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The Efficacy of Microfinance in Alleviating Food Insecurity

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## Overview

In this Honor's Thesis, I investigate the relationship between food security and microfinance, which is the business of supplying small loans to people of low income. Such research is critical because food insecurity affects over 850 million people in this world and microfinance may be a viable solution for alleviating this pressing problem. This thesis is intended to be read in two separate parts. The research section exemplifies the application of my anthropological and economic foundation and provides a contextual explanation of food insecurity and its relationship to microfinance. This thesis also contains a proposal section, but it is not included in this document in order to protect the research design. The proposal section highlights what I intend to do by improving upon my prior research. The proposal also can be used as conclusive evidence about the efficacy of microfinance as a driver of development.

The first part of the thesis details research I conducted during summer 2012 in which I investigated the causes of food insecurity in Paraguay and explored the relationship between microfinance and food insecurity. As an intern for a microfinance institution, I shadowed officers who worked with groups of poor, rural women who were receiving microloans. In the field, I collected data primarily through participant observation and interviewing. This research indicated that microfinance is associated with food security through increased income generation, asset building, consumption smoothing, mitigation of risk, and empowerment of women. Because these findings pointed to consumption choices and lack of knowledge about nutrition as dominant factors contributing to food insecurity, I propose in Part II an integrated educational program into microfinance services as a possible solution to alleviating food insecurity.

The limitations of the research and the conclusions reached inspired the second section of the thesis, the proposal. The proposed research is structured as a randomly controlled trial and it improves upon my work in Paraguay by enabling stronger, more quantitative claims to be made about causal factors regarding the relationship between microfinance and food security. The longitudinal design also targets the lack of periodicity in my prior research by tracking how a client's food security changes from the time they receive their first loan. Furthermore, the proposed research design evaluates the viability of my recommendation to integrate financial services and education by proposing a randomly controlled experiment that compares groups who are either receiving microfinance only to those who are receiving microfinance in conjunction with education. Through such a design, I can determine the effect education has on food security and evaluate if microfinance coupled with education is a solution to this endemic problem.

The completed research and proposed research have intellectual merit by reaching a better understanding of the pressing problem of food insecurity and contributing to the dearth of literature in the development field that specifically analyze the connection between microfinance and food insecurity. Microfinance institutions have spread rapidly in the developing world and the efficacy of microfinance is currently a contentious subject. The broader impacts of my research are that it can shed light on the effectiveness of microfinance and suggest how microfinance institutions can adapt their services to have greater impact. Together, the completed research and the proposal, reflect the engagement with real world issues and application of the academic foundation that has been developed during my tenure at Santa Clara University.

## Part I – Research

Microfinance: A Tool for Diminishing Food Insecurity

## **I. Introduction**

Paraguay is one of the poorest countries in South America. Most Paraguayans fail to get the nutritional value they need with 25.5% of the adult population living under the minimum dietary consumption level (WHO, 2012). This figure indicates that food insecurity, which the World Health Organization (2012) defines as failing to have “access to sufficient, nutritious food to maintain a healthy and active lifestyle,” is a major problem in Paraguay. Meanwhile, microfinance – the business of supplying financial services to poor people of low income who are frequently excluded from the formal banking sector – has been proposed as a viable vehicle for diminishing food insecurity and alleviating poverty (Littlefield et al., 2003). Microfinance institutions (MFIs) have swept the country with seven MFIs serving over 500,000 borrowers (Mix Market, 2012). After observing the dietary trends of consuming foods that are high in fat, high in sugar, and processed, as well as witnessing the prevalence of chronic diseases such as diabetes, coronary heart disease, and obesity, I was interested in investigating the reasons for food insecurity in Paraguay and how microfinance could alleviate food insecurity.

## **II. Literature Review**

Food security relies on three factors: 1) food availability, which means sufficient quantities of food are available on a consistent basis, 2) food access, which means having sufficient resources to obtain appropriate foods for a nutritious diet, and 3) food use, which is appropriate use based on knowledge of basic nutrition and care, as well as adequate water and sanitation (WHO, 2012). Many of the literary sources regarding food security assert that there is sufficient food availability in Paraguay, but many Paraguayans are not getting the proper quality of food because of inadequate food access and food use (Gartin, 2012). This implies they are in a transitory or not-severe state of food insecurity. The nutritional insecurity Paraguayans are facing is exemplified through their diets. Bermudez and Tucker (2003) explore dietary trends in Latin America and explain that the overall intake of total fat, animal products, and sugar is increasing while the intake of cereal, fruit, and vegetables is declining.

