participants, nonparticipants in program communities and residents of control communities. All participants in program communities who had completed at least three four-month loan cycles and had a child under three years of age were included. Nonparticipants in program communities and residents of control communities were randomly sampled from comprehensive lists of all the women with children under three years of age. In program communities, the number of nonparticipants was selected to match the number of participants with children of the desired age. In the control communities, as with the baseline data collection round, either 10 or 30 residents were randomly selected depending on whether the community was classified as “small” or “large.”

### ***Sample Size***

A target of 360 mother/child pairs had been set for the baseline survey to ensure an adequate sample size to capture meaningful and statistically significant differences in the nutritional status of children 12 to 23 months. Nutritional status is measured by mean z-scores (weight-for-age, weight-for-length and length-for-age) of children from three “types” of mothers: participants, nonparticipants living in program communities and residents of control communities. Assuming a standard deviation similar to other nutritional status studies, the necessary sample size to detect a 0.4 difference in the z-score values of the program 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. The target for each of the three groups was then increased by

50% to 120 per group to allow for more robust sample sizes. Because two large communities had been withdrawn from the study, approximately 100 rather than 120 mother/child pairs were sampled from each of the three groups.

For the follow-up data collection round, it was necessary to expand the age range to include children under three years of age because fewer than predicted program participants had one-year-old children (12 to 23 months) in 1996. Table 2.1 shows that the 15 Credit Associations organized in the 11

“program” study communities had a total of 443 borrowers. Only 32, or 7%, of these women had a one-year-old child and had borrowed for at least one year. While there were more women living in households with one-year-olds (primarily grandmothers or aunts), for simplicity the study focused on mother/child pairs only. Table 2.1 also indicates that approximately 20%, or 90 of the total borrowers, were mothers of children under three years of age, and 61% of these children were born after their mothers had joined the program. (The children of participants in the

**Table 2.1: Credit Association Age and Membership Profile in Study Communities (11 communities w/15 Credit Associations)**

Community and Credit Association Name and I.D.	Date of First Loan	Current Loan Cycle	Total Number of Borrowers in the CA	# of Borrowers with a 1-yr-old Child (12-23 mo.)	# of Borrowers with a Child Under 3 Years. (<36 mo.)	# of 3-yr-olds Born After Mother Joined	Average # of Loan Cycles Completed by Mother
<i>Shama Junction</i> Ekor Ye - 008	5/11/93	9	31	3	8	7	6.1
<i>Shama Junction</i> Ntoboase - 010	21/7/94	7	35	2	5	3	4.3
<i>Shama Junction</i> Boafo - 011	20/7/94	7	27	1	5	4	4.5
<i>Atwereboanda</i> Abotar - 009	9/11/93	4	30	1	1	1	3
<i>Obinyim Okyena</i> Odo - 027	17/8/94	6	28	4	7	2	3.7
<i>Old Daboase</i> Junct. Domfo-26	11/8/94	6	27	1	7	4	4.4
<i>Aboso</i> Enyidado - 018	22/7/94	6	35	2	7	4	4.7
<i>Yabiw</i> Adom - 022	26/7/94	6	34	3	7	4	5
<i>Anto</i> Bethel Nyame - 016	22/7/94	7	20	3	6	5	6
<i>Anto</i> Ntoboase - 017	22/7/94	7	31	3	10	8	5.3
<i>Essaman</i> Adom - 024	28/7/94	7	32	1	4	1	5.5
<i>Assorkor</i> Anuado - 014	21/7/94	6	36	3	5	3	4.4
<i>Assorkor</i> Ebusua - 015	21/7/94	6	24	2	3	3	5
<i>Nyankrom</i> Ebenezer - 041	26/7/95	4	25	0	2	1	3
<i>Beposa</i> Gyedzi - 036	7/95	4	28	3	9	5	3
<b>SUMMARY FIGURES</b>		AVERAGE 6.1 Cycles	TOTAL 443 Borrowers	TOTAL 32 (7% of All Borrowers)	TOTAL 90 (20.3% of All Borrowers)	TOTAL 55 (61% of Children Under 3)	AVERAGE 4.5 (18 Months)

**Table 2.2: Sample Sizes for Baseline and Follow-up Data Collection**

1993 Baseline Samples	1996 Follow-up Samples
<i>11 Study Communities Received the Program</i>	
48 “future participants”	86 participants (borrowers for at least one year)
152 “future nonparticipants”	105 nonparticipants in program communities
<i>6 Study Communities Did Not Receive the Program</i>	
99 residents in control communities	99 residents in control communities

follow-up sample represented from 2% to 22% of all children under three years of age in the communities that received the program.) It was decided not to expand the age range beyond 36 months of age, since to do so would reduce the likelihood that the mother had an opportunity to learn and apply the ideal behaviors important to babies’ good growth in their first year of life. Approximately 7% of the under-three-year-old children in all the study communities were included in the three groups of the follow-up survey.

### Analysis

Program impact is evaluated by comparing the difference between the two time periods (1993 and 1996) for participants, nonparticipants and residents in control communities. None of the 1993 respondents were participants when the baseline was carried out. For the analysis, baseline respondents in program communities were classified retrospectively by whether or not they ever joined the program when it was later offered in their community. Consequently, baseline respondents in study communities which later received the program are classified either as “future participants” or “future nonparticipants.”

Table 2.2 summarizes the number of women in each of the three groups for both survey rounds. (Note that the number of mother/child pairs is greater, as some women had more than one child under three years of age.) Of the 368 women interviewed for the baseline, the responses of 60 women were dropped when the two “large/off main road” communities were dropped from the study. Of the remaining 308 baseline respondents, 99 lived in communities that were not of-

ferred the program. In the 11 communities that did get the program, 48 women chose to join while 152 chose not to join—in the remaining 9 cases, the woman was either ineligible to join, or she had died, or she could not be identified to determine her future participation status. The “future participants” were all active participants at some point, although their duration of participation varied, and some had left the program before the 1996 follow-up research was conducted.

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 impact areas of concern might reflect systematic, pre-program differences between the women who join the program and those who do not, rather than 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 measures of future participants (in 1993) to actual participants (in 1996), 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 terms of their exposure to the intervention being studied. Otherwise, if there are important differences between the groups, it is these differences rather than the impact of the program that might explain contrasts in the outcome measures. For this reason, it is very important 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 selecting poor, rural communities to implement the program and the relatively small loan size, make it likely that the program is reaching its intended clientele. However, within a community, who ultimately joins the program will depend on the decisions taken by individual women and the groups. With this evaluation research, going back to the baseline respondents to determine whether they had ever joined the program also provided the opportunity to learn the major factors that explain why certain women choose not to join the program.

No 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. Households were of similar size and socioeconomic status (see Table 3.1).

Household socioeconomic status was assessed in two ways. First, a good proxy for income or socioeconomic status is the value of a household's assets. Program staff helped cre-

ate a list of consumer goods that represent a progression of wealth within the local context. All respondents were asked whether they owned ten different consumer or productive assets (radio/tape player, television, bicycle, water barrel, sewing machine, tractor, outboard motor, chain saw, motorcycle and car), and if so, how many. 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. Table 3.1 summarizes the mean total value of these assets in 1993 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. Despite what appear to be relatively large differences in the mean asset value (for example, between the control community residents and future participant samples), there are no statistically significant differences among the three groups.

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 were classified as being in the poorest wealth quartile and assigned a "1"—the total dollar value of their assets was less than \$1.40—whereas another 25% were classified as being in the wealthiest quartile and assigned a "4"—the total value of their assets was greater than \$121.86. 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.

In terms of mothers' characteristics, future participants were found to be somewhat older ( $p = 0.1$  for comparison with future nonparticipants) and had given birth to more children than the two comparison groups ( $p = 0.06$  vs. future nonparticipants and  $p = 0.07$  vs. control community residents).



**Table 3.1: Baseline Survey: Household and Mother's Characteristics Across Sample Groups—Mean (and Standard Deviation)**

	Program Communities		Control Communities	Statistically Significant Difference ( $p < 0.05$ )
	Future Participants N=48	Future Nonparticipants N=152	Residents N=99	
Household Family Size	6.4 (2.2)	6.3 (2.4)	6.7 (2.9)	None
Value of Selected Assets	\$105 (214)	\$176 (737)	\$230 (741)	None
Income Quartile	2.4 (1.2)	2.4 (1.0)	2.5 (.99)	None
Mother's Age	29.9 (7.5)	27.6 (6.5)	27.7 (6.1)	None
Mother's Height	156 (4.3)	156 (5.2)	157.6 (5.2)	None
Mother's Years Formal Education	5.3 (4.4)	4.6 (4.5)	4.4 (4.7)	None
% Literate	42%	32%	32%	None
Mother Earned Microenterprise or Wage Income in Preceding Month	69%	59%	71%	None
Mother's Living Children	3.5 (2.3)	3.0 (1.8)	2.9 (1.7)	None
Mother's Total Children	4.5 (2.6)	3.5 (2.1)	3.5 (2)	None

However, as the future participants had also lost more children, there was no significant difference in the number of living children for the three groups. In addition, although a higher percentage of participants was functionally literate (they thought they could read a letter if one was sent to them), this difference was not significant nor was the number of years of formal education. Future participants were more likely to have been engaged in a nonfarm income-generating activity at the time of the survey than future nonparticipants ( $p=0.06$ ) but not more likely than residents in control communities.

Not surprisingly, there was no difference in the maternal heights for the three groups, a variable that was included as it is significantly related to children's stature and subsequently some measures of their nutritional status.

Although there are no statistically significant differences among the three baseline groups,

a sketchy profile emerges of the differences between women who chose to join the program when it was offered and those who chose not to join. Women who self-selected for the program tended to be somewhat older (and perhaps as a result had given birth to more children), to be more likely to have a nonfarm income-generating activity and to be somewhat more likely to be literate.

Classifying the baseline respondents as future participants or nonparticipants also provided a chance to better understand why some women chose not to join the program. In early 1997, a program representative spent approximately two weeks visiting each of the "program" study communities to relocate the baseline respondents to learn whether they ever joined the program. Of the 152 women who chose not to join the program, 121 were directly recontacted to find out why. The responses are illustrative of the diversity of reasons women might not join a *Credit with Education* program.

A quarter (25%) of the future nonparticipants contacted did not join the program because they were not interested in a working capital loan; either they were engaged only in farming, they had no time, or they had no good loan investment ideas. Twenty-two percent (22%) did not join the program because either they had moved from the area or they did not stay permanently in the program community and so were unable to adhere to the weekly meeting requirement. However, 16% of the women said that “fear” of repayment problems had kept them from joining. Another 7% felt that weekly repayment would be a problem for them. Social

isolation also seemed to explain why a significant number of women had not joined. Fourteen percent (14%) said that they either had not heard about the program, had not understood the program, or were unable to organize a solidarity group. It is interesting that of the reasons commonly heard anecdotally for why women do not join, some did not emerge in this survey as major factors. For example, only one woman said that she was not interested in the program because the loans were too small, and only eight women said that their husbands had either advised or not allowed them to join.

**Table 3.2: Follow-up Survey: Household and Mother’s Characteristics Across Sample Groups—Mean (and Standard Deviation)**

	Program Communities		Control Communities	Statistically Significant Difference  ( $p < 0.05$ )
	Participants N=86	Nonparticipants N=105	Residents N=99	
Household Family Size	6.0 (1.9)	5.7 (2.2)	6.1 (2.3)	None
Value of Selected Assets	\$125.65 (270)	\$96.93 (225)	\$154.18 (487)	Nonparticipants vs. participants and Nonparticipants vs. controls
Income Quartile	2.6 (1.1)	2.3 (1.2)	2.7 (1.0)	Nonparticipants vs. controls
Mother’s Age	33.4 (6.9)	27.3 (6.2)	28.1 (6.8)	Participants vs. nonparticipants and Participants vs. controls
Mother’s Height	157 (5.7)	156.8 (5.8)	157.6 (5.3)	None
Mother’s Years Formal Education	4.4 (4.4)	5.0 (4.7)	4.0 (4.2)	None
% Literate	33%	37%	27%	None
Mother Earned Microenterprise or Wage Income in Preceding Month	91%	50%	67%	Participants vs. nonparticipants; Participants vs. controls; and Nonparticipants vs. controls
Mother’s Living Children	4 (1.7)	2.8 (1.7)	3.0 (1.8)	Participants vs. nonparticipants and Participants vs. controls
Mother’s Total Children	4.6 (2.1)	3.2 (1.9)	3.3 (2.1)	Participants vs. nonparticipants and Participants vs. controls

Certain responses indicate that *Credit with Education* might not be reaching some of the most disadvantaged women. For example, it seems likely that women who are relatively poorer might be (1) most fearful of taking on debt and having repayment problems that would affect the rest of the group and (2) relatively more socially isolated so that they do not hear about a new program or are not invited to join a solidarity group until the groups have already formed. Still, the majority of reasons given by women for not joining seem to relate more to individual work or residential patterns rather than socioeconomic status. It seems likely that the wealthiest and poorest members of program communities are not interested or able to join the *Credit with Education* program. However, the few differences between the future participant and future nonparticipant groups indicate that the program participants are a representative sample of women living in these rural, coastal communities of Ghana.

Table 3.2 compares the same household and maternal characteristics for the follow-up impact survey samples. For interpreting the findings of the impact survey, it is important to note that participants are significantly different from nonparticipants in program communities and residents of control communities in terms of their older age, greater number of children, and engagement in nonfarm income-generating activity. However, in the follow-up period, participants may be less likely to be literate and may have a lower mean number of years of formal education than the nonparticipants in program communities (but not statistically significant). Another important difference in the follow-up survey is that participants appear to be somewhat wealthier (at least in terms of the value of assets) than the nonparticipants, but not wealthier than the residents in control communities. It is possible that the relatively higher socioeconomic status of participants in the follow-up survey, but not the baseline, is due to the impact of the program. Some of the assets that comprise the measure of wealth, such as radio, tape player and water barrel, were valued at under twenty dollars and could have been purchased

since, and in part due to, a woman's participation in the program.

In the following analyses of impact, it is important to factor in these systematic differences among the samples. It is interesting to note that the participants 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.

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

The strategy's ultimate goals—improved household food security and nutritional status—require first 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

- ❖ income;
- ❖ nonfarm earnings;
- ❖ contribution to total household income;
- ❖ personal savings;
- ❖ entrepreneurial skill;
- ❖ food needs 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**

Participants and nonparticipants engage in very similar work. Tables 4.1 and 4.2 summarize the principal and secondary activities of the three 1996 survey sample groups.

Nonparticipants in program communities are somewhat more likely to engage in farming as their principal occupation (56%) than participants (39%) and residents in control communities (40%). Still, when factoring in women's secondary work activity, a majority of the participants farmed. A greater percentage of participants are self-employed (58%) as a principal occupation compared with nonparticipants (34%) or control residents (50%). Still, 61% of the nonparticipants and 78% of the control residents had also engaged in a self-employed enterprise over the last 12 months. In combining the principal and secondary activities, participants showed notably higher involvement in

selling cooked food than the other two groups, although there was similar representation across the three groups for the other enterprise areas. Very few women identified either salaried work or casual labor as their principal work activity.

The similarity in work patterns across the three samples reflects the nature of the credit and loan activities characteristic of poverty lending programs like *Credit with Education*. Borrowers typically have experience in the income-generating activity for which they take a loan. Reliable access to credit enables women to expand their existing activities and potentially operate them more profitably and regularly. While it is not uncommon for a

**Table 4.1: Principal Work Activity**

<i>Activity Type</i>	<i>Participants (N=84)</i>	<i>Non- Participants (N=104)</i>	<i>Residents of Control Communities (N=98)</i>
FARMING	33 (39%)	58 (56%)	39 (40%)
SELF-EMPLOYED (subtotal)	49 (58%)	35 (34%)	59 (50%)
<u>Cooked Food</u> doughnuts, tea and bread, fried polo, banku and fish, kenkey, rice and beans	20	12	8
<u>Make/Sell Oil</u>	9	3	17
<u>Non-Food Commerce</u> plastic goods, cooking utensils, used clothes	2	1	2
<u>Processed Agricultural Products</u> gari, charcoal, cement and flour, gin, soap	2	5	8
<u>Sell Fish/Lobster</u>	9	2	4
<u>Sell Foodstuffs/Agricultural Products</u> tabletop sales, uncooked rice, garden vegetables, maize, coconuts, oranges and bananas	6	9	8
<u>Services</u> seamstress, hair dresser	1	3	2
CASUAL LABORERS farm, nonfarm, coconut cracker, fish seller	0 (0%)	2 (2%)	3 (3%)
SALARIED WORKERS teacher, nurse, secretary, fire worker	2 (2%)	4 (4%)	2 (2%)
NO WORK	0 (0%)	5 (5%)	4 (4%)

woman to undertake a new activity or add a new product over the course of her participation, the loan activities in general reflect the principal work traditionally undertaken by women in the program area.

Participants, however, tend to be engaged in a greater diversity of income-generating activities than nonparticipants. Eighty percent (80%) of the participant sample had secondary work as compared to only 50% of the nonparticipants and 60% of residents in control communities. As well, it is common for participants to engage in multiple activities at the same time. Almost a quarter (24%) of the 1996 participants had earned non-

farm income from two different activities in the four weeks before the survey as compared to only 9% of nonparticipants and 11% of the control group. Participants' nonfarm activities and earnings also seemed more stable. In the four weeks preceding the interview, 91% of the participants had earned nonfarm income as compared to 51% of nonparticipants (significantly different  $p < .001$ ) and 67% of the control group (significantly different  $p < .001$ ).

### Access to Credit and Savings Services

As shown in Tables 4.1 and 4.2, women in the study area are very economically active,

**Table 4.2: Secondary Work Activity**

<i>Activity Type</i>	<i>Participants (N=83)</i>	<i>Non- Participants (N=103)</i>	<i>Residents of Control Communities (N=98)</i>
FARMING	17 (20%)	15 (14%)	15 (15%)
SELF-EMPLOYED (subtotal)	50 (60%)	37 (35%)	41 (41%)
<u>Cooked Food</u> doughnuts, fried yams/plantains, fried polo, bread, meat pie, kenkey, rice and beans	16	10	8
<u>Make/Sell Oil</u>	8	8	9
<u>Non-Food Commerce</u> utensils and cookware, (used) clothes, slippers, firewood, shea butter and kerosene	5	5	4
<u>Processed Agricultural Products</u> gari, gin, soap	6	3	3
<u>Sell Fish/Lobster</u>	2	4	5
<u>Sell Foodstuffs/Agricultural Products</u> tabletop sales, uncooked rice, garden vegetables, maize, coconuts, oranges and bananas, sugar cane and yaka yaka	13	6	10
<u>Services</u> seamstress	0	1	0
CASUAL LABORERS farm, coconut cracker	0 (0%)	0 (0%)	3 (5%)
SALARIED WORKERS	0 (0%)	0 (0%)	0 (0%)
NO SECONDARY WORK	16 (19%)	51 (49%)	39 (39%)

**Table 4.3: Participants' Program Loans and Savings**

<b>Amount of First Program Loan (Mean and Range)</b>	<b>Amount of Current Program Loan (Mean and Range)</b>	<b>Number of 4-Month Loan Cycles Completed (Mean and Range)</b>	<b>Amount of Savings on Deposit with Program (per Borrower)</b>
50,023 cedis (7,000 - 150,000 cedis)	102,062 cedis \$60.39 (7,000 - 300,000 cedis)	4.7 loan cycles approx. 19 mos (3 to 8 cycles)	12,818 \$7.58 (800 to 139,000 cedis)

and despite the rural nature of the communities, women are commonly involved in a variety of nonfarm microenterprises. Women frequently mentioned that what influenced them most as to what income-generating activities they might undertake was whether they had working capital or could get the necessary inputs on a credit basis. Access to cash credit was one of the benefits of program participation that Credit Association members most commonly mentioned.

Table 4.3 summarizes the program borrowing history of the participant sample. Ninety-four percent (94%) of the participants had a program loan at the time of the 1996 interviews (five women had borrowed for at least one year but were saving only at the time of the interview). As required by the program, all members must maintain savings in their Credit Association's account with the Lower Pra Rural Bank.

In local currency, the mean amount of program loans doubled over approximately 18 months of program participation. However, due to the significant devaluation of the cedi (from 695 cedis to the dollar in August 1993 to 1690 cedis to the dollar in August 1996), the dollar equivalency of these loans did not increase nearly as dramatically. (Dollar equivalencies have not been provided for the first loan since its timing varied by as much as a year and a half when exchange rates exhibited much change.) In fact, during interviews, participants commonly expressed a desire for larger loan sizes and a frustration with current loan levels. Unfortunately, the Lower Pra Rural Bank has experienced serious liquidity constraints over the last two years which have hampered both program expansion to new borrowers and loan size growth among current borrowers.

Still, nonparticipants and residents in the control communities clearly had less access to cash credit. Only 13 (12%) of the nonparticipants in program communities and 16 (18%) of the residents in control communities had taken a cash loan to finance their current nonfarm income-generating activities. As there are virtually no other credit programs for women in the program area, it is not surprising that the majority (71%) of loans to nonparticipants were made by family or friends at no cost. Only five nonparticipants reported taking a loan at cost: three from a family member or friend, one from a coconut oil wholesaler, one from the Lower Pra Rural Bank but not through the *Credit with Education* program, and one from a husband's employer (3,000,000 cedis at 10% per annum to build a building). Excluding the rather irregular 3,000,000 cedis loan, nonparticipants in program communities had taken a mean amount of 19,270 cedis in cash credit, and residents in control communities had taken a mean of 17,600 cedis to finance their current microenterprise activities.

### **Women's Incomes**

In general terms, the great majority of participants (over 90%) reported that their incomes had increased since joining the *Credit with Education* program, with 28% reporting their incomes had increased greatly. Participants identified the following reasons why their incomes had increased:

- ❖ Expanded scale of income-generating activity (53%).
- ❖ Costs reduced because no longer dependent upon getting inputs on credit basis (36%).

**Table 4.4: Prevalence of Entrepreneurs Getting Inputs on “Credit Basis”**

Inputs on Credit	1996 Participants N=86	1996 Nonparticipants in Program Communities N=105	1996 Residents in Control Communities N=99
Engaged in one nonfarm income-generating activity in last four weeks	91%	51%	60%
Engaged in two nonfarm income-generating activities in last four weeks	24%	9%	11%
<u>Of those with at least one activity</u> , percentage that obtained inputs on “credit basis” in last four weeks	22%	40%	51%

Significant difference in percentage of participants getting inputs on credit versus controls ( $p=.003$ ) and participants versus nonparticipants ( $p=.03$ ) but not for nonparticipants versus controls.

- ❖ Costs reduced because now able to get inputs in bulk (30%).
- ❖ Undertook new activity or new products (28%).
- ❖ Sold to new customers (8%).

The most common effect of program participation was allowance for the expansion of existing activities and increased profit margins. Only about a quarter (28%) of the participants attributed their increased incomes to new activities or products. During the in-depth interviews, borrowers commonly spoke of the improved profit margin they were able to earn after borrowing from the program. Before joining, women often got all or part of the inputs they needed on credit because they lacked working capital. Operating a microenterprise on what is called “credit basis” is very widespread in the program area. For example, a farmer will provide coconuts or palm nuts to oil producers who pay for these inputs after selling to the oil wholesalers coming from Accra; or a fisher may give a woman fish on credit that she will pay for after smoking the fish and selling it in a nearby market.

Information from the baseline survey indicated that the effective interest rate in this type of arrangement was on average 17% for a two-week period, or approximately 442% per annum. In some cases, there is no additional cost for receiving inputs on credit; however, such arrangements depend on familiarity or social ties and may involve greater “search costs.” For example, one

woman explained that when she got coconuts on credit to make oil, she did not typically pay more than the going rate. She often had to go to many farmers until someone would agree to the going rate, but at times no one would agree.

Given women’s limited options for cash credit, either formal or informal, the current level of women’s active and widespread involvement in commerce would not be possible without these types of arrangements. Even after joining the program, some participants continued to get a portion of their inputs on credit because their program loan was not large enough to finance the scale or variety of activities in which they were engaged. Still, despite their greater tendency to engage in more than one income-generating activity, the 1996 program participants were significantly less likely to obtain their inputs on credit than nonparticipants and residents in control communities (see Table 4.4).