Poverty is the most frequent cause of food insecurity. Researchers have found that people in poverty cut food consumption first in difficult times and do not prioritize healthy food in consumption behavior, in part because of poor education (Banjeree & Duflo, 2011; Zeller & Sharma, 2000). The causes behind food security are far more complex than this, however, ranging from political instability, war and civil strife, macroeconomic imbalances and trade dislocations to environmental degradation, poverty, population growth, gender inequality, inadequate education, and poor health” (Smith, Obeid, & Jensen, 2000). In addition to poverty, some suggest that land tenure and changes in the agriculture market particularly affect food security in Paraguay (Finnis et al., 2012; Naylor et al., 2007).

Although microfinance has been proposed as a way to alleviate food insecurity, the literature regarding the efficacy of microfinance is contradictory. Critics argue that data regarding the success of microfinance is anecdotal and that in very few instances do microfinance clients establish successful enterprises and earn a decent living, even though their claims are not substantiated by any significant studies. For example, Morduch (1999) contends that microfinance fails to reach the poorest of the poor and relies heavily on subsidies that make it financially unsustainable. In light of this criticism, however, quantitative studies have arisen proving microfinance does have an impact on poverty. For example, a case-control analysis of CRECER, a MFI in Bolivia, found that microfinance participants as compared to non-

participants, experience empowerment by being more active in their households and communities, have a greater economic capacity with 67% experiencing an increase in income, and adopt better health and nutrition practices by taking up better breastfeeding practices and nourishing their children with the proper food for their respective ages (McKnelly & Dunford, 1999). Littlefield and colleagues (2003) contend microfinance can help to achieve UN Millennium Development Goals by elucidating multiple studies of different MFIs that suggest that properly managed microfinance does impact poverty and improve food security.

### **III. Methodology**

I conducted this research as an intern for Fundación Paraguaya from late June to the beginning of August of 2012. I specifically worked in Carapeguá, Paraguay, a rural town of about 32,000 inhabitants where a significant part of its economy is dedicated to artisan goods and production of cattle, sugar cane, corn, and mandioca. Approximately one-third of its population depends on agricultural production for their livelihoods (Municipalidad de Carapeguá, 2012). Established in 1985, Fundación Paraguaya is a non-profit organization that promotes entrepreneurship and provides services that are aimed at helping people overcome poverty. Its microfinance branch gives small loans to people of low income at low interest rates. According to its records, it served over 53,000 people and helped 6,400 people generate revenue over the poverty line in 2011 (Fundación Paraguaya, 2012). It lends primarily to women and uses the group-based model approach where committees are responsible for the repayment of all group members' loans. This model utilizes the clients' social networks to pressure clients into repaying loans. Additionally, each committee is offered educational sessions called *capacitaciones* through which they learn how to utilize their loans and grow their businesses.

This research relies primarily on qualitative data collected from fieldwork. The data is derived from participant observation, rapid ethnographic assessment, and unstructured interviews. Field notes were coded using NVivo software. The interviews were conducted with clients and employees of Fundación Paraguaya's Carapeguá office who could offer different insights into the operations and effects of microfinance and extrapolate upon the problem of food insecurity. The tasks associated with the internship and through which I collected a majority of my data included shadowing Fundación Paraguaya representatives to the field to visit women clients at their homes, observing women committees, assessing and analyzing poverty levels using an interactive survey, and designing nutritional and health guides for women clientele. Lastly, this research utilized company surveys and records, most notably Fundación Paraguaya's unique poverty metric, *el semáforo*, to analyze overarching patterns and trends of its clients' poverty level. This metric consists of 50 poverty indicators divided into the following categories: income and employment, health and environment, housing and infrastructure, education and culture, organization and participation, and self-awareness and motivation. Women clients respond to how well they meet the criteria of each indicator on a three-tier scale.

### **IV. Findings**

#### **What impacts food insecurity in Paraguay?**

Aligning with the literature, my research findings suggest that food insecurity in Paraguay is a problem of food use and food access rather than of food availability and that it is most impacted by poverty, education, culture, land tenure, and domestic agricultural production. The Paraguayan diet consists of high fat beef and pork, high fat dairy products, and the heavy use of vegetable oils, corn products, mandioca products, white flour products, and processed

sweets. Soda, tereré (a cold tea), milk, and alcohol are the most common drinks in Paraguay.

Paraguayans are food insecure because consumer choices have to be compromised due to the high prices of healthier foods. Perishable goods such as fruits and vegetables tend to be more expensive because of travel and preservation costs, especially in rural towns. On the other hand, processed foods are much cheaper. Products from multinational corporations such as Nestle and Coca-Cola have flooded the market because these larger companies can produce on economies of scale where the cost per unit falls as volume increases. Although Paraguayans have healthy options to choose from like fruits, vegetables, fish, and leaner cuts of meat, I consistently observed how healthier alternatives such as whole-wheat flour, diet soda, sugar-free alternatives, and low-fat dairy products are not widely available. Even though supermarkets have a wider selection of food and more healthy options than convenience stores, many people at lower income levels and people who live in rural areas tend to shop at convenience stores because they are cheaper, closer in proximity, and people are more likely to have established rapport with the storeowner to buy on credit (Gartin, 2012). Essentially, the nutritional landscape predisposes Paraguayans to eat poorly.