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

Women’s income was quantified by focusing on nonfarm earnings in the four weeks preceding the survey. While nonfarm income is likely to represent only a portion of returns to women’s overall productive labor, it was decided that total income estimates would be too difficult and time-consuming to collect. Since the program is most likely to affect nonfarm income earnings, efforts were made to quantify this type of income. In addition, there is some evidence that it is

this type of steady earnings that most directly affects basic need expenditures such as food. Still, even with this more narrow focus it was acknowledged that for a variety of reasons there were likely to be considerable error and variability in this measure. Because few women kept accounting records, the recall period was limited to the past four weeks before the survey. Field agents also rated women's ability to recall this information.

### Estimated "Profit"

Women were first asked to simply estimate their profit over the past four weeks for their nonfarm income-generating activity earnings for the time period that best captured the product cycle—per day, per week, per two weeks or per month. Mean monthly profit estimates are summarized in Table 4.5. (If a woman had more than one activity, her profit estimates were summed.) There was a significant difference in the logarithm values of monthly estimated profit between years for participants versus nonparticipants and the control sample but not for nonparticipants versus controls. As compared to baseline measures, the increase in estimated nonfarm monthly profit was approximately \$29 for participants, \$11 for nonparticipants and \$13 for the control group. (Mean amounts are presented in 1996 dollars, controlling for United States inflation between the two time periods.)

Asking women to estimate their profit posed little problem for most women. Although they did not keep written records, the concept of their "profit" or their "benefit" was very clear to women, and there is a well-known and accepted Fante word for "profit." However, during in-depth interviews over the course of the research, it became obvious that

for some women the concept of "profit" was more similar to the business concept of "savings." Before estimating their "profit," some women would subtract from their earnings not only their business-related costs but also the amount they had spent on food and other household expenses. In the follow-up survey, a supplementary question was added to probe whether women had estimated their "profit" after deducting amounts spent on food and other family expenses. The results in 1996 are similar even after adding any amount deducted for food, etc. (see Table 4.6).

It can be calculated from Table 4.6 that 45% of the women in all three sample groups together had provided "profit" estimates after deducting what they had spent on food. This tendency has a number of implications. First, it demonstrates that even if there is a commonly accepted word for "profit," people's concept of this rather specific business term may differ resulting in systematic under- or over-reporting. (Certainly, women's conception of "profit" does not correspond with the specific business definition which requires netting out nonmonetized business-related costs such as depreciation of assets or wages to family workers.) Second, this conceptualization of "profit" highlights the considerable integration and interaction of the welfare of women's businesses to the welfare of their families. Women engage in their income-generating activities so that they can better feed and care for their families. *Credit with Education* was designed to strengthen women's economic capacity to invest in their families, and the tendency to fuse business and family expenses is to some degree evidence of the appropriateness of this design.

Table 4.7 shows an alternative measure of nonfarm income earnings or estimated net

**Table 4.5: Estimated "Profit" from Microenterprise or Wage Income in the Preceding Four Weeks—Mean (and Standard Deviation)**

Year	Program Communities		Control Communities
1993	Future Participants N=48 \$5.90 (7.3)	Future nonparticipants N=151 \$4.17 (7.3)	Residents N=97 \$5.25 (7.3)
1996	Participants N=86 \$34.53 (34.3)	Nonparticipants N=104 \$15.47 (29.6)	Residents N=99 \$18.35 (41.4)

Significant difference in log value of respondent-estimated monthly profit between years for participants versus controls ( $p=.002$ ) and participants versus nonparticipants ( $p=.001$ ) but not for nonparticipants versus controls.



profit. Women were asked to itemize their business costs (not including family labor, depreciation or interest payments) and estimate revenue earned over the past four weeks. Again Table 4.7 indicates there was a significant difference between years for participants versus nonparticipants and participants versus the control sample but not for nonparticipants versus controls. As compared to baseline measures, the increase in net nonfarm monthly income was \$36 for participants, \$18 for nonparticipants and \$17 for the control group. The net income estimates were higher than the estimated profit, which might further reflect the tendency of some women to net out family expenses when estimating their profit.

While overall the 1996 participants exhibited significant improvement in their nonfarm earnings, it is important to note that there was considerable range in participants' monthly earnings. Some participants had net monthly nonfarm income as high as \$200 to \$330 per month, while 10% of the participants reported net earnings of \$10 or less per month. As with other impact evaluations, it is clear there is a great diversity of impact even within the same Credit Associ-

ations, with some women enjoying considerable improvement in their activities while others experienced little change. A better understanding of the factors that allow some women to be relatively more successful—individual attributes, entrepreneurial skill, specific income-earning activities 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. Box 4.8 includes excerpts from interviews with participants who enjoyed particular success and highlights investment strategies and borrower attributes. Box 4.9 summarizes an example of the experience of one of the Credit Associations in the study and the vulnerabilities and difficulties its members faced in the previous loan cycle before the follow-up survey.

### Contribution to Total Household Income

An indirect effect of women's increased cash earnings is believed to be an enhancement in women's bargaining power within the household. If women have different spending preferences than men and place greater

**Table 4.6: Estimated "Profit" Plus Any Amount Deducted for Food and Other Family Expenses—Mean (and Standard Deviation)**

Year	Program Communities		Control Communities
	Participants N=85	Nonparticipants N=101	Residents N=97
1996	\$38.88 (36.0)	\$19.52 (40.8)	\$23.18 (53.2)
% Estimating "profit" after deducting for food	64%	60%	52%

Significant difference in log value of respondent-estimated monthly profit between years for participants versus controls ( $p < .001$ ) and participants versus nonparticipants ( $p < .001$ ) but not for nonparticipants versus controls.

**Table 4.7: Net Income from Microenterprise or Wage Income in the Preceding Four Weeks—Mean (and Standard Deviation)**

Year	Program Communities		Control Communities
	Future Participants N=44	Future Nonparticipants N=145	Residents N=94
1993	\$5.75 (8.2)	\$4.05 (8.9)	\$5.98 (11.1)
1996	Participants N=86	Nonparticipants N=103	Residents N=99
	\$41.50 (46.8)	\$21.95 (43.5)	\$22.85 (52.9)

Significant difference in log value of monthly net income between years for participants versus controls ( $p = .001$ ) and participants versus nonparticipants ( $p < .001$ ) but not for nonparticipants versus controls.

value on nutritionally beneficial expenditures such as food or health care, as is believed, an increase in their intrahousehold bargaining power could have a greater impact on total household spending than the specific amount of her increased earnings.

Respondents in both the baseline and follow-up data collection rounds were asked to rank their relative contribution to their

households' total income. In the baseline period, 26% of the "future participants" said either they earned no income or that it was only a small portion of total household income. However, in 1996 only 10% of the participants gave these responses as compared to 32% of the nonparticipants in program communities and 27% of the residents in control communities.

#### **Box 4.8: Successful Borrowers**

##### *Lessons from Her Grandmother*

Ama Tawiah (no real names are used in these examples) owns a successful chop bar (roadside restaurant). She is 29 years old, married and has four children. Before joining the program, she like many other women sold kenkey and fish from a table. However, she wasn't making enough profit, so with her initial 50,000 cedis program loan and another 30,000 cedis that her husband had provided, she rented a shed and switched to making fufu (a starchy staple served with soup).

When she was a child, Ama lived with her grandmother, who had a fufu business. From her grandmother, she learned that to be successful you need (1) to do hard bargaining, (2) to know the quantity and what to charge in order to make a profit, (3) to keep track of whether you are making a profit or not, and (4) to put some profit aside so when an opportunity presents itself to get inputs at a good price, you are able to take advantage.

Ama and other women have also been discussing good business skills during their Credit Association meetings. With this knowledge, as well as the loan capital, she has used the profits from her chop bar to expand her business. She started on a small scale and had only one laborer but now has five. She is able to buy the inputs she needs in bulk with cash and then keep them in a freezer that she was able to buy. With the profits from her business, she has even been able to help her husband establish a corn mill. Her last loan was for 250,000 cedis, and she has 54,000 cedis in her current savings. Her main suggestion for the program is that she be allowed to take a larger loan.

##### *A Unique Product*

Over five loan cycles, Christina Aidoo has been able to expand her coconut biscuit business and now has considerable profits. Christina started this enterprise about six years ago when she needed a way to earn income at a time when she didn't have any money. The biscuits were her own unique creation; there is nothing else like them on the market. She taught herself how to make them by experimenting with ingredients and then conducting small-scale market research in order to get customer reaction. Christina is 44 years old and married. She has given birth to six children, five of whom are still living.

In the beginning she had one woman selling for her, but now she has four. Each woman collects 50,000 cedis worth of biscuits and is paid 10,000 cedis worth of biscuits per week. Now she doesn't have to get inputs like flour and sugar on credit. (Flour costs 52,000 cedis per bag with cash and 55,000 cedis on credit.) Before joining the program she used one bag of flour per week, but now she needs and can afford four bags. Not having to take supplies on credit represents a significant improvement to her business profits. Christina estimated her net profit for the previous month at 240,000 cedis. During the most recent loan cycle, she borrowed 250,000 cedis which she has reinvested into her business. She also has managed to build a savings of 86,100 cedis. In the future Christina would like to build a house with the income her business and savings have provided. When asked if there was anything she would change about the program, her only response was a request for a larger loan size.

## Entrepreneurial Skill

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. How-

ever, 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

### **Box 4.9: Struggling Borrowers The “Hungry Season,” Sickness and Death**

The Yabiw Credit Association faced difficulty repaying their fifth program loan. Because of their repayment problems, many of the members of the Yabiw Credit Association chose not to take a loan during the Association’s sixth cycle but to continue participating in the program’s education sessions and as savers. Yabiw is a relatively remote community whose inhabitants are primarily dependent on agricultural production for their well-being. The fifth loan cycle ended in June which corresponded with the “hungry season.” It is during the rainy months of April through June that people typically need to buy more food since their own cassava is inedible. Cassava, the local staple, is stored in the ground and becomes waterlogged or spoiled during the early rains. Borrowers have more difficulty making their loan repayments and savings deposits when they are more dependent on purchased food. In addition, several of the members of the Yabiw Credit Association experienced particular repayment problems due to illness or death.

One such member is Leticia Mensah who has been a member of the Credit Association since its inception and who lost her husband during the fifth loan cycle. Normally, she makes and sells gari (processed cassava), but as is the custom of the area she will not work for a period following her husband’s death, and so she is not currently taking a loan. Repayment was difficult during the last cycle, but her in-laws helped her. She has four children, two of whom are under five years of age. She is 38 years old and plans to take a loan during the next loan cycle.

Dorothy Cobinah became sick during the last loan cycle with serious toothaches and a swollen mouth that has not yet fully healed. Her loan activity was to sell cooked food (rice and corn water). When she became ill, she was not able to repay her loan, and so the group paid for her. She still owes the group 20,000 cedis which she will repay without interest. Because she is not currently eligible for a loan, she has only been able to engage in farming. She has been making savings deposits with the group, but it is difficult. If she is not able to harvest food from her farm, she goes to sleep without eating because she doesn’t have money to buy food. Now she is unable to get anyone to give her a loan but knows that when she does get a loan she will use it to earn profit. She is 45 years old, has three children and is divorced.

Although these women have experienced serious hardships, they are still members of the program and have received assistance as a result of their participation. However, it seems that illness and death are major factors explaining why some women experience repayment problems and ultimately leave the program. In one study community, an older woman was wearing virtual rags, and her young children had the telltale orange and brittle hair of malnourished children. The woman was asked if she was a member of the *Credit with Education* program, and if not, why not. The woman explained that she had been a member, but during her second loan cycle, one of her children fell ill. She was not able to work in order to care for her child. She also used much of her loan money to seek treatment and buy medicine for the child. Ultimately, the child died, and she then had to bear the cost of the funeral. She has no husband to help her, and she has other children to care for as well. Initially, it was a neighbor who had invited her to join the program and who encouraged the group to admit her. The Credit Association held this neighbor responsible for the older woman’s debt; they said it was her idea that the woman join. The neighbor explained that she knew this woman was very poor, and this is why she had thought the program would be good for her. However, even before her child fell ill, the woman had difficulty making her weekly repayment. Because the group held the neighbor responsible for the woman’s debt, the neighbor had to appeal to her husband, who harvested a sugarcane plot to repay the loan.

**Table 4.10: Factors Women Considered When Selecting an Income-Generating Activity**

	Participants		Nonparticipants		Control	
	1993 N=48	1996 N=86	1993 N=152	1996 N=105	1993 N=98	1996 N=97
Familiarity with the work (have done this work before, it is the season/others doing it)	58%	49%	62%	43%	46%	42%
Working capital (whether have enough, whether work requires little capital, etc.)	46%	49%	40%	51%	43%	47%
Time required/compatibility with other work or family responsibilities	10%	7%	5%	2%	7%	8%
<b>Demand for product/profitability of activity</b>	<b>33%</b>	<b>72%</b>	<b>38%</b>	<b>53%</b>	<b>43%</b>	<b>60%</b>

Significant difference in percentage mentioning “demand” or “profitability” considerations between years for participants versus controls ( $p=.03$ ) and participants versus nonparticipants ( $p=.02$ ) but not for nonparticipants versus controls.

be primarily influenced by what enterprise to pursue on the basis of his or her own familiarity or seasonality of this work rather than whether it is in demand or likely to yield profitable returns. Through loan feasibility assessments and nonformal learning sessions about profit, sales and management strategies, the *Credit with Education* program aims to develop this type of entrepreneurial perspective.

Table 4.10 summarizes the most common factors respondents mentioned when asked what they consider when deciding what income-generating activity to engage in. In the baseline period, the most common reason given by women in each group related to their familiarity with the activity. The second most common factor was also a “supply” consideration—whether they had adequate working capital—which indicates the importance of the strategy’s credit component. While profitability or demand considerations became more prevalent in the 1996 follow-up survey for all the groups, the difference between years was only significant for participants versus controls and participants versus nonparticipants but not for nonparticipants versus controls.

### 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 4.11). However, there was also a significant difference in log value of amount saved between years for participants versus controls and participants versus nonparticipants but not for nonparticipants versus controls. The amount participants had in savings also varied tremendously—from \$0 to \$118—again indicating the range in economic success among those borrowers living in the same communities and participating in the same program.

### 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, health, shelter and other basic needs like clothing. In addition, it is hoped that the strategy’s education component will in-

**Table 4.11: Personal Cash Savings**

	Participants		Nonparticipants		Control	
	1993 N=46	1996 N=86	1993 N=149	1996 N=102	1993 N=92	1996 N=98
Percentage who report having personal savings	51%	99%	41%	42%	35%	49%
Mean amount of savings	\$15.49 (24.4)	\$18.24 (26.1)	\$9.57 (20.2)	\$12.48 (28.2)	\$9.54 (20.7)	\$8.73 (16.9)

Significant difference in percent having savings between years for participants versus controls ( $p < .001$ ) and participants versus nonparticipants ( $p < .001$ ) but not for nonparticipants versus controls. Significant difference in log value of amount saved between years for participants versus controls ( $p = .04$ ) and participants versus nonparticipants ( $p = .008$ ) but not for nonparticipants versus controls.

crease awareness and appreciation for nutritionally beneficial expenditures and make these investment decisions more likely.

### **Food Expenditures**

Table 4.12 summarizes household food expenditure information. In both time periods, respondents were asked to estimate the

household expenditure on many types of food. These estimates have been converted into dollars and, to obtain per capita amounts, 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). In the five categories of food, there was not much difference between years in the amount

**Table 4.12: Per Capita Food Expenditures in U.S. Dollars—Mean (and Standard Deviation)**

	Participants		Nonparticipants		Control	
	1993 N=48	1996 N=90	1993 N=152	1996 N=112	1993 N=96	1996 N=102
Maize	\$0.26 (.25)	\$0.47 (.41)	\$0.26 (.26)	\$0.52 (.48)	\$0.32 (.36)	\$0.43 (.46)
Significant difference in log per capita maize expenditures between years for nonparticipants versus controls ( $p = .05$ ) but not for participants versus nonparticipants or for participants versus controls.						
Tubers	\$0.25 (.32)	\$0.30 (.44)	\$0.21 (.30)	\$0.24 (.31)	\$0.22 (.28)	\$0.24 (.27)
Vegetables	\$0.20 (.12)	\$0.21 (.16)	\$0.19 (.17)	\$0.26 (.21)	\$0.23 (.27)	\$0.24 (.21)
Significant difference in log per capita vegetable expenditures between years for participants versus nonparticipants ( $p = .05$ ) but not for participants versus controls or for nonparticipants versus controls.						
Meat/Fish	\$0.52 (.35)	\$0.56 (.51)	\$0.50 (.38)	\$0.61 (.39)	\$0.49 (.36)	\$0.59 (.45)
Cooked Food	\$0.32 (.34)	\$0.21 (.32)	\$0.35 (.36)	\$0.23 (.23)	\$0.32 (.57)	\$0.21 (.28)
Total	\$1.54 (.85)	\$1.75 (1.1)	\$1.53 (.88)	\$1.96 (1.0)	\$1.58 (1.0)	\$1.78 (1.1)
Marginally significant difference in log total per capita food expenditures between years for participants versus nonparticipants ( $p = .09$ ) but not for participants versus controls or for nonparticipants versus controls.						
% Household food expenditures paid for by women's income	50%	60%	45%	45%	51%	47%
Marginally significant difference in women's relative contribution to total per capita food expenditures, controlling for marital status, between years for participants versus controls ( $p = .09$ ) but not for participants versus nonparticipants or for nonparticipants versus controls.						

**Table 4.13: Spending on School Fees and Materials in Last 12 Months**

	Participants N=86	Nonparticipants N=105	Control N=99
% Women spending their own money	54%	31%	42%
Controlling for number of living children, no significant difference among the three groups.			
Amount Spent Mean (and Standard Deviation)	\$6.40 (12.1)	\$5.75 (15.9)	\$7.36 (25.6)
Controlling for number of living children, no significant difference among the three groups.			

spent across the three groups. In fact, the nonparticipants in program communities showed the most dramatic increases in per capita food expenditures between the two time periods as compared to the other two groups. In statistical tests on the logarithm values, there was a significant and positive difference in the per capita amount spent on maize by nonparticipants versus residents in control communities. Nonparticipants also had a significant and positive difference (comparing log values) of per capita amount spent on vegetables versus participants and a marginally significant difference for total per capita food expenditures versus participants.

The fact that a great majority of households included in the survey are farming households that provide a significant portion of their own food consumption complicates interpretation of food expenditure information. It is possible that the higher mean values for nonparticipants indicates greater dependency on purchased food rather than higher per capita food consumption.

There was some indication of substitution of responsibility for food purchases within the participant households, which might undermine the program's impact on household food expenditures. In the baseline period, 45% to 51% of total household food expenditures were paid from income women had earned and controlled. In the follow-up period, there was an increase to 60% among participant households, but no increase in the other two groups. When controlling for marital status, this increase is not statistically significant. It is possible that as participants earned more profit from their loan-assisted activities, husbands and other members of the household contributed less money for food purchases. It was not within the

scope of this evaluation to determine what indirect effect the program might have had on total household expenditures, if indeed participants' earnings "freed up" income earned by other members of the participant households.

### ***Household Expenditures***

Women were asked to report how much of their own money they had spent on several types of common household expenditure. Their responses were analyzed both in terms of mean amounts spent on each type and also the prevalence of women who spent money they had earned on that type.

A greater percentage of participants reported spending their own money on school fees and expenses in the last year than the other two nonparticipant groups. (See Table 4.13.) However, as shown in Table 3.2, participants had a greater number of living children. When controlling for the number of children, there was no statistically significant difference among the groups in the prevalence of women spending their own money on education-related expenses. Again controlling for number of children, the log value of the amount women spent on education was not significantly different.

For each of the three groups, women were less likely to have spent their own money on housing improvements in the last 12 months than on education. (See Table 4.14.) There was no statistically significant difference in either the prevalence or log value of spending on housing improvements among the three groups.

Close to three-quarters of the women in each of the three groups reported spending some amount of their own money on clothing for themselves in the last 12 months. (See Table

**Table 4.14: Spending on Housing Improvement in Last 12 Months**

	Participants N=86	Nonparticipants N=105	Control N=99
% Women spending their own money	24%	16%	21%
No significant difference among the three groups.			
Amount Spent Mean (and Standard Deviation)	\$5.05 (13.2)	\$2.00 (5.8)	\$3.54 (14.8)
No significant difference among the three groups.			

4.15.) There was no significant difference in either the prevalence or the log value of spending among the three groups.

Residents in control communities were significantly more likely than nonparticipants to have spent their own money on clothing for their children even when controlling for the number of children. (See Table 4.16.) Similarly, there was a marginally significant difference for participants versus nonparticipants. However, when controlling for the number of living children, there was no significant difference in the log value of spending on children's clothes among the three groups.

Participants and residents in control communities were significantly more likely to have spent their own money on business assets in the last 12 months than were non-

participants. (See Table 4.17.) However, there was no significant difference between the log values of the amount spent among the groups.

There was no significant difference among the three groups in either prevalence of spending their own money on medical costs in the last three months or, when controlling for the size of the family, the log values of spending on medical costs. (See Table 4.18.)

Despite participants' more active involvement in nonfarm income-generating activities, they were no less likely than the two non-participant groups to have spent their own money on agricultural inputs and/or labor in the six months preceding the survey. (See Table 4.19.) Moreover, there are no significant differences in the log value of amount spent on agriculture among the three groups.

**Table 4.15: Spending on Clothing for Self in Last 12 Months**

	Participants N=86	Nonparticipants N=105	Control N=99
% Women spending their own money	74%	72%	83%
No significant difference in percent spending among groups.			
Amount spent Mean (and Standard Deviation)	\$26.13 (30.4)	\$29.21 (35.5)	\$30.36 (28.5)
No significant difference in log value among the groups.			

**Table 4.16: Spending on Clothing for Children in Last 12 Months**

	Participants N=86	Nonparticipants N=105	Control N=99
% Women spending their own money	85%	71%	84%
Controlling for number of living children, marginally significant difference between participants and nonparticipants ( $p=.06$ ) and significant difference for controls versus nonparticipants ( $p=.04$ ) but not between participants and controls.			
Amount Spent Mean (and Standard Deviation)	\$18.08 (22.8)	\$15.87 (27.7)	\$12.92 (12.3)
Controlling for number of living children, no significant difference of log value among the groups.			

**Table 4.17: Spending on Business Assets in Last 12 Months**

	Participants N=86	Nonparticipants N=105	Control N=99
% Women spending their own money	45%	30%	43%
Significant difference in percent spending between participants and nonparticipants ( $p=.04$ ) and marginally significant difference for controls versus nonparticipants ( $p=.06$ ) but not for participants versus controls.			
Amount spent Mean (and Standard Deviation)	\$6.52 (10.5)	\$4.81 (16.3)	\$5.12 (10.1)
No significant difference of log value among the groups.			

**Table 4.18: Spending on Medical Costs in Last Six Months**

	Participants N=86	Nonparticipants N=105	Control N=99
% Women spending their own money	79%	70%	79%
No significant differences among the groups.			
Amount spent Mean (and Standard Deviation)	\$11.70 (20.4)	\$10.01 (22.4)	\$9.40 (12.6)
Controlling for family size, no significant difference of log value among the groups.			

An income contribution scale was derived with “1” representing the greatest relative contribution (100% or “all of the household income”) and with “6” representing the lowest relative contribution (0% or “earned no income”). The mean value for the 1996 participants is a significantly higher proportional contribution than the other two groups. (See Table 4.20.) However, in terms of difference between the baseline and follow-up periods, there was no significant difference among the three groups.

### Conclusion

Participants, nonparticipants in program communities and residents in control communities engage in very similar work. The majority of women in each group farmed and had undertaken at least one nonfarm enterprise in the last year. The most common microenterprises were selling cooked food, making and selling coconut or palm oil, selling fish or trading foodstuffs such as vegetables, maize or rice. Participants engaged in a greater diversity of enterprises with seemingly greater regularity of operations relative to the two nonparticipant groups.