Market structure is another reason why food insecurity exists in Paraguay. Most smallholder farmers in Paraguay produce enough food to feed themselves and their communities, but unpaved roads and unreliable transportation complicate market-based approaches to selling crops (Naylor et al., 2007). Thus, many farmers rely on remittances from urban family members, which is signified by the four Western Unions located within a five-block radius in Carapeguá. Compounding their problems to generate revenue, many farmers are experiencing the effects of climate change. Many staple crops such as mandioca are not growing as well because of longer hot seasons and shorter cool seasons (Finnis et al., 2012). In order to circumvent some of these hardships, more farmers are cultivating soy to be used as biofuel which is profitable because of the high price of petroleum and the world's demand for energy (Naylor et al., 2007). In turn, the demand for biofuels is increasing food prices since fewer farmers are producing agricultural products for food use. Although this may be good for smallholder farmers, it is troublesome for those people who are food insecure because it limits direct and exchange-based access to food. Paraguay is now left to rely on more expensive agricultural exports and has relinquished control of its food supply.

Paraguay's land tenure policy and relationship with Brazil are also negatively affecting food security in Paraguay as well. Paraguay is notorious for its inequitable land holding patterns with the wealthiest 1% owning 77% of the arable land (Finnis et al., 2012). Many Paraguayans feel that land reform can lead to greater economic development. Land tenure also can lead to improved food security through increased production which leads to better income generation and translates to greater consumption and better nutritional status (Maxwell & Wiebe, 1999). The seriousness of the land tenure issue is magnified by President Lugo's impeachment in June 2012 for not following through with his promises on land reform. When I asked an informant why the president was impeached, he explained that people who hoped lands would be returned after the Stroessner dictatorship are very upset that this land they feel is theirs is only being sold to large companies, mainly from Brazil. Many Brazilian corporations are buying land for cattle grazing in the sparsely populated Chaco region of Paraguay, which is leading to widespread deforestation and contamination of water systems (Naylor et al., 2007). For an economy that relies so heavily on its agricultural sector, it is alarming that many people lack land titles while Brazilian companies are exploiting the fragile environment, which is damaging to agricultural production and food security.

Many Paraguayans who are food insecure have enough money to achieve food security, but they adopt consumption behaviors that prevent them from doing so. A consistent field observation was that many of the women clients had televisions, nail polish, radios, and toys for their children, but they were struggling to obtain enough food. I asked one of my informants about this phenomenon, and she replied, “Televisions last, but food turns bad.” Essentially, impoverished people see greater value in luxury goods such as electronics because they last longer than food. Banjeree and Duflo (2011) explain that the positive effects of more nutritious diets are not as noticeable because it is hard to gauge productivity gains especially over long periods of time. They also explain that when food prices go down or people receive more money, poor people do not optimize their nutritional intake but rather spend their money on better-tasting, more expensive food. Thus, although consumption may increase, the nutritional quality of the food is not necessarily better. As consumption behaviors reflect, a culture of materialism and consumer values in instant gratification impede the poor from using money to achieve better food security.

Lack of nutritional education is another reason Paraguayans are food insecure. Even though water is the same price as Coca-Cola, most people choose Coca-Cola because it tastes better; they are also unaware of the detrimental effect that sugary beverages can have on health. At first, I thought people drank more soda because water was unsafe to drink, but later I asked one of my informants why he does not drink water, and he commented “El agua no es rico. No tiene sabor” which means that water does not taste good and does not have any flavor. Their water consumption comes mostly from drinking *tereré* which is a cold tea. This lack of education to make healthy food choices may be a large reason for poor health outcomes related to poor nutrition. In Paraguay, cardiovascular diseases accounts for 28% of all deaths, communicable, maternal perinatal, and nutritional conditions account for 20%, and diabetes accounts for 8% (WHO, 2012). While access to nutritional information does not ensure its use, at least it would give clients the necessary knowledge to make healthy choices.

### **Does microfinance alleviate food insecurity?**

I found that microfinance positively but indirectly alleviates food insecurity through increased income generation, asset building, consumption smoothing, mitigation of risk, and empowerment of women. Microfinance may not be having as large of an impact as MFIs are suggesting, but it is not ineffective as critics of microfinance insist. In most cases, it is helping people of low income to some degree, especially those people who utilize their loans resourcefully. Regardless of the size of its impact, microfinance is offering opportunities otherwise unattainable to people living at the base of the pyramid. It has even greater potential to help people overcome poverty and achieve food security if education is integrated into its group-lending model and if it expands its service to include savings and insurance plans.