The majority of the 1996 participants (90%) felt that their incomes had “increased” or “increased greatly” since they had joined the

*Credit with Education* program. Most commonly, participants attributed this improvement to expansion of their businesses, reduced input costs by buying in bulk or with cash, and new activities or products that access to credit had made possible. There was a significant and positive difference in increase of participants’ monthly nonfarm earnings as compared to nonparticipants and residents in control communities. As compared to baseline measures, the increase in net nonfarm monthly income (revenue minus costs) was \$36 for participants, \$18 for nonparticipants and \$17 for residents in control communities. While overall the 1996 participants exhibited significant improvement in their nonfarm earnings, there was considerable range in monthly profit even in the same Credit Associations. Some participants had net monthly enterprise incomes as high as \$200 to \$300 per month, but 10% had net incomes of \$10 or less.

Although nonfarm incomes increased, the increase in participants’ assessment of their relative contribution to their households’ total incomes was no greater than in the two nonparticipant groups. There were also few differences across the groups in household expenditures.



**Table 4.19: Spending on Agricultural Inputs and Hired Labor in Last Six Months**

	Participants N=86	Nonparticipants N=105	Control N=99
% Women spending their own money	48%	43%	47%
No significant differences among the groups.			
Amount spent Mean (and Standard Deviation)	\$4.30 (7.0)	\$3.61 (7.1)	\$2.85 (5.8)
No significant differences in log values among the groups.			

**Table 4.20: In the Last Year, Relative Contribution of Respondents' Income to Total Household Income**

	Participants		Nonparticipants		Control	
	1993 N=46	1996 N=86	1993 N=149	1996 N=102	1993 N=92	1996 N=98
All of household income	17%	12%	4.0%	3%	11%	5%
Most of household income	26%	20%	15%	13%	8%	15%
Half of household income	9%	29%	19%	22%	24%	22%
Some but less than half of household income	22%	29%	25%	30%	23%	30%
Very small portion of household income	24%	10%	32%	22%	31%	18%
Earned no income	2%	---	4%	10%	3%	9%
Contribution scale (1=all; 6=none) Mean (and Standard Deviation)	3.2 (1.5)	3.0 (1.2)	3.8 (1.3)	3.9 (1.3)	3.7 (1.4)	3.7 (1.3)

However, there was evidence that the program was fostering the entrepreneurial skills of participants, who were significantly more likely to consider demand and profitability when deciding to invest in income-generating activities than were nonparticipants and residents in control communities. There was also a significant difference in savings held by participants versus controls and participants versus nonparticipants.

Still, approximately a quarter of the 1996 participants reported facing some difficulty making their weekly or end-of-cycle loan repayments. Illness or a death in the family was the root cause of many of the few serious repayment problems borrowers faced.

## 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 while 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.

Program impact is assessed through comparisons of baseline and follow-up measures of 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 desired intermediate benefits and children's nutritional status, a composite score is derived for each topic area.

### Breastfeeding Promotion

The ideal breastfeeding behaviors promoted by the program include: (1) giving the child the first antibody-rich milk, colostrum, rather than discarding it; (2) exclusively breastfeeding babies until they are approximately six months of age; (3) not using feeding bottles; and (4) breastfeeding until the child is approximately two years of age.

### Colostrum

For the three baseline groups, between 35% and 40% of the mothers discarded their colostrum either before or after their 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. Through skits and group discussions, field agents facilitated learning sessions that 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 5.1 shows that while only 60% of the 1993 future participants had given their newborns colostrum, 98% of the 1996 participants who gave birth after joining the program had done 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.

### Exclusive Breastfeeding

An ideal behavior that received considerable attention by the program was exclusive breastfeeding (meaning no water or foods) until babies are approximately six months of age. The baseline research found that a great majority of mothers (93%) introduced water during their newborn's first week of life. Virtually all mothers believed newborns needed water to survive. However, even in hot, dry climates, breastmilk contains sufficient water for a young baby's needs. Giving them water greatly increases their risk of getting diarrhea and other illnesses. In terms of "first foods," 90% of the baseline respondents had introduced watery foods (like koko, a maize-based porridge, or mashed kenkey, a maize-based polenta) by

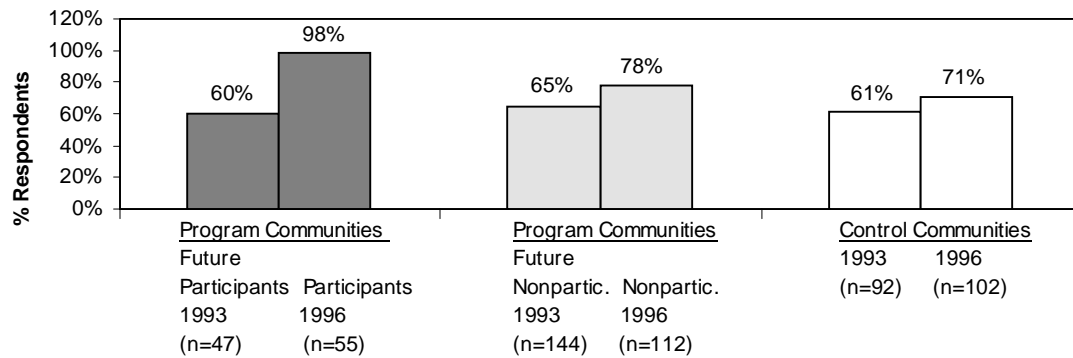
the end of the baby's fourth month (120 days).

Through role plays and group discussions, field agents emphasized that breastmilk alone is the safest and best food for babies and provides all the necessary nutrition and hydration a baby requires from birth through about six months. During the period of the research, this same message was increasingly being promoted by local health centers due to training provided by UNICEF to health-care providers. Reinforcement from multiple, trusted sources was probably instrumental in convincing participants to try this revolutionary behavior. Several of the Credit

Associations made a positive example of these early innovators by awarding them certificates and keeping snapshots of participants' "plumpy" babies that had been exclusively breastfed for about six months.

Again, the participant sample was restricted to include only those women who gave birth after joining the program and who had the opportunity to apply program messages. Figures 5.2 and 5.3 demonstrate the remarkable change in exclusive breastfeeding practices in general, but most dramatically for *Credit with Education* participants. There were significant differences in the mean age when water and watery foods were first in-

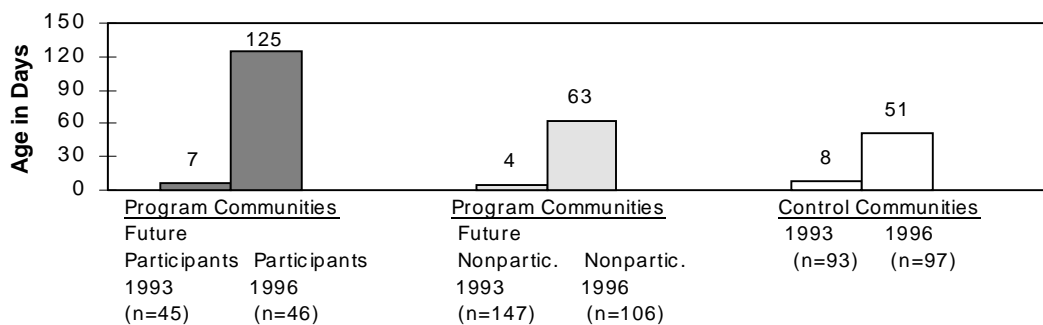
**Figure 5.1: Gave Colostrum to Newborns**



**Comparing 1993 and 1996**

- \*Significant difference for participants versus control group ( $p < .001$ ).
- \*Significant difference for participants versus nonparticipants ( $p = .006$ ).
- \*No significant difference for nonparticipants versus control group.

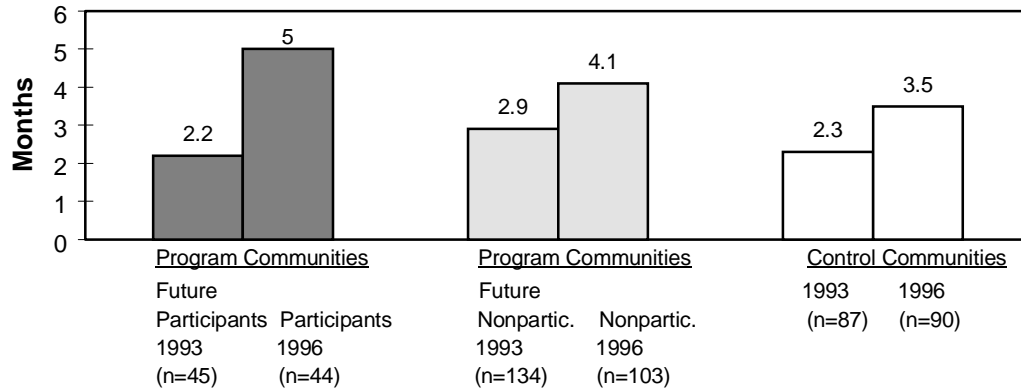
**Figure 5.2: Mean Age Water Introduced to Babies**



**Comparing 1993 and 1996**

- \*Significant difference for participants versus control group ( $p < .001$ ).
- \*Significant difference for participants versus nonparticipants ( $p < .001$ ).
- \*No significant difference for nonparticipants versus control group.

**Figure 5.3: Mean Age Watery Foods Introduced to Babies**



**Comparing 1993 and 1996**

- \*Significant difference for participants versus control group (p=.004).
- \*Significant difference for participants versus nonparticipants (p=.009).
- \*No significant difference for nonparticipants versus control group.

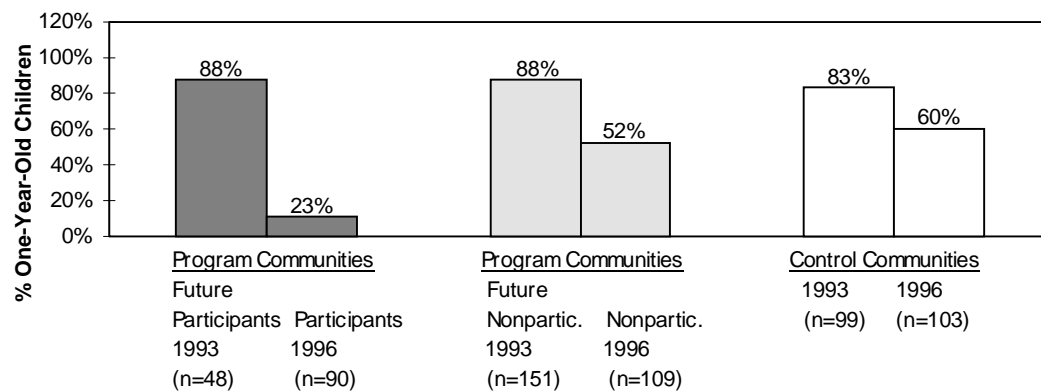
roduced to newborns between years for both participants versus residents of control communities and for participants versus nonparticipants. These graphs indicate the positive and significant impact the program had on exclusive breastfeeding from women who gave birth after joining the *Credit with Education* program. On average, participants did not introduce water or watery foods until their babies were in their fifth month of life.

ever using a bottle to feed their under-three-year-old babies. However, the decline in bottle use (from 88% to 23%) was most dramatic for 1996 participants. (Since bottle use is likely to increase with the age of the child, for this analysis, all participant children were included and not only those born after their mother had joined the *Credit with Education* program.) A positive and significant impact of the program was evident in reduced frequency in feeding bottle use by participants versus controls and participants versus nonparticipants when controlling for the child's age. No significant difference was

**Feeding Bottle Use**

Figure 5.4 also indicates area-wide improvements. Fewer women in each group reported

**Figure 5.4: Ever Used Bottle to Feed Baby**



**Comparing 1993 and 1996**

- \*Significant difference for participants versus controls, controlling for child's age (p<.001).
- \*Significant difference for participants versus nonparticipants, controlling for child's age (p=.02).
- \*No significant difference for nonparticipants versus control group.

found between the nonparticipant and control groups.

These results are particularly encouraging, since participants might be expected to be using feeding bottles more than nonparticipants. A necessary concern about *Credit with Education* is that time-intensive child-care practices like breastfeeding might be compromised as women invest more capital, and potentially more of their own labor, into their loan. However, these results indicate that participants were not more likely to use feeding bottles, and in fact after at least one year in the *Credit with Education* program, were less likely to use feeding bottles than women not in the program.

### ***Breastfeed for Two Years***

For similar reasons, participants might also be expected to wean their children earlier than nonparticipants, particularly if the demands of women's loan activities required them to depend upon surrogate child care. However, the results again showed that this type of negative trade-off was not occurring as a result of program participation. In the follow-up round, participants' children who were 12 to 24 months of age were slightly more likely to still be breastfed (77%) as compared to the children of nonparticipants (69%) and of residents in control communities (70%). As indicated in Figure 5.5, there was no significant difference among the three

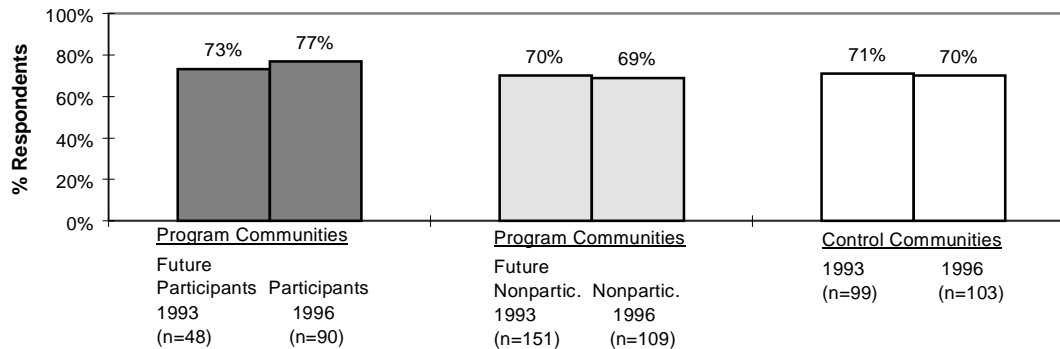
groups. In addition, the age at which children in the three groups were weaned, although not significantly different, was oldest for participants (19.1 months) as compared to nonparticipants (16.3 months) and controls (16.7 months).

The predominant loan activities of women in the program—preparing and selling cooked food, making and selling oil, and buying and selling foodstuffs—are not mutually exclusive with child care that includes breastfeeding. Virtually all of the processing work to make oil and prepare food is done at home with children nearby. The great majority of women also sell their products in local, weekly markets, which requires minimal travel, and young children can typically accompany their mothers.

### ***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) give their newborns colostrum, (2) exclusively breastfeed longer, and (3) not use feeding bottles. While no statistically significant impact on duration of breastfeeding was found, it is encouraging that involvement in loan activities does not seem to undermine women's ability to breastfeed their children.

**Figure 5.5: Children (12-24 Months) Still Breastfeeding**



#### **Comparing 1993 and 1996**

- \*No significant difference for participants versus control group, controlling for child's age.
- \*No significant difference for participants versus nonparticipants, controlling for child's age.
- \*No significant difference for nonparticipants versus control group, controlling for child's age.

**Table 5.6: Age Watery Foods Like Porridges First Introduced**

	Participants		Nonparticipants		Residents in Control Communities	
	1993 N=45	1996 N=44	1993 N=134	1996 N=103	1993 N=87	1996 N=90
Less than 5 months	96%	50%	86%	68%	93%	72%
5 - 6 months	4%	50%	9%	24%	5%	19%
7 months and older	-----	7%	5%	8%	2%	9%

An overall breastfeeding behavior score was derived on the basis of the five breastfeeding ideal behaviors described above. Respondents received a maximum score of five—one point each for (1) giving colostrum to newborns, (2) not giving water until a newborn was at least 150 days old, (3) not giving watery foods until at least 150 days, (4) never using a feeding bottle, and (5) if the child was either still breastfeeding or was weaned after 24 months of age. In all three groups, breastfeeding practices in general improved, although least of all for residents in the control communities. However, the greatest difference was evident for the participant group which had a baseline mean breastfeeding score of 1.5 and a follow-up mean score of 3.4. Nonparticipants went from a mean score of 1.6 to 2.7, and residents in control communities went from 1.6 to 2.1. The difference between years for the overall breastfeeding score was statistically positive and significant for the participants relative to the other two groups. The difference is even greater when the participant sample is restricted to those children born after their mothers joined the program.

### Complementary Food

In this topic area, the timing of introduction and quality of complementary foods was compared across the three impact evaluation groups. Table 5.6 shows that, for the baseline period across the three groups, foods like porridges were first given to children earlier than the recommendation of about 6 months of age (defined as from 150-209 days).

For this analysis, the 1996 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 about six months shows a significant difference between the years when controlling for the child's age for participants as compared to nonparticipants ( $p=.05$ ) although not as compared to residents in control communities.

To better understand whether program participation had affected the quality of complementary foods, mothers were asked what foods they had given their children when they were 6 to 9 months of age. Follow-up questions specifically probed whether mothers had added enrichment to the maize porridge, which is the most common and frequently given complementary food. Table 5.7 summarizes the frequency with which various enrichments were reportedly added, either during or after the preparation of the porridge. (Children who were older than six months when their mothers joined *Credit with Education* were excluded from the participant sample for the follow-up time period.) Although sugar was a common enrichment mentioned by women in each of the three groups, there was a relatively dramatic increase of adding groundnut (paste or flour) among participants.

Controlling for the child's age, there was a significant and positive difference between years in the mean number of nutritional enrichments that participants reported adding to koko relative to residents in control communities ( $p=.03$ ). Respondents were given one point for each of the following nutritional enrichments promoted by the program: beans/cowpeas, egg, fish, groundnut, milk and palm oil. In the 1996 follow-up

**Table 5.7: Enrichment Added to Porridge Given to Children at 6 to 9 Months of Age**

	Participants		Nonparticipants		Residents in Control Communities	
	1993 N=36	1996 N=44	1993 N=114	1996 N=75	1993 N=77	1996 N=72
Bean/Cowpea	6%	34%	3%	25%	3%	10%
Egg	22%	34%	25%	28%	26%	22%
Fish	8%	14%	7%	8%	5%	4%
Groundnut	28%	61%	25%	39%	26%	31%
Milk/Formula/ Weanimix	47%	36%	33%	32%	30%	40%
Sugar	56%	59%	66%	69%	66%	65%
Mean nutritional enrichments	1.1	1.8	.9	1.3	.9	1.1

period, participants reported adding almost two nutritional enrichments as compared to only one for the controls. However, it seems program promotion for adding legumes (groundnut paste or flour and bean or cowpea flour) has been more successful than the message to add fish powder. Only a third of the participants reported enriching koko with fish powder. Given the benefits of animal proteins to iron absorption, resistance and obstacles to this practice should be explored.

Through its Maternal and Child Health (MCH) services, the Ministry of Health in Ghana promotes a complementary food for babies six months and older that is called "Weanimix." Weanimix is a porridge that combines one-part maize flour to ½-parts bean and groundnut flour. To encourage its adoption, Weanimix flour is prepared by the MCH program and sold both at the local

health centers and at monthly growth-monitoring sessions held in many of the program area communities. It is typically sold in small plastic bags in amounts that would be sufficient for several servings only.

Learning sessions facilitated at the Credit Association meetings encouraged mothers to give Weanimix to their babies who were six months and older. Mothers were also encouraged to add fish powder to the Weanimix porridge to make it a particularly good complementary food. The baseline and follow-up surveys included questions to assess mothers' knowledge and trial of Weanimix. Table 5.8 shows that even during the baseline period, the majority of mothers had heard of Weanimix. Although the percentage of 1996 participants who had heard of Weanimix was higher than the other two groups, there was no significant difference in

**Table 5.8: Knowledge and Trial of Weanimix**

	Participants		Nonparticipants		Residents in Control Communities	
	1993 N=48	1996 N=66	1993 N=150	1996 N=111	1993 N=99	1996 N=102
Had heard of Weanimix	77%	94%	79%	87%	77%	86%
Had tried Weanimix	48%	62%	51%	57%	48%	44%
If tried Weanimix, added fish powder	-----	68%	-----	40%	-----	41%

the changes between years. When controlling for the child's age, there was a marginally significant difference in change between years for participants as compared to residents in control communities ( $p = .06$ ) in whether mothers reported trying Weanimix. However, there was no significant difference between participants and nonparticipants. (Again, the 1996 participant sample was restricted to include only those children who were six months or younger when their mother joined the *Credit with Education* pro-

gram.) For those mothers who had tried Weanimix, and controlling for the child's age, participants were significantly more likely to enrich the Weanimix with fish powder than were nonparticipants ( $p = .006$ ) or residents in control communities ( $p = .001$ ).

The impact survey also included questions to assess the current status of the study children's diets. To evaluate feeding frequency, mothers were asked to report how

<b>Child Feeding</b>	
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:	
<b>Topic</b>	<b>Specific message or ideal behavior</b>
<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</li> </ul>	<ul style="list-style-type: none"> <li>• enriched porridges such as Weanimix (porridge made from maize and legume flour) enriched with fish powder</li> <li>• enriched traditional porridges like koko (maize-based porridge) made thicker than usual and enriched with either groundnuts, beans, fish powder, egg or milk</li> <li>• mpotompoto (mashed yam or cocoyam) enriched with fish powder and palm oil</li> <li>• nutritious snacks like mashed fruits and mashed vegetables</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, vegetables, palm oil, and animal (egg, meat, fish) and vegetable (groundnuts, beans) proteins</li> <li>• feed children more at every meal and use separate bowls</li> <li>• washing hands, washing food, covering food, cooking food thoroughly and not keeping food long before serving 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 the child recovers, give them extra meals to catch up.</li> </ul>



**Table 5.9: Feeding Frequency and Dietary Intake Frequency**

	Participants		Nonparticipants		Residents in Control Communities	
	1993 N=41 (12-24 mo.)	1996 N=72 (8-36 mo.)	1993 N=130 (12-24 mo.)	1996 N=81 (8-36 mo.)	1993 N=84 (12-24 mo.)	1996 N=79 (8-36 mo.)
Mean times children 8 months and older had eaten in last 24 hours	3.9	4.7	3.7	4.2	4.1	4.0
In the last 3 days, mean times the child had eaten:						
Eggs	.6	1.7	.6	1.6	.8	1.3
Meat/Fish	4.7	6.8*	4.7	6.0	5.3	6.3
Green leafy vegetables	1.5	3.2	1.6	2.5	1.8	2.7

\* The mean value and subsequent analysis for this outcome variable excludes the response of an outlier. A program participant who engaged in fish selling reported that her child had eaten fish 20 times in the last three days. While it is possible that given his mother's profession this child had eaten fish snacks throughout the day, this response was excluded from the analysis as it might be erroneous and needlessly skew the results.

many 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 their child had eaten a number of particularly nutritional foods over the last three days. Table 5.9 summarizes these findings. However, it is important to remember that the 1993 results correspond to children who were one year of age (12 to 24 months). For the 1996 sample, the responses correspond to children from 8 to 36 months of age.

In terms of feeding frequency, when controlling for the child's age, participants' children experienced a positive and significant difference in change between the two years as compared to nonparticipants' children ( $p=.02$ ) and children of residents in control communities ( $p=.03$ ). There was also a significant difference in change between the two years for nonparticipants' children as compared to the children in control communities ( $p=.02$ ). In 1996, participants' children were fed on average 4.7 times in the last 24 hours as compared to 4.2 times for nonparticipants and 4.0 times for residents in control communities.

In terms of diet quality, there was a marginally significant difference in the consumption

of animal proteins—meat/fish and eggs—for the participant children as compared to the children in control communities ( $p=.06$  for both foods when controlling for the child's age). There was also a significant difference in egg consumption for nonparticipant children as compared to children in control communities ( $p=.03$ ). However, no significant difference in change between years was found among the groups for the consumption of green leafy vegetables.

### **Change in Breastfeeding and Feeding Practices**

Mothers were asked whether they had breastfed or fed the child included in the study any differently from their other children, and if so, how. (Mothers who only had one child are excluded from this analysis.) The great variety of responses given were classified into five groups (see Table 5.10):

- ❖ Group 1: *Positive difference related to feeding* (mother said the child was fed more, fed more often, was given better foods—specifically egg, kontumerie, beans, fish, more legumes and green leafy vegetables, enriched porridges—given solids later, or given warm food with a spoon).

**Table 5.10 Differences in How the Study Child Was Fed or Breastfed Compared to Other Children**

	Participants 1996 N=84	Nonparticipants 1996 N=87	Residents in Control Communities 1996 N=81
Group 1 - Positive Difference in Feeding	31 (37%)	8 (9%)	9 (11%)
Group 2 - Positive Difference in Breastfeeding	27 (32%)	12 (14%)	8 (10%)
Group 1 and Group 2 - Positive Difference in Either Feeding or Breastfeeding	53 (63%)	20 (23%)	16 (20%)
Group 3 - Neutral Difference	-----	2(2%)	8 (10%)
Group 4 - Negative Difference	3 (4%)	7 (8%)	5 (6%)
Group 5 - No Difference	28 (33%)	58 (67%)	52 (64%)

- ❖ Group 2: *Positive difference related to breastfeeding* (gave colostrum or breastfed more immediately after birth, was exclusively breastfed longer, or did not use bottles).
- ❖ Group 3: *Neutral differences* (child ate differently or ate different but not more nutritional foods than other children, primarily because of appetite or preference).
- ❖ Group 4: *Negative differences* (child ate less or ate less well due to financial problems, sickness in family or divorce/abandonment).
- ❖ Group 5: *No difference* (no difference in how the child was fed or breastfed compared to other children).

Because respondents could have given more than one answer, the shaded row summarizes the percentage of women reporting a positive difference in either how they breastfed or fed the study child relative to their other children. Significantly more participants of the 1996 sample (63%) reported a positive difference as compared to only 23% of non-participants ( $p < .001$ ) and 20% of the residents in control communities ( $p < .001$ ). Not

surprisingly, participants were less likely to report positive differences if their child was older (greater than 10 months of age) when they joined the *Credit with Education* program. Since the program was on average operating for just two years in the study communities, it seems likely that the percentage of participants making positive changes would increase over time, if the quality of the education component is maintained.

### **Diarrhea Treatment and Management**

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

- ❖ Appreciating the potential danger of diarrhea.
- ❖ Giving extra liquids to a child who has diarrhea.
- ❖ Practicing how to mix ORS\* packets.

\* Oral Rehydration Solution

- ❖ 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.

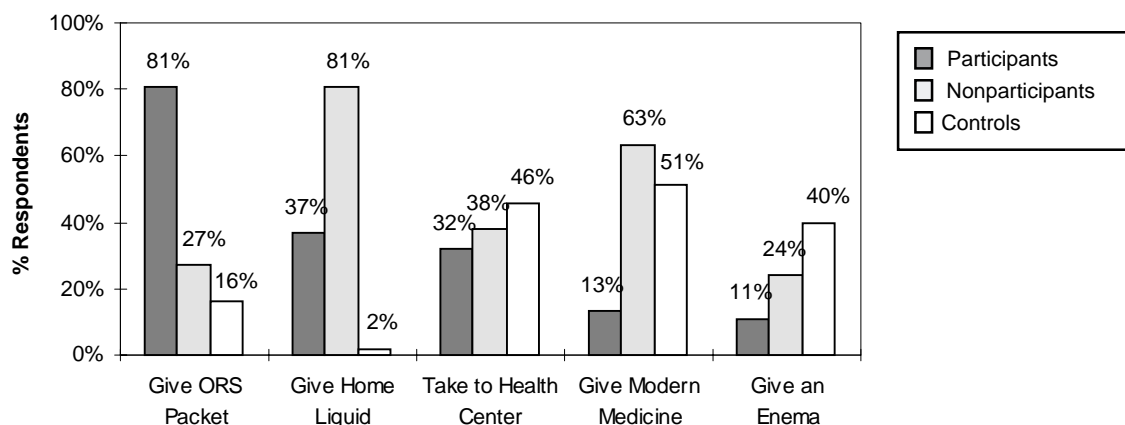
The baseline research indicated that a key topic for the education component was the need for rehydration of children suffering bouts of diarrhea. Many of the mothers described giving medicines—either modern (most commonly paracetamol syrup and antibiotics) or traditional (primarily enemas)—when their children had diarrhea rather than giving them more liquids. In the baseline survey, the most common action or treatment mothers reported taking when their child had diarrhea was to give them “modern” medicines. However, the prevalence of this answer might be explained by a problem with the Fante translation of this question. Instead of asking, “What action or treatment do you take when your child has diarrhea?”, the Fante version of the baseline survey specified, “What action or treatment do you take when your child has diarrhea to stop the diarrhea?” Given this important difference in wording, only the 1996 results are summarized, as the Fante translation was corrected for the second data collection round.

When asked the more general question, “What action or treatment do you take when your child has diarrhea?”, Figure 5.11 shows that participants were significantly

more likely than nonparticipants ( $p < .001$ ) or residents in control communities ( $p < .001$ ) to rehydrate children who had diarrhea by giving them either ORS (made from the packets) or home liquids (like tea or rice water). No significant difference was found between nonparticipants and residents in control communities. However, these two non-client groups were more likely to report using the potentially deleterious behaviors identified as being prevalent in the baseline study. Nonparticipants ( $p = .04$ ) and residents in control communities ( $p < .001$ ) were significantly more likely than participants to have “treated” children by giving them an enema. They were also significantly more likely ( $p < .001$ ) to have given the child modern medicines. Certainly, modern medicines are very useful when prescribed by a health professional. But too often people waste their money buying a variety of over-the-counter drugs to “treat diarrhea” from individuals owning local kiosks.

Participants of the *Credit with Education* program seemed to feel more empowered to deal with cases of diarrhea themselves than residents in control communities. Mothers living in control communities were significantly more likely to report taking their children to the health center when they had diarrhea than were the 1996 participants ( $p = .04$ ). Also of note, 28% of the 1996 participants said that they could not say what actions or treatments they take because their child or children never had diarrhea as compared to

**Figure 5.11: Action or Treatment Mother Takes When Her Child(ren) Has Diarrhea—1996 Only**



11% of the nonparticipants and 18% of the controls.

While there is evidence that the program has positively affected rehydration practices, no significant effect was found on the practice of limiting or withholding food from children having diarrhea. Table 5.12 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 in change between the years among any of the sample groups. The *Credit with Education* program should reemphasize the importance of continuing to offer food to children suffering from diarrhea.

### Diarrhea Prevention

During informal discussion groups conducted during the baseline, mothers attributed diarrhea to a variety of causes. Certain foods, such as gari (soaked, fermented, milled and fried cassava) with cold water, gari and beans, or too much starchy foods (cassava in general) were said to cause diarrhea. Some women explained that a tumor-like entity in the stomach (called kuukuu) sucks blood and causes loose stools and vomiting. Some children are born with kuukuu and others get it after some time, perhaps from a curse. These mothers said that, although kuukuu could not be prevented, when one realizes a child has it one should take the child to the health clinic to get drugs or to a traditional healer who can provide herbs for an enema and drink. Other women explained how dirt can get in food and cause diarrhea. At least one

woman said stream water can cause diarrhea, but others said stream water was preferable to well water because stream water is sweet.

During the baseline and follow-up surveys, women were asked what they could do to prevent diarrhea. A major change seen between the two time periods was that only 1% of the 1996 participants responded “don’t know” to this question as compared to 30% of the future participants interviewed during the baseline. Table 5.13 summarizes the percentage of women in both time periods that identified preventive actions promoted by the *Credit with Education* program.

Significant differences were found between the years for participants versus nonparticipants who mentioned “cover food/avoid flies” ( $p < .001$ ) and “keep food clean” ( $p = .02$ ). Similarly, significant differences were found between the years for participants versus residents of control communities in the same preventive actions ( $[p < .001]$  and  $[p < .01]$ , respectively). There was also a significant difference for the number of women reporting they knew of no action to prevent diarrhea for participants versus nonparticipants ( $p < .001$ ) and participants versus residents in control communities ( $p < .001$ ). However, no significant difference between the two time periods was found for those mentioning other steps promoted by the program such as hand washing, breastfeeding, reheating cooked food before serving/not keeping cooked food long before serving, and using clean water. Additional education on the effectiveness of hand washing could further

**Table 5.12: Mothers Gave “Less” or “No” Food to Children Having Diarrhea**

	Participants		Nonparticipants		Residents in Control Communities	
	1993 N=48	1996 N=75	1993 N=151	1996 N=99	1993 N=96	1996 N=90
Gave “more” food than usual	3 (6%)	8 (11%)	11 (7%)	4 (4%)	12 (12%)	3 (3%)
Gave “same amount” of food as usual	13 (27%)	10 (13%)	29 (19%)	21 (21%)	18 (19%)	15 (17%)
Gave “less” or “no” food	32 (67%)	57 (76%)	111 (74%)	74 (75%)	66 (69%)	72 (80%)

improve the *Credit with Education* program's impact in this topic area.

## Immunization

Immunization is a topic addressed by Credit Associations in their second year. Informal discussion groups held with women during the baseline period revealed that virtually all mothers were aware of Ministry of Health-supported immunization campaigns. However, a surprising number did not know that one of the immunizations prevents polio and another measles. In some cases, women had their children immunized even if they were not sure which specific diseases would be prevented. In other cases, this lack of knowledge explained in part why children had not been immunized or had not completed the immunization series. A benefit of the face-to-face opportunities of the Credit Association meetings is that group discussion and field agent presentations can go into greater depth than is possible in community health mobilization campaigns.

Since immunization is not addressed until later loan cycles, some of the Credit Associations in the study had not yet addressed this topic area. Still, 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.

Including children of all ages, no significant differences were found between the years in whether mothers reported their child had been immunized across the three sample groups (see Table 5.14). Analysis of whether children had received specific immunizations was restricted to children twelve months and older since the recommendation advises completion of the immunization series by twelve months. In about a dozen cases, mothers reported that their child had been immunized but they were not able to show the interviewer the health card, as it had been lost. In analysis of the coverage of each individual immunization, if no health card was available for confirmation it was consid-

**Table 5.13: Mothers' Responses to the Question: "What can you do to prevent diarrhea?"**

	Participants		Nonparticipants		Residents in Control Communities	
	1993 N=47	1996 N=89	1993 N=151	1996 N=111	1993 N=96	1996 N=104
"Don't know" or said "can't be prevented"	14 (30%)	1 (1%)	47 (31%)	39 (35%)	29 (30%)	34 (33%)
Cover food/Avoid flies/Keep utensils clean	21 (45%)	71 (80%)	64 (42%)	46 (41%)	42 (44%)	37 (36%)
Keep food clean	24 (51%)	61 (68%)	75 (50%)	47 (42%)	47 (49%)	34 (33%)
Wash hands	17 (36%)	43 (48%)	29 (19%)	28 (25%)	20 (21%)	17 (16%)
Don't keep food long before serving/ Reheat food	7 (15%)	25 (28%)	15 (10%)	17 (15%)	11 (12%)	13 (12%)
Cover water/Clean water/Don't drink river water	1 (2%)	4 (4%)	-----	2 (2%)	-----	-----
Breastfeed/No bottle	1 (2%)	7 (8%)	1 (1%)	5 (4%)	2 (2%)	1 (1%)

ered that the child had not received the immunization. No significant differences were found for any of the specific immunizations across the three sample groups. This apparent lack of program effect on immunization coverage is likely to be explained in part by (1) immunization coverage rates being rather high even in the baseline period, (2) this topic not being addressed until the second year of a Credit Association's participation in the program, and (3) the analysis focused on children twelve months or older, many of whom were born before their mothers joined the *Credit with Education* program.

### Conclusion

Of the women who had more than one child, significantly more participants (63%) in 1996 reported positive differences in how they breastfed or fed the child included in the study as compared to their other children. Only 23% of the nonparticipants and 20% of the residents in control communities did so. In comparing responses from the 1993 baseline and 1996 follow-up surveys, participants demonstrated positive and significant increases to nonparticipants and/or residents in control communities in the following breastfeeding 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.
- ❖ The mean number of enrichments (bean/cowpea, egg, fish, groundnut, milk, palm oil) added to the traditional complementary food (koko).
- ❖ Enriching Weanimix (a complementary food promoted and distributed by the Ministry of Health) with fish powder.
- ❖ Frequency of feeding children.

Despite participants' involvement with their loan-financed activities, their children were not weaned earlier and were just as likely as children of nonparticipants to be breastfed into their second year of life.

Participants also showed more improvement in the area of diarrhea treatment and prevention:

- ❖ Participants were more likely to rehydrate children who had diarrhea by giving them either ORS (made from the packets) or home liquids (like tea or rice water).
- ❖ The two non-client groups were more likely than participants to report using potentially deleterious behaviors of

**Table 5.14: Immunization Coverage**

	Participants		Nonparticipants		Residents in Control Communities	
	1993	1996	1993	1996	1993	1996
Mother reported child had received at least one immunization (all children included)	38 (79%)	76 (84%)	120 (79%)	93 (83%)	68 (69%)	83 (81%)
For children 12 months and older:						
DPT1	36 (77%)	44 (76%)	102 (73%)	51 (75%)	59 (66%)	52 (75%)
DPT3	29 (62%)	40 (69%)	72 (51%)	45 (66%)	44 (49%)	44 (64%)
Polio	36 (77%)	41 (71%)	108 (77%)	45 (66%)	60 (67%)	48 (70%)
Measles	29 (62%)	36 (62%)	68 (49%)	41 (60%)	42 (47%)	41 (59%)
BCG	34 (72%)	43 (74%)	105 (75%)	49 (72%)	54 (60%)	47 (68%)

“treating children” by giving them an enema or “modern medicines” not always prescribed by health professionals.

- ❖ Participants seemed to feel more empowered to deal with cases of diarrhea, as they were significantly less likely than residents in control communities to report taking the child to a health center when the child had diarrhea.
- ❖ Participants had better knowledge of diarrhea prevention, especially identifying “covering food or avoid flies” and “keeping food clean” as ways they could prevent diarrhea.
- ❖ Fewer participants said they knew of no action to prevent diarrhea versus both nonparticipants and residents in control communities.

However, no significant difference between the groups was found for those mentioning other steps promoted by the program to prevent diarrhea, such as hand washing, breastfeeding, reheating cooked food before serving, not keeping cooked food long before serving, and using clean water. In addition, no positive program effect was found on the practice of limiting or withholding food from children having diarrhea; the majority of women in each of these groups reported doing so. Additional nonformal education about these issues should be conducted.

No program effect was found on immunization coverage. This is likely explained, in part, by the fact that (1) immunization coverage rates were rather high even in the baseline period, (2) this topic is not addressed until the second year of a Credit Association’s participation in the program, and (3) the analysis focused on children 12 months or older, many of whom were born before their mothers joined the *Credit with Education* program.

## 6.0 INTERMEDIATE BENEFITS: WOMEN'S EMPOWERMENT

Women's self-confidence and status play an important and pivotal intermediate role in *Credit with Education's* hypothesized benefit process (Figure 1.1). It is hypothesized that program participation will create fundamental changes in women's inner sense of self, social relations and lifestyle that will empower them to confront problems, take risks and make their own informed choices for better health and nutrition. 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). *Credit with Education* program staff report that men are listening to their wives more, and women are taking actions (both public and private) that they had not previously been sufficiently confident to take.

When credit enables women to increase their incomes or have control over income, evaluation studies of other credit programs have confirmed a positive effect on women's self-esteem and status within the household (Berger, 1989). 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. The participatory approach utilized in the strategy's education and credit components is intended to foster empowerment both on the individual and group level.

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 Lower Pra program area to identify manifestations and indicators appropriate to the local context and to the relationships under study.

Over the course of the collaborative research, interviews were conducted with field agents, *Credit with Education* members individually and in small groups of three to five persons to explore how the program might have "empowered" women. Numerous examples and indicators emerged from these discussions, and many of these are summarized in Table 6.1. Members said that they took pride that, due to the loans, they were able to contribute more to the well-being of their family. Several women described the positive impact this had on their self-confidence, self-reliance and relationships with their spouses. Perhaps most often, women talked about feeling empowered in terms of knowing better how to keep their children healthy and knowing better how to manage money and their businesses.

The baseline survey included only a few indicators of empowerment to allow for qualitative research to identify appropriate empowerment indicators. And while the various manifestations described in Table 6.1 might be important impacts, many did not lend themselves to quantification or inclusion in the follow-up survey. Still, a number of indicators were selected as meaningful and measurable in three areas: (1) self-confidence and hopefulness about the future; (2) status and decision making in the household; and (3) status and social networks in the community.

### Self-Confidence and Hopefulness About the Future

One level at which empowerment might be evident or manifest is the woman herself, in



**Table 6.1: Examples of Empowerment Described by Credit with Education Participants and/or Field Staff**

<b>STATUS AND DECISION MAKING IN THE HOUSEHOLD</b>	
Numerous women spoke about how, after joining the program and expanding their income-generating activities, their husbands showed them greater appreciation and respect by:	
1.	helping their wives with child care, offering for the first time to watch the young children or take them away from where the woman was working.
2.	assisting them more, or for the first time, with their income-generating activities by helping to crack coconuts for oil or carry heavy items to the mill.
3.	defending their wives in front of other men when men get together to talk; if other men are criticizing their own wives, they will not; rather, they will say that their wives work hard to help the family.
4.	arguing with their wives less, mostly because there are fewer money strains.
5.	realizing how hard their wives are working and how much they are contributing to the maintenance of the family and, as a result, working harder themselves to try to contribute more.
6.	being less likely to squander money, take another wife, or appropriate the wife's funds due to wife's resistance to the negative behaviors.
Women also provide numerous examples of how they are more directly contributing to family expenses, and so they are given more decision-making power:	
7.	consulting and listening to their husbands more when the family faces problems.
8.	husband respecting wife's decision not to go to work on the farm if she has other work to do.
9.	not dependent on husband to meet all daily expenses (money for children, food).
10.	covering more educational and medical expenses and sometimes loaning husband the money.
11.	feel that if there is a family crisis, even if husband is away, will be able to deal with it.
<b>STATUS AND SOCIAL NETWORKS IN THE COMMUNITY</b>	
A change since joining the program that many women mentioned and valued highly was their ability to attend and contribute to funerals. Women explained that being able to do this was very important to their status in their own extended family and in the community in general:	
12.	number of non-kin funerals attended and contributed to.
13.	sense of solidarity, closeness and cooperation with other women in the community.
14.	leadership roles or functions in the community not directly related to the program.
<b>SELF-CONFIDENCE AND HOPEFULNESS ABOUT THE FUTURE</b>	
Women mentioned self-confidence in a variety of areas:	
<b>confident about child care</b>	
15.	ability to raise healthy/well-nourished children, confident that they can keep child healthy and/or confront a health problem.
16.	openness to try new behavior; not afraid something new will cause problems.
17.	know how to avoid diarrhea and treat it if it occurs.
18.	confident that they can educate children to the children's full potential.
19.	know how often, how much, and when children should eat and encourage child who rejects food.
<b>confident about managing their business</b>	
20.	keep track of money, handle loan.
21.	identify a good activity in which to invest.
22.	hopeful that next year will be better than this year.
23.	able to speak in public and ask questions.
24.	able to approach a stranger and ask questions.
25.	able to accept or refuse a proposal; feel qualified to make own determination.
26.	aware of own problems and options.

terms of her self-confidence, self-perception and attitude. While it is very difficult to measure attitudes such as self-confidence, an effort was made to tie the concept to a specific situation or action. In the follow-up impact survey, women were asked to rate their self-confidence—using a specified range of “Very Confident,” “Somewhat Confident” and “Hopeful, but Not Confident”—on whether they thought they will be able to

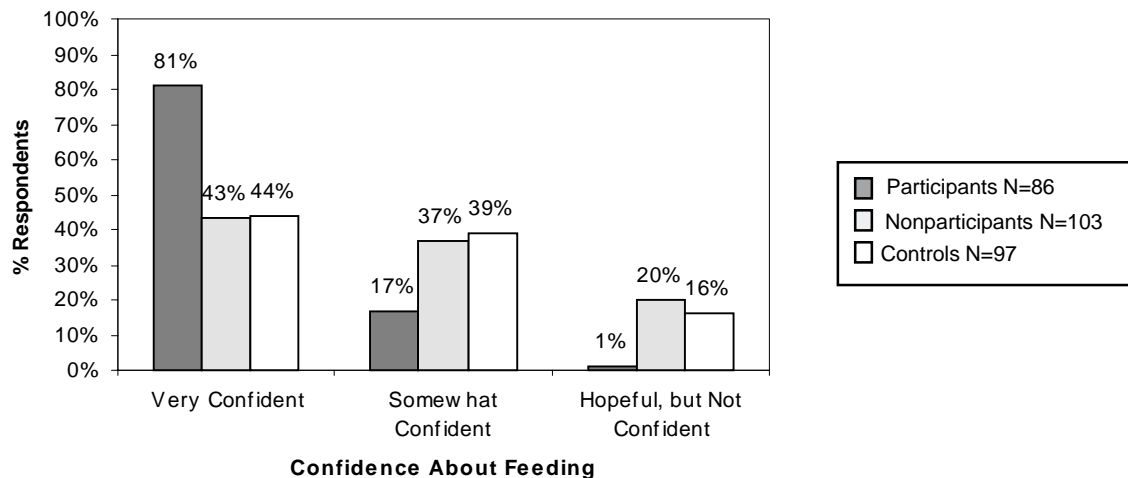
- ❖ feed their child the good foods that they know they need;
- ❖ prevent their child from getting diarrhea and other illnesses;
- ❖ educate their child to the child’s full potential; or
- ❖ earn more money next year than this year.

The wording of these options was tested in a number of informal discussions. Interviewers commented that the expression on a woman’s face as she considered how to rate herself often predicted the response she would give. The “hopeful, but not confident” option captured many women’s aspiration to accomplish the stated action but relative sense of powerlessness in making it occur.

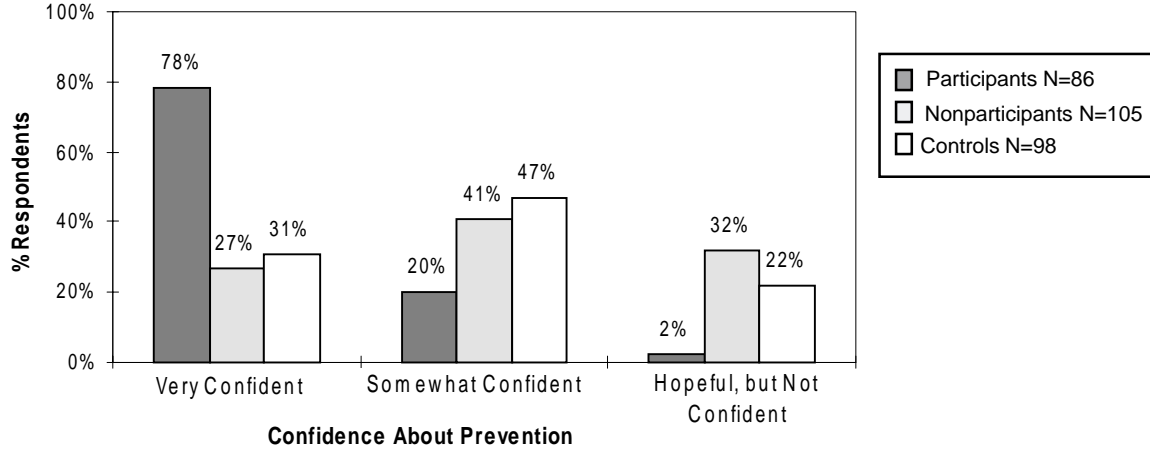
Figures 6.2 through 6.5 summarize the self-confidence ratings women gave themselves during the 1996 follow-up survey. The great majority of participants considered them-

selves “very confident” that they could “feed their child good foods” and “prevent their child from getting diarrhea.” Less than 10% of the 1996 participants rated themselves as “hopeful, but not confident” for any of the four actions. The self-confidence ratings were used to create dummy (0, 1) variables for each action. “Very confident” and “somewhat confident” were considered to represent confidence (“1”) while “hopeful, but not confident” was recoded as a “0.” Logistic regressions were used to test for differences between the three sample groups. Participants were found to be significantly more confident about being able to feed their children good foods than were nonparticipants ( $p=.003$ ) and residents in control communities ( $p=.007$ ). There was no significant difference between nonparticipants and controls. A similar pattern was found for confidence about diarrhea prevention: participants versus nonparticipants ( $p<.001$ ), participants versus controls ( $p<.001$ ) and no significant difference between nonparticipants and residents in control communities. There was no significant difference in the confidence of participants and residents in control communities about educating their children, although there was a significant difference for participants versus nonparticipants ( $p<.001$ ) and nonparticipants versus controls ( $p=.02$ ). Again, participants were significantly more confident than nonparticipants ( $p<.001$ ) and controls ( $p<.001$ ) that they would earn

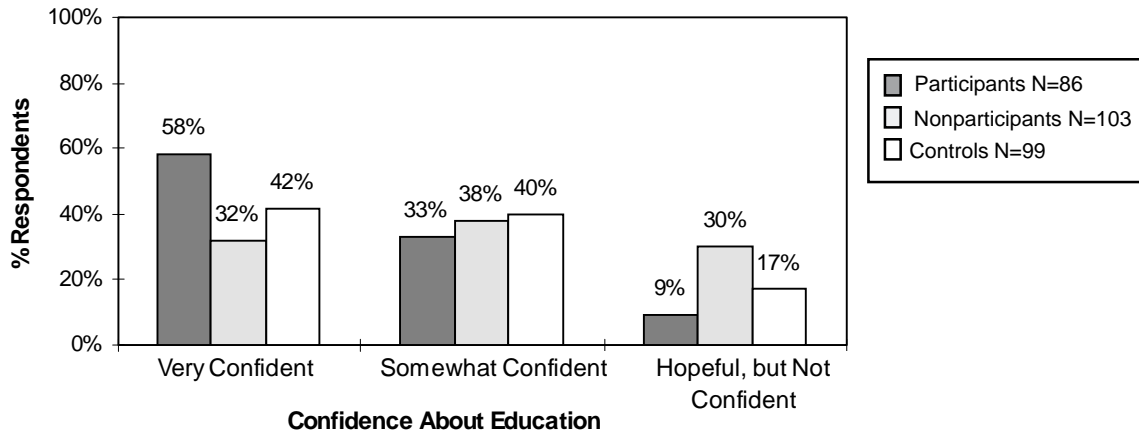
**Figure 6.2: Confidence That You Will be Able To Feed Your Child the Good Foods That You Know He/She Needs**



**Figure 6.3: Confidence That You will Be Able To Prevent Your Child From Getting Diarrhea and Other Illnesses**



**Figure 6.4: Confidence That You Will Be Able To Educate Your Child to His/Her Full Potential**

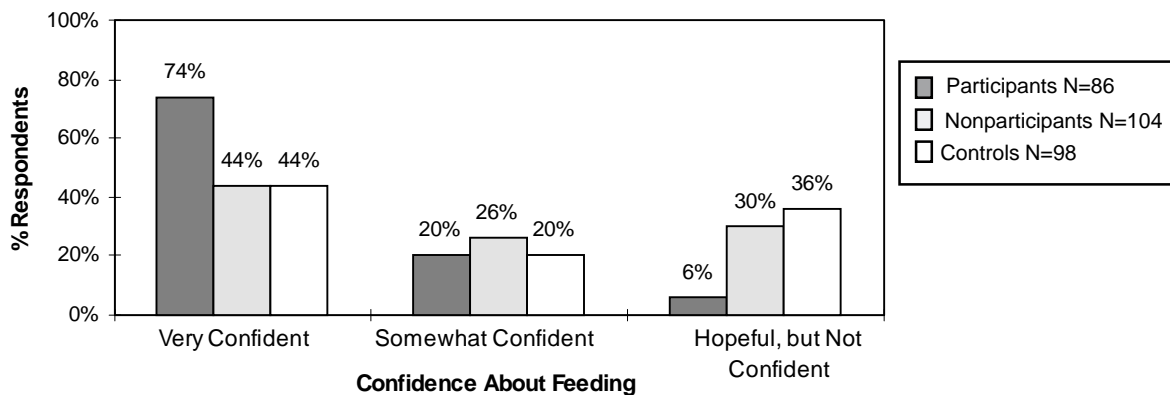


more next year although there was no significant difference between the nonparticipating groups.

Using these self-reported ratings, it seems participants are significantly more confident than the other two groups in several aspects of their lives and futures. However, it is interesting to note that residents in control

communities seem somewhat more self-confident than the nonparticipants in program communities. It is possible that the nonparticipant status itself, of some of the women in program communities, reflects an initial lack of self-confidence that, in part, explains why they chose not to join the Credit Association organized in their community.

**Figure 6.5: Confidence That You Will Be Able To Earn More Money Next Year Than This Year**



**Table 6.6: Decision-Making Within the Household—1996 Only**

Who in the household decides.....	Only Your Husband	Mostly Your Husband	Jointly - You and Your Husband	Mostly You	Only You
whether school-age children will go to school	6 (8%)P 9 (17%)NP 8 (13%)R	7 (10%)P 3 (6%)NP 5 (8%)R	52 (73%)P 37 (68%)NP 41 (65%)R	5 (7%)P 2 (4%)NP 5 (8%)R	1 (1%)P 3 (6%)NP 4 (6%)R
how much to spend on clothing for children	7 (9%)P 22 (24%)NP 8 (9%)R	8 (10%)P 10 (11%)NP 17 (20%)R	38 (48%)P 41 (45%)NP 42 (49%)R	21 (26%)P 12 (13%)NP 14 (16%)R	6 (8%)P 7 (8%) NP 4 (5%)R
how much to spend on medicine	12 (15%)P 29 (32%)NP 15 (18%)R	16 (20%)P 14 (16%)NP 21 (25%)R	38 (48%)P 36 (40%)NP 33 (39%)R	10 (12%)P 6 (7%)NP 13 (16%)R	4 (5%)P 5 (6%)NP 2 (2%)R
how much to spend on agricultural inputs	16 (24%)P 23 (31%)NP 25 (34%)R	8 (12%)P 10 (14%)NP 16 (22%)R	29 (43%)P 30 (40%)NP 21 (29%)R	5 (8%)P 4 (5%)NP 8 (11%)R	9 (13%)P 7 (10%)NP 3 (4%)R
on fixing the house	43 (54%)P 52 (62%)NP 45 (58%)R	19 (24%)P 18 (21%)NP 20 (26%)R	9 (11%)P 8 (10%)NP 9 (12%)R	5 (6%)P 1 (1%)NP 3 (4%)R	3 (4%)P 5 (6%)NP 1 (1%)R

P=1996 Participant; NP=1996 Nonparticipant; R=1996 Resident in control community

### Status and Decision-Making in the Household

Women's empowerment might also 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 family and respected or listened to them more than before they joined the *Credit with Education* program.

In both the 1993 baseline and 1996 follow-up surveys, women were asked to identify who made decisions in their household, using a scale that ranged from "only your husband" to "only you."

It was expected that women's "relative say" would decrease with the larger or more costly expenditure decisions. Although this question was asked in both reporting periods, for simplicity only the 1996 responses are included in Table 6.6. This analysis was restricted to women who were married and who did not identify another family member (such as a parent or in-law) as making the decision.

To better capture shifting between response categories, 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 the woman's age and whether her husband was away from home for more than six months a year, since these variables might explain a woman's differential, say in household decision making. The only significant difference found across the three groups was that participants had significantly greater say in whether or not children went to school than nonparticipants ( $p = .02$ ).

A concern of focusing on the "empowering" effect of earning greater cash income is the possibility that women's increased "say" comes as a result of men withdrawing their support. It cannot be considered particularly empowering if women are compelled by their husbands to shoulder greater economic responsibility. This might happen if husbands decide the increased success of women's loan-assisted microenterprises means she needs less assistance from him. Given this possible dynamic, several questions were included in the 1996 follow-up

**Table 6.7: Assistance Offered by Husband—1996 Only**

In the last six months,	Participants - 1996	Nonparticipants - 1996	Residents in Control Communities - 1996
Husband offered to watch children	42 (66%)	33 (45%)	39 (54%)
Husband offered to help with nonfarm enterprise	35 (55%)	20 (29%)	34 (49%)

survey to capture manifestations of empowerment that reflected the husband offering greater assistance or consideration for his wife (see Table 6.7). For example, each woman was asked whether in the last six months her husband had

- ❖ helped her with child care by offering to take care of the study child while she was busy or
- ❖ directly helped her in some way to carry out her 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. Participants' husbands (see Table 6.7) were significantly more likely to have helped with child care than nonparticipants' husbands ( $p = .01$ ), but there was no significant difference between participants and residents in control communities. Participants' husbands were also significantly more likely to have helped their wives with their income-generating activities than nonparticipants ( $p = .002$ ), although again there was no difference as compared to control communities. The husbands of residents of control communities were also significantly more likely to have helped their wives than the nonparticipants ( $p = .01$ ). Using these indicators of empowerment, again it seems that participants are the most "empowered" of the three groups, but residents in control communities are relatively more "empowered" than nonparticipants in program communities.

Figure 6.8 shows the percentage of women who said that they had discussed ways to space or avoid pregnancies with their spouse. It seems that women who join the *Credit with Education* program are more likely than nonparticipants in program communities to have this type of conversation with their spouses. In both the baseline and follow-up periods, participants were more likely to report having such a discussion, although there is no significant difference between the years across the three groups. Again, it may be that women who have better relationships with their spouses or who are somewhat more "empowered" tend to join the program when it is offered in their community.

### Status and Social Networks in the Community

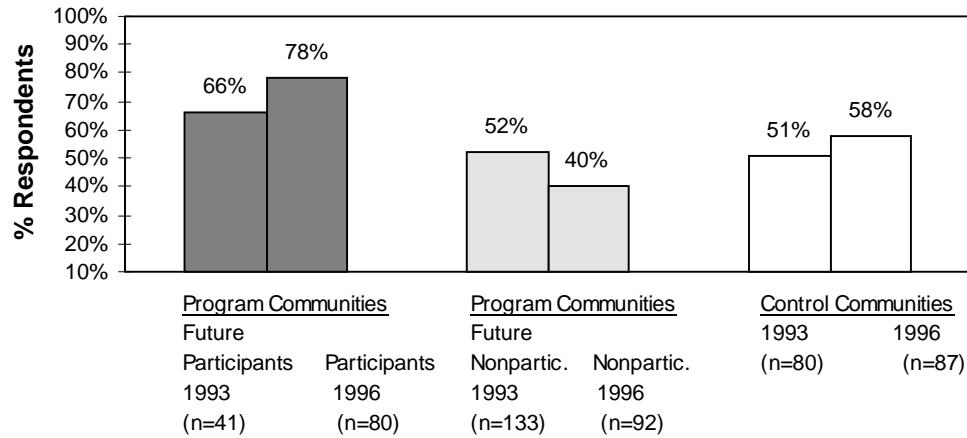
Women's empowerment might also be manifested at the level of the community or in the strength and variety of social networks they maintain beyond their families. Questions to measure these types of social relations were included in both the baseline and follow-up interviews. Women were asked whether 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.

In-depth interviews conducted over the course of the evaluation research also revealed that an important aspect of a woman's (or any adult's) social status in the community related to how active a role she played in attending and contributing to funerals. Questions to measure this aspect of community life were included in the 1996 follow-up survey.

Figures 6.9 through 6.12 present the findings for the three groups for both years. In

**Figure 6.8: Has Discussed With Spouse Ways to Space or Avoid Pregnancies**



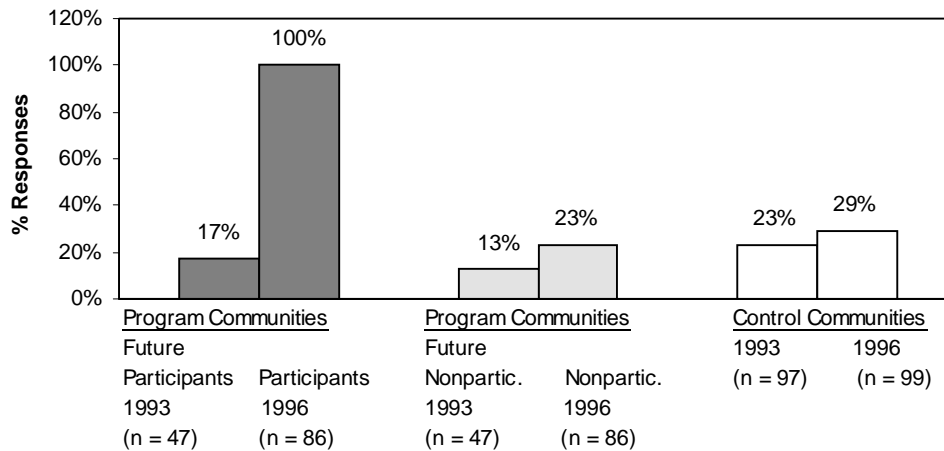
**Comparing 1993 and 1996, by Group**

all cases, there were significant differences in women’s social interactions for participants versus the controls and for participants versus nonparticipants. Not surprisingly, *Credit with Education* participants were significantly more likely to be members of a group than were nonparticipants or residents in control communities. It seems this membership also resulted in their making more “helping” contacts with friends and family. Program participation had a positive and significant impact on whether women offered health/nutrition advice to others. Participants were also more likely to have helped a friend with his/her work or offered advice about income-generating activities. These types of helping

contacts and strengthened social networks can enable the program to have a positive community-wide impact beyond the direct participants alone.

Two additional measures of social status and networks were identified through qualitative research and added to the 1996 follow-up survey. Women explained that an important impact of the program was that it enabled them to participate in and contribute more to funerals. For many ethnic groups in Ghana, including the Fante, considerable social obligation and financial expense are associated with death and funerals. Attending and contributing to the cost of non-kin

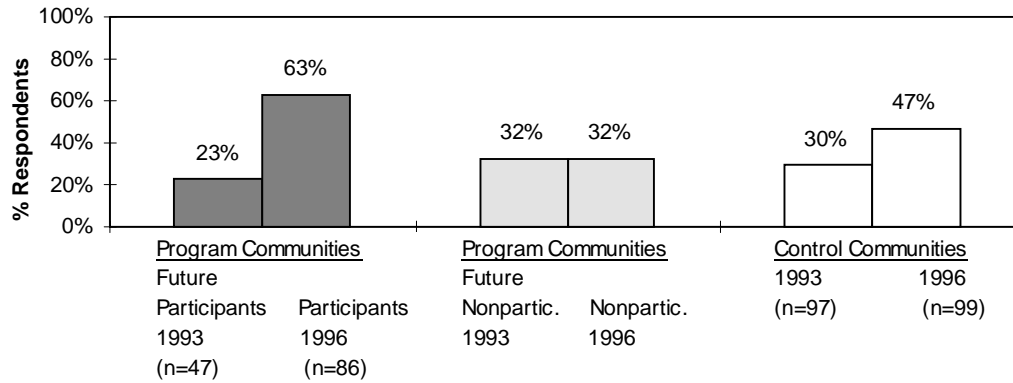
**Figure 6.9: Member of a Group or Association in Last Six Months**



**Comparing 1993 and 1996**

- \*Significant difference for participants versus control group.
- \*Significant difference for participants versus nonparticipants.
- \*No significant difference for nonparticipants versus control group.

**Figure 6.10: Helped Someone With His/Her Work in Last Six Months**



**Comparing 1993 and 1996**

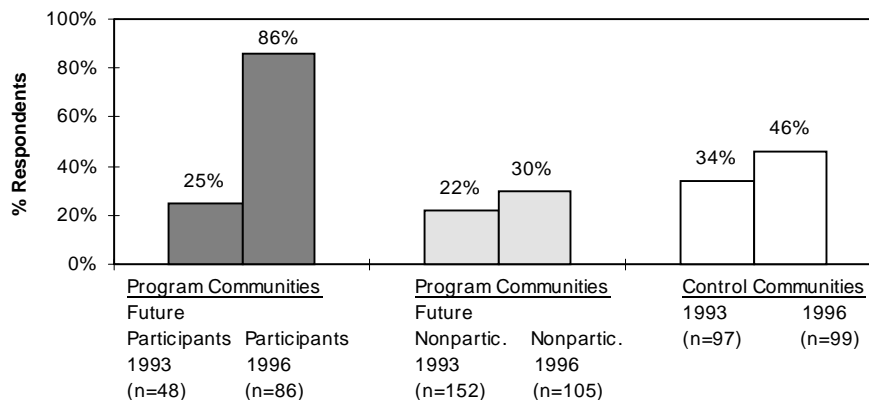
- \*Significant difference for participants versus control group ( $p=.05$ ).
- \*Significant difference for participants versus nonparticipants ( $p<.001$ ).
- \*No significant difference for nonparticipants versus control group.

funerals is important to an individual’s social status and to the status and reputation of an individual’s family. For 1996 respondents, the mean amount of money contributed to non-kin funerals in the last month was significantly higher for participants as compared to nonparticipants or residents in control communities. There were not, however, significant differences among the three groups for the mean number of funerals attended.

An overall score was developed for women’s status and social networks in the community. A respondent could receive a maximum score of six—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) attending more than three funerals in the last month; and (6) contributing more than \$1.66 to non-kin funerals in the last month. For interval variables like the last two, a cutoff point was selected based on the percentage distributions at approximately the 75<sup>th</sup> percentile. A similar approach was also used by the John Snow Inc. Empowerment of Women program in its construction of empowerment scales (Hashemi et al., 1996). The rationale for the cutoff is that women in the top 25% of the range of funeral attendance and contributions stand out as being more “empowered” relative to the other women for these measures. In

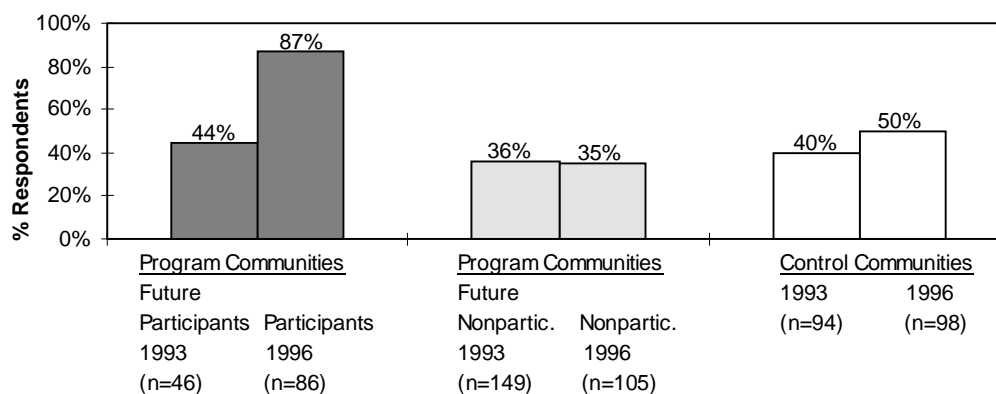
**Figure: 6.11: Gave health or Nutrition Advice in Last Six Months**



**Comparing 1993 and 1996**

- \*Significant difference for participants versus control group ( $p<.001$ )
- \*Significant difference for participants versus nonparticipants ( $p<.001$ )
- \*No significant difference for nonparticipants versus control group.

**Figure 6.12: Gave Business Advice in Last Six Months**



**Comparing 1993 and 1996**

- \*Significant difference for participants versus control group ( $p < .001$ )
- \*Significant difference for participants versus nonparticipants ( $p < .001$ )
- \*No significant difference for nonparticipants versus control group.

1996, participants' mean scores were significantly higher than either nonparticipants or residents in control communities. With a maximum score of six, the mean score for participants was 4.1, for nonparticipants 1.7, and for residents in control communities 2.1.

**Conclusion**

Indicators of women's empowerment were developed to evaluate program impact at three levels. At the individual level, self-reported ratings were used to gauge impact on the woman's self-confidence and optimism about the future.

Participants rated themselves as more confident than the two nonparticipant groups that they would be able to

- ❖ feed their child the good foods they know the child needs;
- ❖ prevent their child from getting diarrhea and other illnesses; and
- ❖ earn more money next year than this year.

However, they were not more confident that they could teach their children to the child's full potential.

At the level of the household, no significant difference between years was evident in participants' bargaining power as compared to the other two groups in decisions regarding a number of household investments—how

much to spend on clothing, medicine, agricultural inputs or fixing the house. However, there was a positive and significant difference in participants' "say" in whether or not children went to school as compared to nonparticipants.

Participants' husbands were more likely to have offered help to their wives with child care and their income-generating activities than nonparticipants' husbands (but no significant difference between participants and residents in control communities). There was no significant difference across the groups in women reporting they had discussed family planning with their husbands.

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

- ❖ be members of a community group beyond their families;
- ❖ help a friend with his/her work;
- ❖ offer health/nutrition advice to others; and
- ❖ offer business advice to others.

Participants were also contributing more money to non-kin funerals, which is important to an individual's social status and to the reputation of one's family.



Using these three aspects of women's empowerment, participants were significantly more "empowered" than the two nonparticipant groups, especially at the individual and community levels. However, it is interesting to note that residents in control communities were more confident and enjoyed relatively greater assistance from their husbands than nonparticipants in program communities. It is possible that the decision of nonparticipants not to join the program in their community reflects an initial lack of self-confidence and greater degree of inequity in marital relations.

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

The primary hypothesis tested by the impact evaluation research conducted in 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**

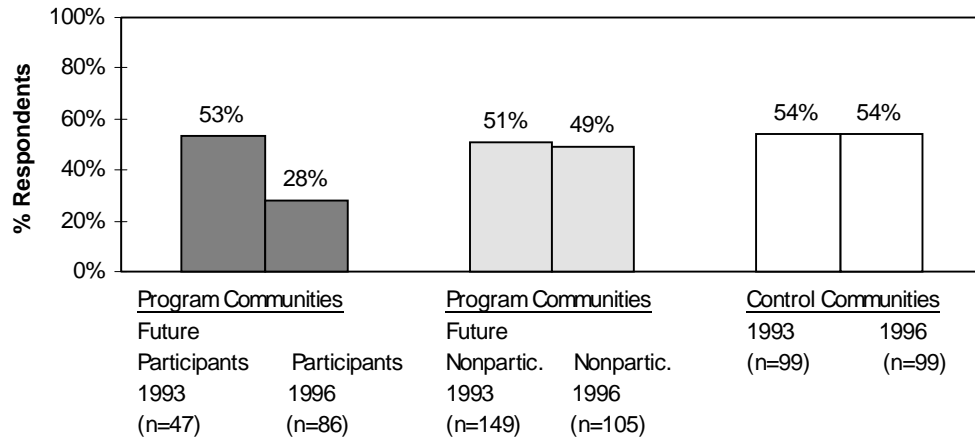
Household food security was measured by whether the respondents' families had experienced a time in the last 12 months when it was necessary to eat less or less well. A pre-harvest "hungry season" is a reality of life throughout much of West Africa. However, because the Lower Pra *Credit with Education* program is situated along the coast, it enjoys major (April-July) and minor (August-September) rainy seasons. For this reason, the dry season is not as long nor is the seasonality of the area as acute as for northern Ghana, which has only a single rainy season. Still, April through June tends to be a period of more prominent food stress in the Lower Pra program area. These months directly precede the July/August harvest, when food stores from the previous year's harvest are dwindling. The major rains can also saturate the soil, spoiling a staple of the local diet, cassava, which is essentially stored in the

ground. In addition, food prices tend to climb, due to 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, how long had this period lasted and how had their households coped.

Figures 7.1 and 7.2 show that the *Credit with Education* program has had a positive and significant impact on household food security. For the participant sample, the percentage of families who had experienced a period when they had to eat less or less well during the preceding 12 months was almost cut in half. However, virtually no change was evident for either nonparticipants in program communities or for residents in control communities. The interaction between year and participant status was significant in comparisons of participants versus controls and participants versus nonparticipants. As fewer participant households experienced a hungry season, the mean duration of this period was also growing shorter for participants—less than one month in 1996 compared to a mean of almost two months for residents in control communities. Again, the significant interaction indicated a positive and significant impact of the program in shortening the duration of the hungry season.

The coping strategies for dealing with the hungry season were similar across all groups (see Table 7.3). However, participants (5%) were less likely to have borrowed money at no cost from family or friends as compared to nonparticipants (22%) and residents in control communities (24%). It is a strong indication of the importance of informal lending for coping with food insecurity that almost a quarter of both nonparticipant groups had borrowed at no cost from family or friends in the last year. Six percent (6%) of respondents in control communities and 3% of nonparticipants had also taken informal loans that did have a cost. Most of these loans ranged from 10,000 to 60,000 cedis (approximately \$6 to \$35 at the September 1996 exchange rate). Typically, a flat rate of approximately 20% to 50% of the loan amount was charged.

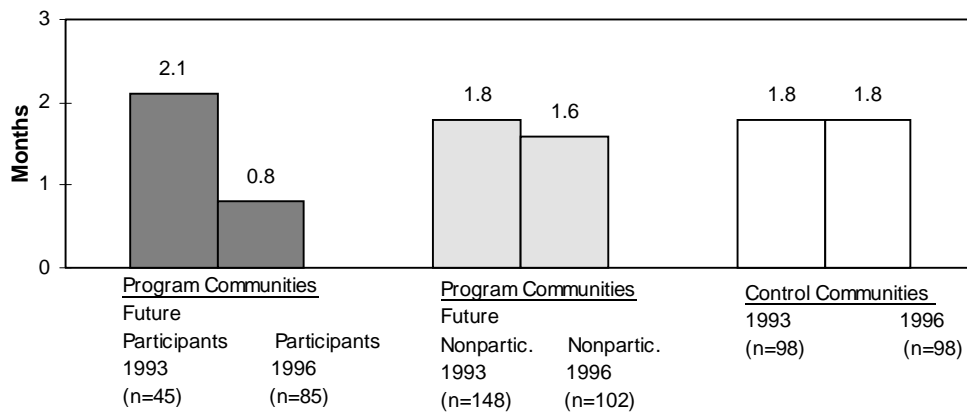
**Figure 7.1: Percentage Whose Family Experiences a Hungry Season**



**Comparing 1993 and 1996**

- \*Significant difference between years for participants versus controls ( $p=.02$ ).
- \*Significant difference between years for participants versus nonparticipants ( $p=.03$ ).
- \*No significant difference for nonparticipants versus controls.

**Figure 7.2: Mean Length of “Hungry Season”**



**Comparing 1993 and 1996**

- \*Significant difference between years for participants versus control communities ( $p=.02$ ).
- \*Significant difference between years for participants versus nonparticipants ( $p=.04$ ).
- \*No significant difference for nonparticipants versus control communities.

Households that had experienced a “hungry season” typically ate less fufu (a starchy staple made from cassava, often with some yam, plantain or cocoyam added), rice and meat but more gari (dried, processed cassava), cassava or kenkey. In part, these dietary changes reflect a shift to nutritionally inferior, less expensive foods (more gari/cassava and less rice/meat). These changes also most likely reflect reduced availability of fresh cassava for preferred staple dishes like

fufu, since many women reported that the heavy rains “spoiled” cassava that was still in the ground.

While none of the *Credit with Education* participants was compelled to sell assets to deal with food insecurity, this was unfortunately not the case for 6% of the nonparticipants and 8% of the residents in control communities. Some of these assets might be considered illiquid savings (jewelry and clothing);

**Table 7.3: Coping Strategies Used by Households Reporting a “Hungry Season”**

Coping Strategies	Participants N=86	Nonparticipants N=105	Residents of Control Communities N=99
Borrowed money at no cost from family or friends	4 (5%)	23 (22%)	24 (24%)
Borrowed money at cost	5 (6%) (3 referred to Lower Pra or <i>Credit with Education</i> )	3 (3%)	6 (6%)
Ate less of certain foods			
• less fufu	4 (5%)	15 (14%)	10 (10%)
• less rice	2 (2%)	13 (12%)	10 (10%)
• less meat	5 (6%)	1 (1%)	3 (3%)
Ate more of certain foods			
• more gari	3 (4%)	12 (11%)	10 (10%)
• more cassava	3 (4%)	7 (7%)	3 (3%)
• more kenkey	4 (5%)	2 (2%)	7 (7%)
Sold property (clothing, jewelry, land, animals)	-----	6 (6%)	8 (8%)
Hired self out to work as wage laborer	-----	-----	3 (3%)
Left area or sent children away	-----	-----	2 (2%)

however, others were productive assets (land and chickens) the selling of which undermines the long-term food and livelihood security of the family. While it is not evident from this survey question, *Credit with Education* participants also reported using the cash savings they deposit with the program to buy food and other basic necessities as needed.

### Children’s Nutritional Status

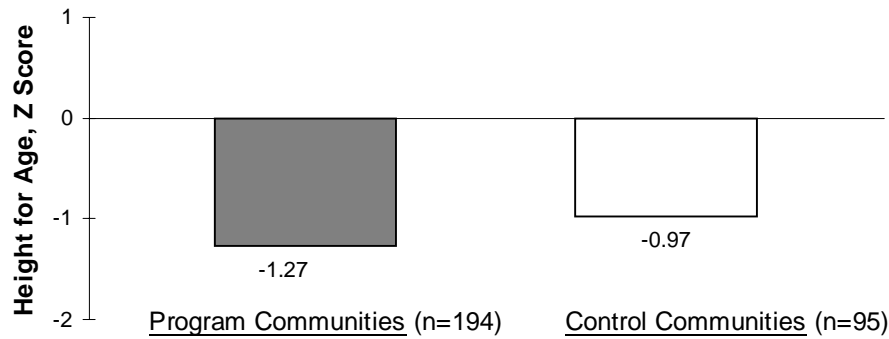
To evaluate program impact on nutritional status, children’s heights and weights were measured in the 1993 baseline and 1996 follow-up periods. These measurements were converted into height-for-age (HAZ) and weight-for-age (WAZ) z-scores using National Center for Health Statistics (NCHS) reference data with the Centers for Disease Control statistical software Epi-Info. 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 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 standard deviation above or below the NCHS median. 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.”

In 1993 the nutritional status of children from the communities randomly assigned to the control group was actually significantly better than those communities assigned to receive the program. Figure 7.4 shows that the mean HAZ for the one-year-old children included in the baseline sample was -1.27 in the program communities but -.97 in the control communities. (Twins, who are systematically smaller, were excluded from this analysis, as were three HAZ values of less

Figure 7.4: Children’s Nutritional Status—1993 Baseline Height-for-Age Z-Score (12-24 Months)



\*Significant difference  $p=.03$

than -5, as these values indicated an error in either the age or height measure.)

After the program was implemented, the nutritional status of participants’ children showed significant and positive change as compared to children in the control communities. (For comparability to the 1993 baseline sample, the 1996 sample was limited to only those children 12 to 24 months of age.) Figure 7.5 shows that the mean HAZ for one-year-olds was 0.33 greater for 1996 participants than for future participants measured in 1993. The mean HAZ for one-year-olds dropped by 0.2 in control communities between the 1993 and 1996 periods. When controlling for children’s age and maternal height, there was a significant interaction between year and participant status when comparing participants and controls. There was not a significant difference between participants versus nonparticipants or nonparticipants versus residents in control communities.

The same significant and positive interaction effect was found by similar analysis of the one-year-olds’ mean weight-for-age (WAZ) z-scores. Figure 7.6 shows that the mean WAZ indicates a positive difference of 0.2 between the years for the participant sample but a negative difference of 0.3 for nonparticipants and 0.2 for controls. Again, when controlling for mother’s height, child’s age and square of child’s age, there is a significant difference for participants versus controls ( $p=.04$ ) but not for participants versus nonparticipants. (Twins and a single WAZ mea-

sure of less than -5 were excluded from this analysis.)

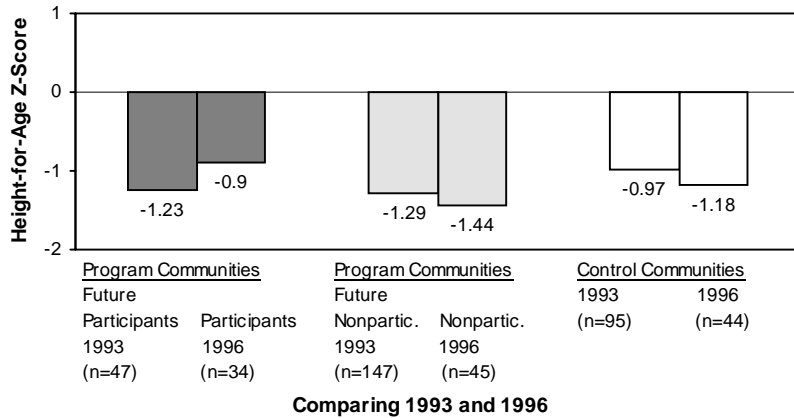
Weight-for-age measures are often referred to as measures of short-term or acute malnutrition, because a child’s weight can fluctuate more dramatically than his/her height in a relatively short period of time. For the same reason, height-for-age measures are said to better capture longer-term or chronic malnutrition. Figures 7.4 and 7.5 indicate that *Credit with Education* had positive and significant impact on the chronic and acute malnutrition of participants’ one-year-old children.

A similar, although statistically insignificant pattern effect was found on the prevalence of chronic and acute malnutrition. Figure 7.7 shows the percentage of children having HAZ of less than -2 and subsequently categorized as “malnourished.” Although fewer of the participants’ children (15%) are malnourished in 1996 relative to the children of nonparticipants (20%) or residents in control communities (23%), the difference between years is not significant across the groups. There is also no significant difference in the prevalence of acute malnutrition—as measured by a WAZ less than -2—across the groups (see Figure 7.8).

### 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 for her height. A BMI be-

**Figure 7.5: Children's Nutritional Status—Height-for-Age**



\*Significant difference for participants versus control group, controlling for mother's height, child's age, and square of child's age ( $p = .01$ ).

\*No significant difference for participants versus nonparticipants.

\*No significant difference for nonparticipants versus control group.

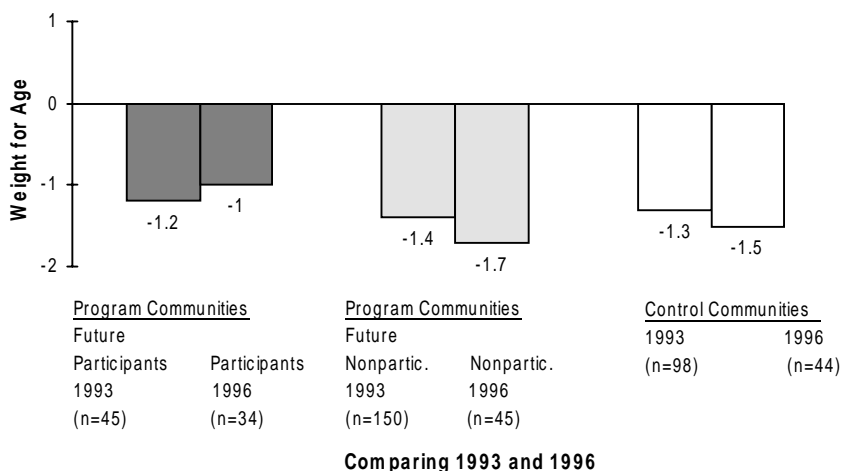
low 18.5 indicates moderate thinness and possible malnutrition. Figure 7.9 shows that the mean BMI for the participant and control groups was slightly higher in the follow-up period relative to the baseline, while slightly lower for the nonparticipant group. However, the interaction between year and participant status was not significant, indicating no positive impact on maternal nutrition when comparing the participant and control samples or the participant and non-participant samples. Applying the cutoff of 18.5, the prevalence of "moderate thinness"

was analyzed across the three groups for both time periods. There is no significant difference in the prevalence of maternal malnutrition between the years comparing any of the three groups: participants versus non-participants, participants versus residents of control communities or nonparticipants versus residents.

### Conclusion

In terms of *Credit with Education's* ultimate goals, the evaluation research provides evi-

**Figure 7.6: Children's Nutritional Status—Weight-for-Age**

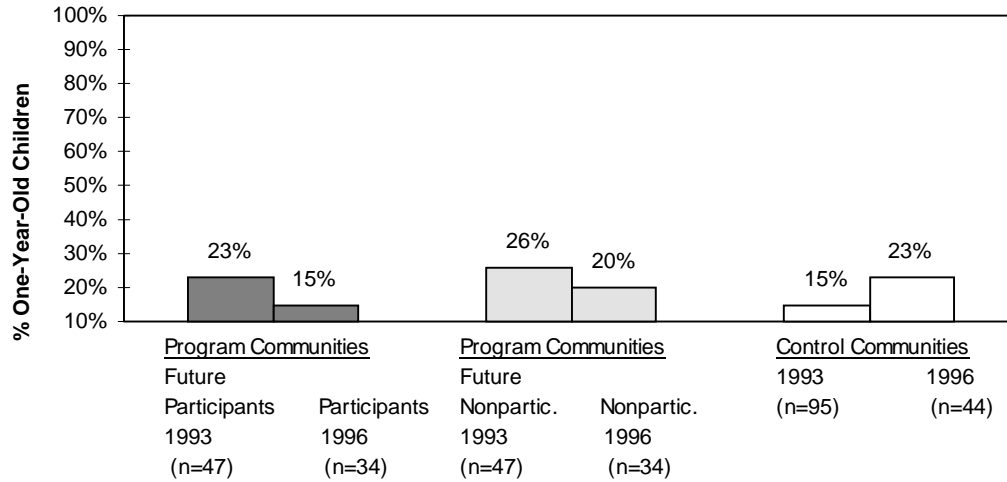


\*Significant difference between years for participants versus control group ( $p=.04$ ), controlling for mother's height, child's age, and square of child's age.

\*No significant difference between years for participants versus nonparticipants.

\*No significant difference between years for nonparticipants versus control group.

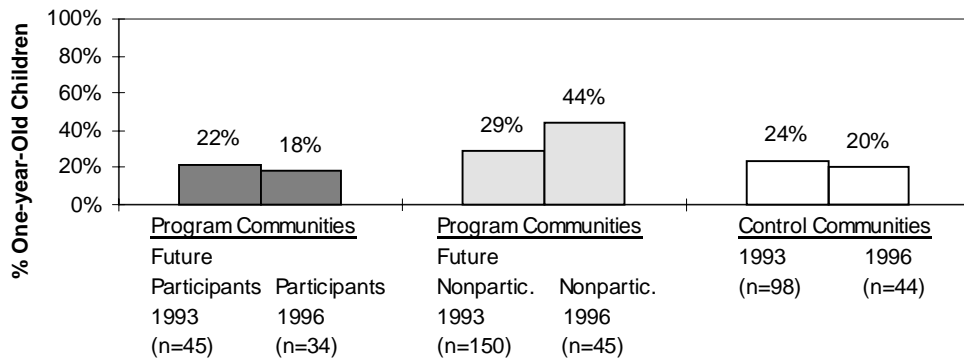
**Figure 7.7: Percentage of One-Year-Olds Moderately to Severly Malnourished—HAZ<-2 SD**



**Comparing 1993 and 1996**

\*No significant difference for participants versus controls, for participants versus nonparticipants or for nonparticipants versus controls.

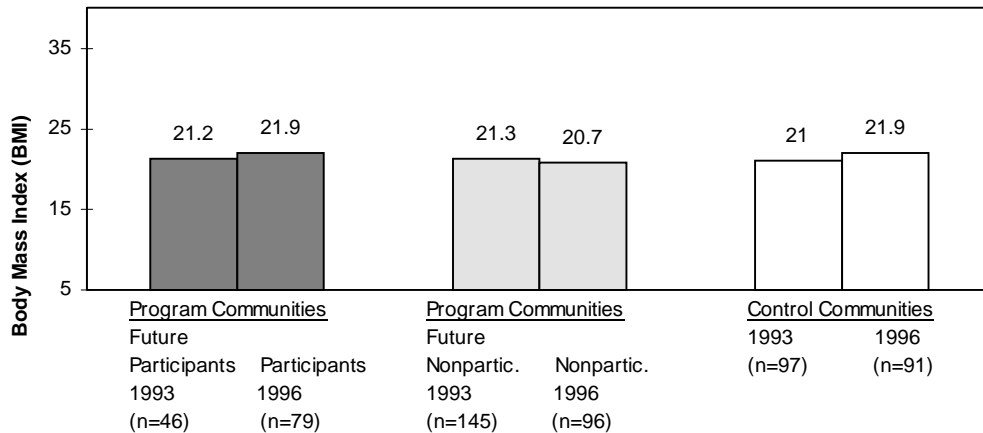
**Figure 7.8: Percentage of One-Year-Olds Moderately to Severly Malnourished—WAZ<-2 SD**



**Comparing 1993 and 1996**

\*No significant difference for participants versus controls, for participants versus nonparticipants or for nonparticipants versus controls.

**Figure 7.9: Women’s Nutritional Status—Body Mass Index (BMI)**



**Comparing 1993 and 1996**

\*Significant difference between years for nonparticipants versus control group.

dence of improved household food security and nutritional status for children of mothers participating in the program. Participant households exhibited a reduced vulnerability to the “hungry season” relative to the baseline period and as compared to the two nonparticipant samples. The nutritional status of participants’ children—both in terms of acute (WAZ) and long-term measures (HAZ)—was also positively and significantly different compared to the baseline period relative to the nonparticipants and residents in control communities.

A similar, positive effect was not found for maternal nutritional status. Three factors are likely to explain this lack of positive impact: (1) maternal malnutrition, or moderate to greater thinness, was not prevalent in the program area—only 13% of the mothers measured for the baseline had BMI below the cutoff; (2) the program’s education component does not emphasize maternal nutrition, with the exception of diet during pregnancy and when lactating; and (3) the program’s credit component and subsequent expansion of loan-financed activities has an indeterminate net effect on women’s workload and caloric expenditure.

## RÉSUMÉ ANALYTIQUE

Depuis 1989 Freedom from Hunger travaille avec des partenaires locaux afin de développer et de disséminer une stratégie de programme intégré rentable nommé le *Crédit avec Education*, dans le but d'améliorer la situation nutritionnelle et la sécurité alimentaire de foyers pauvres dans les régions rurales d'Afrique, d'Amérique Latine et d'Asie. En collaboration avec le Programme de Nutrition Internationale de l'Université de Californie à Davis, Freedom from Hunger a entrepris une étude de plusieurs années dans des zones de programmes du *Crédit avec Education* en Bolivie et au Ghana. Le soutien financier pour cette recherche en collaboration est venu d'une Subvention à l'Innovation du Trasher Research Fund, avec un financement supplémentaire de la Division Nutrition de l'UNICEF/New York.

La recherche d'évaluation a eu pour but de tester des hypothèses concernant l'impact positif du programme sur la situation nutritionnelle des enfants, sur la capacité économique de leurs mères, sur la prise en charge des femmes et sur l'adoption par les mères de mesures de santé et d'alimentation essentielles à la survie de leurs enfants.

Ce rapport présente les résultats d'une recherche d'évaluation menée dans la région du programme du *Crédit avec Education* de la Banque Rurale du Lower-Pra sur la côte du Ghana. Deux séries importantes d'enquêtes et de collectes de données anthropométriques (tailles et poids) furent menées – une enquête de base en 1993 et un suivi en 1996 – avec des paires mère/enfant différentes à chaque période. Une méthode quasi-expérimentale fut adoptée au niveau communautaire afin de minimiser les distorsions possibles. Après la collecte des données de base, 19 communautés étudiées furent placées soit dans le groupe "programme" soit dans le groupe "témoin," ce dernier ne devant bénéficier de *Crédit avec Education* qu'après l'achèvement de la recherche d'évaluation.

Trois groupes échantillon de femmes avec des enfants de moins de trois ans firent partie de la recherche de suivi: (1) des participantes du programme du *Crédit avec Education*

depuis au moins un an, (2) des non-participantes habitant des communautés bénéficiant du programme, (3) des habitantes des communautés-témoin ne bénéficiant pas du programme pour la durée de l'étude. Les femmes des deux groupes ne participant pas furent choisies au hasard parmi des listes complètes de toutes les femmes avec des enfants de moins de trois ans.

Pour évaluer l'impact du programme, on compare les différences entre les réponses et les mesures des deux séries de collectes de données (1993 et 1996) pour les participantes au programme, par rapport aux non-participantes des communautés bénéficiant du programme, et aux habitantes des communautés-témoin. Les deux séries de collectes de données ont utilisé des groupes de femmes différents, car peu de femmes avaient des enfants qui avaient moins de trois ans dans ces deux années (1993 et 1996). Les femmes ayant répondu à l'enquête de base dans les communautés bénéficiant du programme furent par la suite reclassifiées selon le critère suivant: si elles avaient fini par adhérer au programme une fois qu'il avait été offert dans leurs communautés. Par conséquent, les femmes ayant répondu à l'enquête de base dans les communautés bénéficiant du programme sont classifiées soit comme "futures participantes" soit comme "futures non-participantes." En comparant les mesures de base 1993 des "futures participantes" aux participantes réelles en 1996, on peut mieux attribuer la différence entre les années à l'impact du programme et non aux différences inhérentes entre les femmes qui décident elles-mêmes d'adhérer au programme du *Crédit avec Education* et celles qui ne le font pas.

Il n'y avait pas de différence statistiquement significative dans le statut socio-économique des foyers (en utilisant le critère des biens de consommation) ou l'éducation et l'alphabétisation des femmes entre les trois groupes-échantillon, et ce pour les deux années. Cependant, les participantes dans la



période de suivi étaient nettement plus âgées, avaient plus d'enfants et avaient plus tendance à avoir participé à une entreprise non-agricole que ne l'avaient fait les non-participantes ou les habitantes des communautés-témoin.

### **Impact sur la Capacité Economique des Femmes**

La grande majorité des participantes de 1996 (90%) ont pensé que leurs revenus avaient "augmenté" ou "beaucoup augmenté" depuis qu'elles avaient adhéré au programme du Crédit avec Education. La plupart du temps, les participantes ont attribué cette amélioration au développement de leurs entreprises, à la réduction du coût des intrants du fait d'acheter en gros ou de payer comptant, et aux nouvelles activités et aux nouveaux produits facilités par l'accès au crédit. De 1993 à 1996, il y eut une augmentation des revenus mensuels non-agricoles nettement supérieure pour les participantes par rapport aux non-participantes et aux habitantes des communautés-témoin. L'augmentation de revenu mensuel non-agricole net (revenu moins coûts) fut de 36\$ pour les participantes, de 18\$ pour les non-participantes et de 17\$ pour les habitantes des communautés-témoin.

Bien que les participantes de 1996 aient dans l'ensemble démontré une amélioration de revenus non-agricoles nettement supérieure, il y avait des variations considérables de profits mensuels. Quelques participantes avaient des revenus d'entreprise mensuels nets de 200\$ ou 300\$, mais 10% avaient des revenus nets inférieurs ou égaux à 10\$. La variété d'impact sur les revenus était visible même au sein de chaque Association de Crédit: certaines femmes ont eu une amélioration considérable de leurs activités économiques, tandis que d'autres n'ont vu que peu de changement. Une meilleure compréhension des facteurs qui permettent à certaines femmes d'avoir relativement plus de succès – des traits personnels, du talent d'entrepreneur, des activités de prêt ou des conditions de prêt spécifiques – pourrait engendrer des changements dans l'exécution du programme, telle l'incorporation

d'éducation de base pour la gestion d'entreprise, ce qui pourrait augmenter l'impact économique pour les emprunteuses qui ont moins de réussite.

Plusieurs faits démontrent que le programme favorisait les talents d'entrepreneur des participantes. De 1993 à 1996, les participantes étaient beaucoup plus susceptibles de prendre demande et rentabilité en compte quand elles sélectionnaient des activités générant un revenu. Il y avait aussi une différence importante entre les participantes et les "témoins", et entre les participantes et les non-participantes, dans le pourcentage ayant de l'épargne et la valeur de l'épargne liquide entre les deux années.

Bien que les revenus non-agricoles aient augmenté, l'estimation de la part de leur contribution dans le revenu total du ménage était la même pour les participantes et les deux groupes de non-participantes. Il y avait aussi peu de différences importantes entre les groupes en ce qui concerne les changements de dépenses du foyer pour la nourriture, l'habillement, la santé, les frais scolaires, la réparation du logement ou les actifs de l'entreprise. Il est possible que la substitution de responsabilité pour l'achat de nourriture dans les foyers participants amoindrisse l'impact du programme sur les dépenses de nourriture par personne.

### *Impact sur les pratiques de Santé et d'Alimentation des Mères*

Parmi les femmes qui avaient plus d'un enfant, les participantes de 1996 ont eu plus tendance à signaler un changement positif dans la manière qu'elles allaitaient ou nourrissaient leurs jeunes enfants inclus dans l'étude, que ne le faisaient les non-participantes ou les habitantes des communautés-témoin.

Par rapport aux non-participantes et aux habitantes des communautés-témoin, les participantes ont signalé des changements positifs beaucoup plus importants dans un nombre de mesures de santé et d'alimentation que le programme du Crédit avec Education encourage:

- ❖ Donner aux nouveaux-nés le premier lait riche en anticorps (colostrum).
- ❖ Introduire des liquides et des premiers aliments (en plus du lait maternel) plus près de l'âge d'idéal d'à peu près six mois.
- ❖ Ne pas utiliser de biberons.
- ❖ Enrichir l'aliment complémentaire traditionnel, le koko, avec de l'haricot ou du dolique, de l'œuf, du poisson, de l'arachide, du lait et de l'huile de palme.
- ❖ Enrichir Weanimix (un aliment complémentaire promu et distribué par le Ministère de la Santé) avec du poisson en poudre.
- ❖ Réhydrater les enfants qui ont eu la diarrhée en leur donnant soit du SRO (fait à partir des paquets) soit des liquides faits à la maison (par exemple du thé ou de l'eau de riz).
- ❖ Ne pas "soigner" les enfants qui ont eu la diarrhée en leur faisant des lavements.
- ❖ Connaître les moyens de prévenir contre la diarrhée, par exemple "couvrir la nourriture pour éviter les mouches" et "garder la nourriture propre."

Bien qu'elles soient occupées avec leurs activités financées par des prêts, les participantes n'ont pas sevré leurs enfants plus tôt que ne l'ont fait les non-participantes et allaitaient leurs enfants jusque dans la deuxième année tout autant que les non-participantes.

Cependant, on ne trouva aucune différence statistiquement significative dans les domaines suivants, ce qui indique le besoin d'avoir davantage d'éducation informelle dans ces sujets:

- ❖ D'autres mesures de prévention de diarrhée encouragées par le programme, par exemple se laver les mains, réchauffer la nourriture cuite avant de la servir/ne pas conserver de la nourriture cuite trop longtemps avant de la servir, et utiliser de l'eau propre.
- ❖ Limiter et refuser de la nourriture aux enfants qui ont la diarrhée, comme le

signalaient la majorité des femmes dans chacun des trois groupes.

- ❖ Couverture d'immunisation.

Par rapport aux enfants des deux groupes non-participants, les enfants des participantes ont également vu une amélioration beaucoup plus importante dans la fréquence d'alimentation, avec une différence assez petite dans la consommation d'œuf, de viande ou de poisson.

### **Impact sur la Prise en charge des Femmes**

Des outils indicateurs de la prise en charge des femmes furent mis au point pour évaluer l'impact du programme sur la confiance qu'ont en elles-mêmes les femmes, ainsi que leur vision du futur, leur situation et leur poids dans les décisions au sein du ménage, et leur situation et leurs réseaux dans la communauté.

Par rapport à ce qu'ont dit les deux groupes ne participant pas, les participantes de 1996 ont jugé qu'elles seraient beaucoup plus aptes à:

- ❖ Donner à leurs enfants la bonne nourriture dont elles savent qu'ils ont besoin.
- ❖ Eviter à leurs enfants d'avoir la diarrhée et d'autres maladies.
- ❖ Gagner plus d'argent l'année prochaine que cette année.

Par contre, elles n'avaient pas plus de confiance dans le fait qu'elles pourraient éduquer leurs enfants au plein du potentiel de ceux-ci.

Au niveau du foyer, le pouvoir qu'avaient les participantes dans les décisions ne s'est pas sensiblement amélioré plus que celui des deux autres groupes, dans les décisions concernant un certain nombre d'investissements ménagers, par exemple combien dépenser sur l'habillement, les médicaments, les intrants agricoles, ou la réparation de la maison. Toutefois, il y eut une amélioration importante par rapport aux non-participantes en ce concerne la "voix" des

participantes dans la décision d'envoyer les enfants à l'école, et une différence assez petite par rapport aux habitantes des communautés-témoin.

Il y avait une chance beaucoup plus grande que les maris des participantes aient proposé de les aider avec leurs enfants et avec leurs activités génératrices de revenu dans les six derniers mois par rapport aux maris des non-participantes; cependant il n'y avait pas de différence significative parmi les groupes en ce qui concerne les femmes signalant qu'elles avaient parlé de planification familiale avec leurs maris.

Au niveau de la communauté, il semble que le programme ait augmenté la participation des femmes dans la communauté et leurs contacts d'aide avec leurs familles et leurs amis. Il y avait des changements beaucoup plus importants de 1993 à 1996 pour les participantes que pour les deux groupes de non-participantes, dans le sens où les participantes avaient plus tendance à:

- ❖ Appartenir à un groupe dans la communauté au-delà de leur famille.
- ❖ Avoir aidé un(e) ami(e) avec son travail.
- ❖ Avoir donné des conseils de santé ou d'alimentation à d'autres.
- ❖ Avoir donné des conseils d'affaires à d'autres.

Les participantes avaient aussi contribué plus d'argent pour les enterrements des personnes non-apparentées, ce qui contribue au standing individuel et à la réputation de sa propre famille.

Quand nous examinons ces trois aspects de la prise en charge des femmes, nous voyons que les participantes étaient beaucoup plus "puissantes" que les deux groupes ne participant pas au programme, surtout au niveau individuel et au niveau communautaire. Toutefois, il est intéressant de noter que les habitantes des communautés-témoin étaient plus confiantes et se faisaient aider par leurs maris plus que les non-participantes des communautés bénéficiant du programme. Il est possible que la décision des non-

participantes de ne pas adhérer au programme dans leur communauté traduise un manque initial de confiance en soi et une plus grande inégalité dans les rapports conjugaux.

### L'impact sur les Buts Finaux—la Situation **Nutritionnelle et la Sécurité Alimentaire**

Par rapport aux deux groupes ne participant pas au programme, les foyers participants ont signalé une vulnérabilité moindre à la "période de soudure" que dans la période de base. La situation nutritionnelle des enfants des participantes âgés d'un an s'était également beaucoup améliorée de 1993 à 1996 par rapport aux enfants des habitantes des communautés-témoin – à la fois pour les mesures poids-par-âge et les mesures taille-par-âge. Par exemple, l'indice "z" taille-par-âge (ZTA) moyen des enfants d'un an des participantes était presque 0,3 de plus que le ZTA (année de base) des enfants d'un an des futures participantes. Le ZTA moyen des enfants dans les communautés-témoin était inférieur de 0,2 pour la même période. On ne trouva pas d'effet positif comparable pour la situation nutritionnelle des mères, si on prend pour référence l'Indice de Masse Corporelle (IMC) des femmes.

### *Conclusions*

La recherche sur l'évaluation d'impact au Ghana démontre que des services de crédit et d'éducation, quand ils sont apportés conjointement à des groupes de femmes, peuvent augmenter le revenu et l'épargne, améliorer le savoir et la pratique de santé et d'alimentation, donner du pouvoir aux femmes, et finalement améliorer la sécurité alimentaire des foyers et la situation nutritionnelle des enfants. Nous prévoyons une analyse plus avancée afin d'examiner le rapport entre les différents impact intermédiaires et leurs contributions respectives à la meilleure situation nutritionnelle de leurs enfants.

Bien que ce n'ait pas été une priorité de la recherche d'impact, il est également important de noter la performance du programme

en termes de pérennisation financière. Durant la période de six mois d'octobre 1996 à mars 1997, le programme avait un ratio d'autosuffisance de 81%, ce qui signifie que les intérêts payés par les emprunteuses ont couvert 81% des coûts qu'encourt la Banque Rurale du Lower-Pra pour livrer crédit et éducation. Cela couvre tous les frais d'exploitation y compris les frais financiers tel l'intérêt sur la dette, mais pas les réserves pour pertes de prêts. Bien que la pérennisation financière ne soit pas complète, cela représente un niveau de recouvrement des frais bien supérieur à ceux de la plupart des interventions visant à générer un revenu, et en tous cas supérieur à ceux de programmes d'éducation de santé et d'éducation traditionnels. La combinaison d'impact positif et de pérennisation financière fait de Crédit avec Education une stratégie avec un potentiel attrayant pour avoir un impact important et viable à long terme sur la nutrition et la sécurité alimentaire.

## RESUMEN EXECUTIVO

Desde 1989 Freedom from Hunger ha trabajado con socios locales para desarrollar y diseminar una estrategia integrada y de bajo costo, del programa Crédito con Educación, con la meta de mejorar el estado nutritivo y la seguridad alimenticia de los hogares pobres en las áreas rurales de Africa, América Latina y Asia. En colaboración con el Programa de Nutrición Internacional de la Universidad de California en Davis, Freedom from Hunger emprendió un estudio de varios años en los sitios del programa de Crédito con Educación en Bolivia y Ghana. El apoyo financiero para esta investigación cooperativa se consiguió a través de una Subvención de Innovaciones (Innovations Grant) del Thrasher Research Fund, con fondos adicionales de la División de Nutrición de UNICEF/Nueva York.

El trabajo de evaluación fue diseñado para poner a prueba ciertas hipótesis del impacto positivo del programa sobre el estado nutritivo de los niños, la capacidad económica de sus madres, el apoderamiento de la mujeres y la adopción por las madres de prácticas claves de salud y nutrición para la supervivencia de sus niños.

Este informe representa los resultados del estudio de impacto llevado a cabo en el Banco Rural de Lower Pra, en el área del programa de Crédito con Educación en la zona costera de Ghana. La encuesta y la colección de datos antropomórficos (estatura y peso) se hicieron en dos etapas—una encuesta básica en 1993 y otra en 1996 para dar seguimiento—con diferentes parejas de madre/niño participando en las dos etapas. Un diseño cuasi-experimental se aplicó al nivel de la comunidad para minimizar cualquier prejuicio posible. Después de la colección de datos para la línea de base, 19 comunidades del estudio fueron asignadas al grupo de “programa” u otro de “control,” y este último grupo no recibió Crédito con Educación hasta después de terminar el estudio de evaluación.

Tres grupos de muestra de mujeres con niños menores de tres años fueron incluidos en la

investigación de seguimiento: (1) participantes que llevaban por lo menos un año con el programa de Crédito con Educación, (2) no-participantes en las comunidades del programa, y (3) residentes de las comunidades de control seleccionadas para no recibir el programa por el período del estudio. Las mujeres para los dos grupos de no-participantes fueron seleccionadas aleatoriamente de listas exhaustivas de todas las mujeres con niños menores de tres años.

El impacto del programa se evalúa al estudiar las diferencias entre las respuestas y mediciones en las dos etapas de colección de datos (1993 y 1996) para las participantes del programa en comparación con las no-participantes en las comunidades del programa y las residentes de comunidades de control. Diferentes grupos de mujeres fueron incluidos en las dos etapas de colección de datos, porque pocas mujeres tenían niños menores de tres años en ambas etapas de 1993 y 1996. Las que respondieron a la encuesta básica en las comunidades del programa fueron re-clasificadas después según su decisión de unirse o no con el programa cuando fue ofrecido en su comunidad. Por consiguiente, las que respondieron a la encuesta básica en las comunidades del estudio que recibieron el programa son clasificadas como “participantes futuras” o “no-participantes futuras.” Cuando se compara los datos básicos de las “participantes futuras” con los datos de las participantes reales en 1996, es más fácil atribuir las diferencias entre las dos etapas al impacto del programa y no a las diferencias inherentes entre las mujeres que deciden unirse al programa de Crédito con Educación y las que deciden no unirse.

No había ninguna diferencia con significación estadística en el estado socioeconómico de los hogares (según la medida de bienes de consumo) ni en la educación y la capacidad de leer de las mujeres entre los tres grupos de muestra de las dos etapas. Sin embargo, las participantes en la etapa de seguimiento fueron bastante mayores, tenían más niños, y tenían más probabilidad de haber participado recientemente en una empresa

no-agrícola, que las no-participantes o residentes en las comunidades de control.

### **Impacto en la capacidad económica de mujeres**

La gran mayoría de las participantes de 1996 (90%), creía que sus ingresos habían “aumentado” o “aumentado mucho” desde que se había unido al programa de Crédito con Educación. La mayoría de las participantes atribuye esta mejora a la expansión de sus empresas, la reducción de los costos de inversión como resultado de haber comprado en volúmenes mayores o con efectivo, y nuevas actividades y productos que el acceso a crédito hizo posible. Había un aumento significativamente mayor entre las etapas de los ingresos mensuales no-agrícolas de las participantes en comparación con las no-participantes y las residentes de las comunidades de control. El aumento en los ingresos netos mensuales no-agrícolas (ingresos menos costos) fue de \$36 para las participantes, \$18 para no-participantes y \$17 para residentes en las comunidades de control.

Mientras las participantes de 1996 en general mostraron una mejora significativamente mayor en sus ingresos no-agrícolas, había una escala amplia de diversidad entre las ganancias mensuales. Algunas participantes tenían ingresos mensuales de su empresa que llegaron a una suma entre \$200 a \$300 mensuales, pero 10% tenían un ingreso neto de \$10 o menos. La diversidad del impacto sobre los ingresos apareció aun dentro del mismo Banco Comunal, con algunas mujeres gozando de una mejora considerable en sus actividades económicas y otras sin experimentar mucho cambio. Un mejor entendimiento de los factores que permiten algunas mujeres tener relativamente más éxito—sus características individuales, su habilidad empresarial, sus actividades específicas de crédito o los términos del préstamo del programa—podrían estimular cambios en la implementación del programa para aumentar los impactos económicos en las prestatarias con menos éxito, como por ejemplo la incorporación de una educación básica sobre la administración de empresas.

Había evidencia que el programa estaba promoviendo las habilidades empresariales de las participantes. Entre las dos etapas del estudio, las participantes tenían una probabilidad significativamente mayor de considerar la demanda y rentabilidad al momento de tomar decisiones sobre sus actividades generadoras de ingresos. También había una diferencia significativa en el porcentaje que tenía ahorros y el valor de los ahorros en efectivo entre las etapas para las participantes, en comparación con los grupos de control y entre participantes y no-participantes.

Aunque los ingresos no-agrícolas habían aumentado, no había un cambio significativo en la auto-evaluación de las participantes sobre su contribución relativa al ingreso total de sus hogares en comparación con los dos grupos de no-participantes. También había pocas diferencias significativas entre los grupos en cuanto a los gastos del hogar para comida, ropa, medicina, gastos de escuela, reparación de la casa y activos empresariales. Es posible que la sustitución de responsabilidad para la compra de comida dentro de los hogares de las participantes esté minando el impacto en los gastos per capita en comida.

### **El impacto en las prácticas de salud/nutrición de las madres**

Entre las mujeres con más de un niño, las participantes en el estudio de 1996 tenían una probabilidad significativamente mayor de reportar un cambio positivo en cómo amamantaron o alimentaron a sus niños menores incluidos en el estudio, que las no-participantes o residentes en las comunidades de control.

En relación con no-participantes y/o residentes en las comunidades de control, las participantes reportaron un cambio positivo significativamente mayor en una variedad de prácticas de salud/nutrición promovidas por el programa de Crédito con Educación:

- ❖ Dar a los niños recién nacidos la primera leche, rica en anticuerpos (calostro).

- ❖ Introducir líquidos y las primeras comidas (además de la leche materna) más cerca de la edad ideal de aproximadamente seis meses.
- ❖ No usar teteros/biberones.
- ❖ Enriquecer la comida complementaria tradicional, koko, con frijol/frijol de maíz, huevos, pescado, maní, leche y aceite de palma.
- ❖ Enriquecer el Weanimix (una comida complementaria promovida y distribuida por el Ministerio de Salud) con polvo de pescado.
- ❖ Hidratar a los niños con diarrea dándoles SRO (hecho de los paquetes) o líquidos caseros (como té o agua de arroz).
- ❖ No “tratar” a los niños con diarrea con enemas.
- ❖ Conocer los métodos para prevenir la diarrea, como “cubrir la comida para evitar moscas” y “mantener limpia la comida.”

A pesar de su participación en las actividades financiadas con crédito, las participantes no destetaron a los niños a una edad más temprana que las no-participantes y tenían la misma probabilidad de amamantar a los bebés durante su segundo año de vida.

Sin embargo, no se encontró ninguna diferencia con significación estadística en las siguientes áreas, indicando una mayor necesidad para la educación informal en estas áreas temáticas:

- ❖ Otras prácticas para la prevención de diarrea promovidas por el programa, como lavar las manos, calentar la comida cocinada antes de servir/no guardar la comida mucho tiempo antes de servir, y utilizar agua limpia.
- ❖ La limitación o negación de comida a los niños con diarrea, como fue reportado por la mayoría de las mujeres en cada uno de los tres grupos.
- ❖ Cobertura de inmunizaciones.

Los niños de las participantes también experimentaron una mejora significativamente

mayor en la frecuencia de su alimentación en comparación con los niños de los dos grupos de no-participantes, con una diferencia marginalmente significativa en el consumo de huevos y carne/pescado.

### **El impacto en el apoderamiento de las mujeres**

Los indicadores para el apoderamiento de las mujeres fueron desarrollados para evaluar el impacto del programa en la auto-confianza de las mujeres y su visión del futuro, su estado y poder de negociación dentro del hogar, y su estado y contactos en la comunidad.

En comparación con los dos grupos de no-participantes, las participantes de 1996 se consideraron significativamente más seguras que podrían:

- ❖ Alimentar a sus niños con las buenas comidas que saben que los niños necesitan.
- ❖ Evitar la diarrea y otras enfermedades en sus niños.
- ❖ Ganar más dinero el próximo año que este año.

Sin embargo, no tenían más confianza que podrían educar a sus niños hasta su plena capacidad.

Al nivel del hogar, el poder de negociación de las participantes no se mejoró significativamente en comparación con los otros dos grupos, con respecto a las decisiones sobre una serie de inversiones del hogar, como cuánto gastar en la ropa, medicina, inversiones agrícolas o arreglos de la casa. Sin embargo, había un aumento significativo en el poder de “voz y voto” de las participantes en cuanto a la asistencia de sus niños a la escuela (sí o no) en comparación con las no-participantes, y una diferencia marginalmente significativa en comparación con las residentes en las comunidades de control.

Los esposos de las participantes tenían una probabilidad significativamente mayor de haber ofrecido ayuda a sus esposas con el cuidado de los niños y con sus actividades

generadoras de ingresos durante los seis meses anteriores en comparación con los esposos de no-participantes; sin embargo, no había una diferencia significativa entre participantes y residentes de las comunidades de control. Tampoco había una diferencia significativa entre los tres grupos para las mujeres que reportaron haber conversado sobre la planificación familiar con sus esposos.

Al nivel de la comunidad, el programa parece haber tenido un efecto positivo en la participación de las mujeres en la comunidad y en su contactos de ayuda con familiares y amigos. Había cambios significativamente mayores entre las dos etapas para participantes en comparación con los dos grupos de no-participantes, en que había más probabilidad que las participantes hicieran lo siguiente:

- ❖ Ser miembros de un grupo de la comunidad fuera de sus familias.
- ❖ Haber ayudado a un amigo con su trabajo.
- ❖ Haber ofrecido consejos sobre la salud/nutrición a otros.
- ❖ Haber ofrecido consejos de negocios a otros.

Las participantes también contribuían más dinero para funerales de personas que no eran parientes, lo cual es importante para su estado social individual y para la reputación de su familia.

Al considerar estos tres niveles del apoderamiento de la mujer, las participantes estaban más “apoderadas” que los dos grupos de no-participantes, especialmente al nivel del individuo y de la comunidad. Sin embargo, es interesante notar que las residentes de las comunidades de control tenían más confianza y gozaron de más apoyo de sus esposos que las no-participantes en las comunidades del programa. Es posible que la decisión misma de las no-participantes de no unirse al programa en su comunidad refleja una falta inicial de auto-confianza y un mayor grado de desigualdad en las relaciones matrimoniales.

## **Impacto en las metas finales—Estado de nutrición y seguridad alimenticia**

Los hogares participantes reportaron tener menos vulnerabilidad a “la estación de hambre” con relación al período de la línea de base en comparación con los dos grupos de no-participantes. El estado de nutrición de los niños con un año de edad de las participantes—en términos de mediciones peso/edad y de estatura/edad—se mejoraron significativamente entre las dos etapas en comparación con los niños de las residentes de las comunidades de control. Por ejemplo, el promedio del índice-z de estatura/edad (HAZ) para los niños con un año de las participantes fue casi 0.3 mayor que el HAZ de la línea de base para los niños con un año de participantes futuras. El promedio de HAZ para los niños en las comunidades de control fue 0.2 menos para el mismo período de tiempo. No se encontró un efecto positivo semejante para el estado de nutrición maternal según las mediciones hechas con el índice de la masa corporal de la mujer (IMC).

## **Conclusiones**

El estudio de impactos en Ghana suministra evidencia que los servicios de crédito y educación, cuando se los proveen juntos a grupos de mujeres, pueden aumentar ingresos y ahorros, mejorar el conocimiento y prácticas de salud/nutrición, apoderar a la mujeres, y finalmente mejorar la seguridad alimenticia del hogar y el estado de nutrición de los niños. Se está planeando más análisis para estudiar la relación entre los varios impactos intermediarios y su contribución relativa al mejor estado de nutrición en los niños.

Aunque no fue un enfoque del estudio de impactos, también es importante notar el rendimiento del programa en términos de su sostenibilidad financiera. Durante el período de seis meses desde octubre de 1996 hasta marzo de 1997, el programa tuvo un indicador de autosuficiencia operativa de 81%, lo cual significa que los intereses pagados por las prestatarias cubrieron 81% de los costos del Banco Rural de Lower Pra para entregar el crédito y educación,



cubriendo todos los costos operativos incluyendo costos financieros como intereses sobre la deuda, pero no la reserva para pérdida de préstamos. Mientras no tiene una total sostenibilidad financiera, esto representa un nivel de recuperación de costos mucho mayor que la mayoría de intervenciones para la generación de ingresos, y seguramente mayor que los programas tradicionales de educación sobre la salud/nutrición. La combinación del impacto positivo y la sostenibilidad financiera hace que Crédito con Educación sea una estrategia con un gran potencial para un impacto amplio y sostenible en la nutrición y seguridad alimenticia.

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## Index of Figures and Tables

1.1	Freedom from Hunger <i>Credit with Education</i> Strategy .....	5
1.2	<i>Credit with Education</i> Program Areas - Ghana, West Africa .....	7
1.3	Loan Activities Reported by Borrowers Beginning a Loan Cycle January - March 1997 .....	8
2.1	Credit Association Age and Membership Profile in Study Communities .....	12
2.2	Sample Sizes for Baseline and Follow-up Data Collection .....	13
3.1	Baseline Survey: Households and Mother's Characteristics Across Sample Groups—Mean (and Standard Deviation) .....	15
3.2	Follow-up Survey: Households and Mother's Characteristics Across Sample Groups—Mean (and Standard Deviation) .....	16
4.1	Principal Work Activity .....	18
4.2	Secondary Work Activity .....	19
4.3	Participants' Program Loans and Savings .....	20
4.4	Prevalence of Entrepreneurs Getting Inputs on "Credit Basis" .....	21
4.5	Estimated "Profit" from Microenterprise or Wage Income in the Preceding Four Weeks—Mean (and Standard Deviation) .....	22
4.6	Estimated "Profit" Plus Any Amount Deducted for Food and Other Family Expenses .....	23
4.7	Net Income from Microenterprise or Wage Income in the Preceding Four Weeks .....	23
4.8	Successful Borrowers .....	24
4.9	Struggling Borrowers .....	25
4.10	Factors Women Considered When Selecting an Income-Generating Activity .....	26
4.11	Personal Cash Savings .....	27
4.12	Per Capita Food Expenditures in U.S. Dollars—Mean (and Standard Deviation) .....	27
4.13	Spending on School Fees and Materials in Last 12 Months .....	28
4.14	Spending on Housing Improvement in Last 12 Months .....	29
4.15	Spending on Clothing for Self in Last 12 Months .....	29
4.16	Spending on Clothing for Children in Last 12 Months .....	29
4.17	Spending on Business Assets in Last 12 Months .....	30
4.18	Spending on Medical Costs in Last Six Months .....	30
4.19	Spending on Agriculture Inputs and Hired Labor in Last Six Months .....	31
4.20	In the Last Year, Relative Contribution of Respondent's Income to Total Household Income .....	31
5.1	Gave Colostrum to Newborns .....	32
5.2	Mean Age Water Introduced to Babies .....	33
5.3	Mean Age Watery Foods Introduced to Babies .....	34
5.4	Ever Used Bottle to Feed Baby .....	34
5.5	Children (12-24 Months) Still Breastfeeding .....	35
5.6	Age Watery Foods Like Porridges First Introduced .....	36
5.7	Enrichment Added to Porridge Given to Children at 6 to 9 Months of Age .....	36
5.8	Knowledge and Trial of Weanimix .....	38
5.9	Feeding Frequency and Dietary Intake Frequency .....	39
5.10	Differences in How the Study Child Was Fed or Breastfed Compared to Other Children .....	40
5.11	Action or Treatment Mother Takes When Her Child(ren) Has Diarrhea—1996 Only .....	41

## Index of Figures and Tables (cont.)

5.12 Mothers Gave “Less” or “No” Food to Children Having Diarrhea .....	41
5.13 Mothers’ Responses to the Question: “What can you do to prevent diarrhea?” .....	42
5.14 Immunization Coverage .....	43
6.1 Examples of Empowerment Described by <i>Credit with Education</i> Participants and/or Field Staff .....	46
6.2 Confidence That You Will Be Able to Feed Your Child the Good Foods That You Know He/She Needs .....	47
6.3 Confidence That You Will Be Able to Prevent Your Child from Getting Diarrhea and Other Illnesses .....	48
6.4 Confidence That You Will Be Able to Educate Your Child to His/Her Full Potential .....	48
6.5 Confidence That You Will Be Able to Earn More Money Next Year Than This Year .....	48
6.6 Decision Making Within the Household—1996 Only .....	49
6.7 Assistance Offered by Husband—1996 Only .....	50
6.8 Has Discussed With Spouse Ways to Space or Avoid Pregnancies .....	51
6.9 Member of a Group or Association in Last Six Months .....	51
6.10 Helped Someone With His/Her Work in Last Six Months .....	52
6.11 Gave Health or Nutrition Advice in Last Six Months .....	52
6.12 Gave Business Advice in Last Six Months .....	53
7.1 Percentage Whose Family Experiences a Hungry Season .....	55
7.2 Mean Length of “Hungry Season” .....	55
7.3 Coping Strategies Used by Households Reporting a “Hungry Season” .....	56
7.4 Children’s Nutritional Status—1993 Baseline Height-for-Age Z-Score (12-24 Months) .....	57
7.5 Children’s Nutritional Status—Height-for-Age .....	58
7.6 Children’s Nutritional Status—Weight-for-Age .....	58
7.7 Percentage of One-Year-Olds Moderately to Severely Malnourished—HAZ < -2 SD .....	59
7.8 Percentage of One-Year-Olds Moderately to Severely Malnourished—WAZ < -2 SD .....	59
7.9 Women’s Nutritional Status—Body Mass Index (BMI) .....	59

**APPENDIX**

Ghana Impact Survey - (version 20/Aug/96)

Village: \_\_\_\_\_ 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 CREDIT ASSOCIATION RECORDS**

Name of Credit Association: \_\_\_\_\_ CA Current Loan Cycle: \_\_\_\_\_  
 Date Participant Joined the CA: \_\_\_\_\_ (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 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  2. No (go to #4a)
- 3b. Are you currently a member?  1. Yes  2. No
- 4a. How many children have you given birth to? [\_\_\_\_\_] number of children
- 4b. How many are currently living? [\_\_\_\_\_] number of children
- 4c. How many are under five years? (those living) [\_\_\_\_\_] number of children
- 4d. How many are under three years of age? [\_\_\_\_\_] number of children

**For those under three years**

4e	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=_____

- 5a. What is your marital status? (**read**)  
 1. married/free union (go to #5b)  3. single/never married (go to #6)  
 2. divorced/separated (go to #6)  4. widowed (go to #6)
- 5b. (**If married**) Is spouse away from the village six months of the year or more?  
 1. Yes  2. No  99. Don't Know
- 5c. Check if  Female Headed Household or [\_\_\_\_\_] Male Headed Household

**APPENDIX**

6. How many persons are in your household - those that share economic resources and eat together at least one time a day? \_\_\_\_\_ - number adults (16 years or older)  
\_\_\_\_\_ - number children (15 years or younger)  
[\_\_\_\_\_] - TOTAL

7a. (If married) How many wives other than you does your husband have? [\_\_\_\_\_] number of other wives

7b. (If married) How many other children does he have to support? [\_\_\_\_\_] number of other children

8. How old are you? [\_\_\_\_\_] in years

9. How many years of school did you attend? [\_\_\_\_\_] number of years

10. If someone sent you a letter could you read it? [\_\_]1. Yes [\_\_] 2. No [\_\_] 99. Don t know

**FOOD SECURITY**

11. In the last 12 months, was there a time when it was more difficult to feed your household so it was necessary to eat less or eat poorly?

[\_\_]1. Yes (Go to #12) [\_\_]2. No (Go to #14) [\_\_] 99 = Don t know (Go to #14)

12. How long did this period last? [\_\_\_\_\_] number of months

13. How did your household cope? (Read answers. Multiple answers possible.)

[\_\_] 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 specify \_\_\_\_\_

[\_\_] 5 = sold property specify \_\_\_\_\_

[\_\_] 6 = other specify \_\_\_\_\_

[\_\_] 99=Don t know

14. In the last seven days, who in your household purchased food *for the family to eat?* (read answers)

[\_\_] 1 = self [\_\_] 3 =spouse and self

[\_\_] 2 = spouse [\_\_] 4 = other (specify) \_\_\_\_\_

15. In the last seven days, how much money would you estimate your household spent in total on the following items?

Maize/Rice [\_\_\_\_\_] amount in cedis

Yams/Cassava/Cocoyam [\_\_\_\_\_] amount in cedis

Plantain [\_\_\_\_\_] amount in cedis

Gari [\_\_\_\_\_] amount in cedis

Vegetables [\_\_\_\_\_] amount in cedis

Beans/Groundnuts/akatu/agushie [\_\_\_\_\_] amount in cedis

Meat/Fish [\_\_\_\_\_] amount in cedis

Eggs [\_\_\_\_\_] amount in cedis

Already Cooked Food bought for Family [\_\_\_\_\_] amount in cedis

**Figure total and read** [\_\_\_\_\_] amount in cedis

16. (If has spouse) How much of that amount was money that your spouse or someone else contributed?

[\_\_\_\_\_] amount in cedis [\_\_\_\_\_] 99= don t know [\_\_\_\_\_] 98= not able to separate

17. How much of that amount was money that you earned yourself?

[\_\_\_\_\_] amount in cedis [\_\_\_\_\_] 99= don t know

## APPENDIX

18. Of money that you earned and controlled, how much would you estimate that you spent on the following:

- a. school fees and school materials like uniforms and books in the last 12 months [ ] in cedis
- b. roofing or other house improvements in the last 12 months [ ] in cedis
- c. clothing for yourself in the last 12 months [ ] in cedis
- d. clothing for your children in the last 12 months [ ] in cedis
- e. Tools for work other than farming or a place to sell in last 12 months [ ] in cedis
- f. medical costs and medicine in the last 6 months [ ] in cedis
- g. agricultural inputs and hired labor for farm in the last 6 months [ ] in cedis

## INFANT/CHILD FEEDING PRACTICES

I am interested in knowing more about (Name of study child).

19. Is he/she still breastfeeding?

- 1. Yes GO TO QUESTION#22
- 2. No GO TO QUESTION #20
- 3. Never Breastfed GO TO QUESTION #24

20. (If "No" to #19) How old was he/she when you stopped breastfeeding?

- [ ] age in months [ ] 99. Don't Know

21. Why did he/she stop breastfeeding? (**don't read answers**)

- 1. Mother became pregnant
- 2. Interfered with working
- 3. Milk dried up
- 4. Child just stopped his/her self
- 5. Mother sick
- 6. Other (specify) \_\_\_\_\_
- 99. Don't know or don't remember

22. How soon after giving birth to (name of study child) did you begin breastfeeding? (Specify hrs / days)

- [ ] number of hours or [ ] number of days [ ] Immediately  
[ ] 99. Don't Know

23. How soon after giving birth did you put (name of study child) to suckle at your breast even if the milk was not yet flowing? (Specify hours or days)

- [ ] Immediately  
[ ] number of hours or [ ] number of days [ ] 99. Don't Know

24. What did you do with the thick, yellowish liquid that comes from the breast just after the baby is born?  
(Read answers)

- 1. Discarded before the baby is born
- 2. Discarded after the baby is born
- 3. Gave it to the child
- 4. Other, specify \_\_\_\_\_
- 99. Don't know

25. At what age did you first give (name of study child) water in addition to breastmilk?

- [ ] age in days or [ ] age in months [ ] 99. Don't Know  
[ ] age in weeks [ ] 98. Never Breastfed

26. At what age did you first give (name of study child) watery foods like koko, mashed kenkey, in addition to breastmilk?

- [ ] age in days or [ ] age in months [ ] 99. Don't Know [ ] 98. Only Breastfeeding

## APPENDIX

27. At what age did you first give (name of study child) their first solid food other than breastmilk?  
[ ] age in days or [ ] age in months [ ] 99. Don't Know [ ] 98. Only Breastfeeding

28. When (name of study child) was between 6-9 months of age what foods did you give her/him? (Don't read answers. Probe by asking and anything else until the women has no additional responses.)

### **Porridge (Plain)**

[ ] 1 = koko/mashed kenkey/tom brown (plain) [ ] 17 = rice water [ ] 18 = oats

### **Porridge Enriched - koko/mashed kenkey/tom brown**

[ ] 2 = enriched **w/groundnut or beans** [ ] 19 =enriched **with milk**  
[ ] 3 = enriched **with egg** [ ] 20 = enriched **w/ fish powder**  
[ ] 4 =enriched w/ other \_\_\_\_\_

[ ] 5 = Weanimix [ ] 21 = Weanimix enriched **with fish powder**  
[ ] 6 = Cerelac

### **Kenkey/Rice/Banku**

[ ] 7 = **kenkey /rice/banku** (plain) [ ] 22=kenkey /rice/banku w/ kontonire -okra stew  
[ ] 8 = kenkey /rice/banku with fish stew or fish  
[ ] 9 = kenkey /rice/banku with other soup or stew \_\_\_\_\_

[ ] 10 = plain ampesi [ ] 23 = ampesi with specify \_\_\_\_\_  
[ ] 11 = rice with beans [ ] 24= beans  
[ ] 12 = fish [ ] 25 = **Eggs**  
[ ] 13 = Fruit [ ] 26 =fufu with soup specify  
[ ] 14 = mpotompoto, apprapansah, eto (**plain**) [ ] 27 = mpotompoto, apprapansah, eto **w/ oil**  
[ ] 15 = mpotompoto, apprapansah, eto **w/ oil, w/fish**  
[ ] 16 Other specify \_\_\_\_\_  
[ ] 99= Don t know

29. (If mother mentioned koko) Apart from the dough did you add anything either during or after the preparation to the koko?

[ ] 1. Yes (GO TO #30) [ ] 2. No (GO TO #31) [ ] 99= don t know (go to #31)

30. (If yes to #29) What did you add? (Probe by asking and anything else until women says no .)

[ ] 1 =Milk [ ] 5 = Eggs  
[ ] 2 =Groundnut (flour/paste) [ ] 6 = Sugar  
[ ] 3 =Beans [ ] 7 =other specify \_\_\_\_\_  
[ ] 4 =Fish powder/shrimp powder [ ] 99 = don t know

31. Have you ever heard of Weanimix (the food nurses give)?

[ ]1. Yes (go to #32) [ ] 2. No (go to #34) [ ]99. Don't Know (go to #34)

### **32. Did (name of study child) ever try Weanimix?**

[ ]1. Yes (go to #33) [ ] 2. No (go to #34) [ ] 99. Don't Know (go to #34)

33. Did you add fish powder to the Weanimix?

[ ]1. Yes [ ] 2. No [ ] 99. Don't Know

34. Did you ever use a bottle to feed (name of study child) any water or watery foods?

[ ] 1. Yes [ ] 2. No [ ] 99. Don't Know

**APPENDIX**

35. In the last 24 hours, how many times did (name of study child) have a meal and/or a snack other breastmilk - that is from yesterday at this time until now?

[ \_\_\_\_\_ ] Number of times [ ] 99. Don't know [ ] 98= only breastfeeds (go to #38)

36. In the last 3 days, how many times did (name of study child) have the following (3 complete days)?

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
green leafy veg.	0	1	2	3	4	5	6	7	8	9	_____ DK
okra	0	1	2	3	4	5	6	7	8	9	_____ DK
beans	0	1	2	3	4	5	6	7	8	9	_____ DK

37. Has there been any difference in how you fed or breastfed (name of study child) as compared to your other children? [ ] 98. Has no other children (go to #40)

[ ] 1. Yes (go to 38) [ ] 2. No (go to #40) [ ] 99. Don't Know (go to #40)

38. (If yes #37) What was different about how you breastfed or fed (name of study child)?

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39b. What caused this difference(s)?

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**IMMUNIZATIONS/ DIARRHEA**

40. Has (name of study child) received any immunizations?

[ ] 1. Yes [ ] 2. No (go to #42) [ ] 99. Don't know (go to #42)

41a. May I see your weighing card? (Check each immunization the child has received.)

[ ] 1. DPT1 [ ] 3. DPT3 [ ] 5. BCG [ ] 98. has no card  
[ ] 2. DPT2 [ ] 4. Measles [ ] 6. Polio

41b. Any weights recorded on the card? [ ] 1. Yes [ ] 2. No

42a. 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 (ask #42b)
- [ ] 2. mix and give them Sugar/Salt solution
- [ ] 3. home liquid like coconut juice, herbal drink, rice water or rice porridge, mashed kenkey
- [ ] 4. take to health center/hospital/or health worker (ask #42c)
- [ ] 5. give them modern medicine (ampicillin, paracetamol, vitamins, chloroquine, Kaolin) (ask #42d)
- [ ] 6. give them an enema
- [ ] 7. other (specify) \_\_\_\_\_

[ ] 98. never had diarrhea

[ ] 99. don't know

42b. (If said ORS packet to #42a) How did you prepare the ORS packet?

[ ] 1= mix with one liter water (beer bottle or ORS cup) [ ] 2. Other [ ] 99. Don't Know







**APPENDIX**

55. What was your secondary work in the last 12 months? (Multiple Answers Possible. Probe)

- 1. Farming
- 2. Make/Sell oil
- 3. Trade Fish
- 4. Table top store
- 5. Trade food stuffs  
(rice, cassava, plantain, coconut etc. )
- 6. Make/Sell Kenkey
- 7. Make/Sell Cooked food NOT kenkey (rice/beans, doughnuts etc.)
- 8. Farm Laborer
- 9. Other specify \_\_\_\_\_

56. 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

57. Other than your family land, do you have your own plot of land on which you can work?

- 1 = yes
- 2 = no
- 99 = don't know

58. In the last 4 weeks, did you earn any cash income from work other than selling your farm products?

- 1 = yes
- 2 = no (**go to #64**)
- 99 = don't know (**go to #64**)

59. (If yes to #58) What did you do to earn cash income? (List. Probe for all including wage labor.)

\_\_\_\_\_  
\_\_\_\_\_

60a. I want to talk with you about your business.

**Activity #1:** \_\_\_\_\_

60b. In the last month, what was your average weekly profit? **If participant, do not subtract weekly loan repayment.** (Or profit for any time period that respondent is able to report.) (Do not read answers)

- [ \_\_\_\_\_ ] in cedis average weekly profit                      OR FOR
- [ \_\_\_\_\_ ] in cedis for average day for [ \_\_\_\_\_ ] number of days in a week
- [ \_\_\_\_\_ ] in cedis average profit for two weeks
- [ \_\_\_\_\_ ] in cedis average profit for whole month
- [ \_\_\_\_\_ ] in cedis average daily profit - earned for [ \_\_\_\_\_ ] number of days in the month

60c. For this profit, did you declare it after you deducted food and other family expenses?

- 1. Yes (go to # 60d)
- 2. No (go to #60e)

60d. How much did you deduct for food and other family expenses from your sales in the average week? (Or for any time period that respondent is able to report.)

- [ \_\_\_\_\_ ] in cedis for average week                      OR FOR
- [ \_\_\_\_\_ ] in cedis for average day for [ \_\_\_\_\_ ] number of days in a week
- [ \_\_\_\_\_ ] in cedis average for two weeks
- [ \_\_\_\_\_ ] in cedis average for whole month

60e. COSTS: What costs did you have in doing this activity: (**probe for all costs - inputs, transport, hired labor, tax**)

ITEM \_\_\_\_\_ COST and **Specify Period (per week, 2 weeks or month)** \_\_\_\_\_

\_\_\_\_\_

**APPENDIX**

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60f. Did you get any of your inputs for this activity on a credit basis?

1 = yes                       2 = no                       99. Don't Know

60g. (If sells to wholesaler) Did someone who buys from you provide you with cash to get any of the inputs you needed with agreement that you would sell your product to them?

1 = yes                       2 = no                       99. Don't Know

60h. Revenue: From selling your product how much cash did you get in the average week? (or for the same period of time that the specified for costs.)

\_\_\_\_\_ Amount in cedis per week or  
\_\_\_\_\_ Amount in cedis per day for [\_\_\_\_\_] days in a week  
\_\_\_\_\_ Amount in cedis per two weeks or  
\_\_\_\_\_ Amount in cedis per month

60i. Did you do this activity every week in the past 4 weeks?  1 = yes                       2 = no  
(go to days/mo 60j.)

60j. On average how many days in the week?                      [\_\_\_\_\_] days in a week OR  
(Probe for full or half day, # days they worked)                      [\_\_\_\_\_] days in a month

60k. In the last four weeks, did you hire any labor to help you with this work?

1 = Yes                       = No

60l. In the last four weeks, did any family members help you with this work ?

1 = Yes                       = No

If yes, their relationship to you	if children their ages
_____	_____
_____	_____

60 m. What fixed assets do you have to do this work?

What is their value?

1. _____	_____
2. _____	_____
3. _____	_____
4. _____	_____

**61a. Activity #2:** \_\_\_\_\_

**APPENDIX**

61b. In the last month, what was your average weekly profit? **If participant, do not subtract weekly loan repayment.** (Or profit for any time period that respondent is able to report.) (Do not read answers)

- [ \_\_\_\_\_ ] in cedis average weekly profit
- [ \_\_\_\_\_ ] in cedis for average day for [ \_\_\_\_\_ ] number of days in a week
- [ \_\_\_\_\_ ] in cedis average profit for two weeks
- [ \_\_\_\_\_ ] in cedis average profit for whole month
- [ \_\_\_\_\_ ] in cedis average daily profit - earned for [ \_ ] number of days in the month

61c. For this profit, did you declare it after you deducted food and other family expenses?

- [ \_\_\_\_\_ ] 1. Yes (go to # 61d)
- [ \_\_\_\_\_ ] 2. No (go to #61e)

61d. How much did you deduct for food and other family expenses from your sales in the average week? (Or for any time period that respondent is able to report.)

- [ \_\_\_\_\_ ] in cedis for average week                      OR FOR
- [ \_\_\_\_\_ ] in cedis for average day for [ \_\_\_\_\_ ] number of days in a week
- [ \_\_\_\_\_ ] in cedis average for two weeks
- [ \_\_\_\_\_ ] in cedis average for whole month

61e. COSTS: What costs did you have in doing this activity: (**probe for all costs - inputs, transport, hired labor, tax**)

ITEM \_\_\_\_\_ COST and Specify Period (per week, 2 weeks or month) \_\_\_\_\_

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61f. Did you get any of your inputs for this activity on a credit basis?

- [ \_\_\_\_\_ ] 1 = yes
- [ \_\_\_\_\_ ] 2 = no
- [ \_\_\_\_\_ ] 99. Don t Know

61g. (If sells to wholeseller) Did someone who buys from you provide you with cash to get any of the inputs you needed with agreement that you would sell your product to them?

- [ \_\_\_\_\_ ] 1 = yes
- [ \_\_\_\_\_ ] 2 = no
- [ \_\_\_\_\_ ] 99. Don t Know

61h. Revenue: From selling your product how much cash did you get in the average week? (or for the same period of time that the specified for costs.)

- \_\_\_\_\_ Amount in cedis per week or
- \_\_\_\_\_ Amount in cedis per day for [ \_\_\_\_\_ ] days in a week
- \_\_\_\_\_ Amount in cedis per two weeks or
- \_\_\_\_\_ Amount in cedis per month

61i. Did you do this activity every week in the past 4 weeks? [ \_\_\_\_\_ ] 1 = yes                      [ \_\_\_\_\_ ] 2 = no  
(go to days/mo 61j.)

61j. On average how many days in the week? [ \_\_\_\_\_ ] days in a week OR



**APPENDIX**

- 3. Whether I can still take care of my family and other responsibilities
- 4. How much working capital is needed/whether I have enough/whether I can get or do on credit
- 5. Whether it is in demand
- 6. Whether it seems profitable
- 7. Other (specify) \_\_\_\_\_
- 99. Don't Know

**Questions #67 and #68 only for women with husbands**

67. (For women with school age children)

How many of your children are 4-18 years old?	How many go to school?	Who decided if they go to school or not?	Who pays school fees?	Who pays for clothing, supplies?	Who pays for school food?
(Read) 1=husband only 2 =mostly husband 3=husband+you 4=mostly you 5= you only 6= Other _____ 98. married but husband not involved so she decides herself					

68. In your family who decides how much to spend on:  98 married but husband not involved

CHECK BOX	Husband only	Mostly Husband	Husband and you equally	Mostly you	Only You	Other
Clothing for children						
Medicine						
Agricultural Inputs						
Repair house						

69a. In the last 12 months, how much have you contributed to the costs of family member funerals?  
[ \_\_\_\_\_ ] amount in cedis

69b. In the last month, how much have you contributed to non-family member funerals?  
[ \_\_\_\_\_ ] amount in cedis

69c. In the last month, how many funerals have you attended? [ \_\_\_\_\_ ] number

70. In the last six months.....

- a. were you a member of a group or association? Circle Y / N
- b. did you help a friend with his or her work? Circle Y / N
- c. did you advise a friend/family member about good health or nutrition practices? Circle Y / N
- d. did you advise a friend/family member about good income generating activity? Circle Y / N

71. (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

**APPENDIX**

- 71b. 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

72. 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.				

**PARTICIPANTS ONLY (#73-83)**

73) Since you joined the *Credit with Education* program has the income you have been able to earn (Read answers. Circle response)

1-----2-----3-----4-----5-----99-  
**decreased**      **decreased**      **no change**      **increased**      **increased**  
**greatly** (go to 74)      (go to #74)      (go to #76)      (go to #75)      **greatly** (go to #75)

74) Can you tell me the reasons why your income has decreased?

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75) Can you tell me the reasons why your income has increased? (Don't read. Probe. Multiple answers)

- 1. expanded the scale of income generating activity
- 2. undertook new activity or added new products
- 3. costs reduced because able to get inputs in bulk
- 4. costs reduced because not depend on getting inputs on credit
- 5. selling in new markets
- 6. not restricted to selling to wholeseller who gave me credit
- 7. Other (specify) \_\_\_\_\_
- 99. Don't Know

76) Since you joined the *Credit with Education* program has your personal cash savings..... (circle)

1-----2-----3-----4-----5-----99-  
**decreased**      **decreased**      **no change**      **increased**      **increased**  
**greatly**                                    **greatly**

77) Do you save more than the required amount with your Credit Association?

- 1 Yes       2. No       99. Don't Know



**APPENDIX**

78) Since you joined the program how have you used your savings? (don t read)

- 1. reinvested in business
- 2. to buy items for my family (specify) \_\_\_\_\_
- 3. to deal with family crisis/emergency
- 4. not used savings yet but plan to use it to (specify) \_\_\_\_\_
- 5. not used savings, has no specific plans
- 6. Other (specify) \_\_\_\_\_
- 99. Don't Know

79) How useful have you found the information in the health/nutrition education sessions to be? (read answs)

- 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?

\_\_\_\_\_

81) Did you face any difficulties in the last loan cycle?

- 1 Yes (go to #82)                       2. No (go to #83)                       99. Don't Know

82) ( If yes to #81) 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

83) If you could change something about the program -- either the credit or education aspects -- to make it even better, what would you change?

\_\_\_\_\_

\_\_\_\_\_