Access to credit most significantly impacts those who are chronically food insecure because they directly spend their loan on basic necessities such as food. For instance, a longitudinal study of BRAC, an MFI in Bangladesh, discovered that fewer members suffered from severe malnutrition than the control group and the rates of severe malnutrition decreased the longer clients were members (Zaman, 2000). Simply stated, microfinance can improve food security by increasing incomes so clients have more money to spend on food. A comprehensive study conducted by the World Bank analyzed the MFIs Bangladesh-Grameen Bank, BRAC, and RD-12 and found that 5% of clients were sustainably able to climb out of poverty each year (Littlefield et al., 2003). The poverty metric also indicated that women who secured stable

employment as a result of microfinance tended to have higher levels of food security.

There are many individuals who do not use their loans to improve their incomes but rather they use them to fulfill household priorities such as paying off debts, sending children to school, or buying more food. Whether or not women are escaping poverty, microfinance can still help them by increasing consumption. In my interviews with women clients, they expressed that the microloans help them in everyday life although it was not visible that they are climbing out of poverty. Access to microfinance gives the poor the ability to spend money. Additionally, microfinance helps clients through asset building. For example, when it comes to land titling, there is a land size or wealth bias because smallholder farmers do not have the same access to credit that farmers own more than 15 hectares of land which is accepted as adequate collateral at most banks (Carter & Olinto, 2003). Microfinance allows the opportunity for smallholder farmers to experience the credit supply effects that large-scale farmers do and invest more in inputs for their farms, thereby leading to greater production and food availability.

Because many rural people live in transitory poverty where shocks to prices or poor harvests can send them over the edge, they find their own ways of managing risk. They do this by borrowing from friends and family members, diversifying their crops (even though it adds more work and potentially lowers yields), and safeguarding money at home where it does not accumulate any interest because of their demand to have their money easily accessible and liquid (Zeller & Sharma, 2000). Microloans mitigate vulnerability through consumption smoothing. When there are external shocks to the system, microloans can help clients adjust because it gives them access to additional capital that helps them respond. However, savings plans and insurance schemes can further manage the poor's liquidity and improve their risk-bearing capacity. This offers them incentive to use their loans toward revenue generation and building businesses that will sustainably help them breach the poverty line (Zeller, Schreider, Von Braun, & Heidues, 1997). Understanding the risk-averse nature of clients and how they minimize their vulnerability highlights how insurance and savings plans can offer clients the additional services and support they need to overcome many of the behaviors that help them to survive but also keep them in a poverty trap.

Finally, microfinance leads to greater empowerment of women who are more likely than men to spend their loans on their families' needs rather than on alcohol and gambling (Littlefield et al., 2000). Based on physical mobility, ownership and control of productive assets, involvement in decision-making, and political and legal awareness, microfinance participants demonstrated more signs of empowerment than non-participants in a survey of 1300 microfinance participants and non-participants in Bangladesh (Littlefield et al., 2003). Because Fundación Paraguaya requires women to participate in the public sphere, it exposes them to new ideas and bodies of information. Studies also show that a mother's schooling positively relates to a child's nutrition (Corral et al., 2000). This reiterates the importance that education has on food choices. By empowering women, Fundación Paraguaya makes an impact in the health of not only mothers but their children as well.

Although Fundación Paraguaya does offer an educational component, it is not maximizing the potential of its sessions. I observed on multiple occasions a representative failing to give a lesson, and if they did conduct the lesson, the information supplied was ineffective and rudimentary. Dunford (2001) asserts that among microfinance clients there is a demand for health education. This demand indicates that an informative nutrition lesson can have tremendous impact. Moreover, in a survey taken by Fundación Paraguaya, only 41.1% of their clients have access to a course in nutrition and hygiene. Behavioral-change education would



make it so that microfinance *directly* deals with the issue of food insecurity, as well as targets specific factors contributing to improper food use. Access to credit alone will not significantly alleviate food insecurity for the majority of the population who is in a state of transitory food insecurity. Microfinance services paired with transformative education has the potential to increase the financial literacy of clients so they have better tools and skills to overcome poverty, and it can supply them with information that enables them to make smarter food choices.

In certain circumstances, microfinance may actually negatively affect food security by putting customers in a state of over-indebtedness. It is the borrower's responsibility to spend money resourcefully and pay back loans, but from the supply side, MFIs might exacerbate a client's financial struggles. By reducing the quality of loans in order to boost the volume of loans and by having rigid standards on repayment, MFIs can put additional pressure on and hurt clients who have highly seasonal incomes (Schicks, 2010). To remain fiscally solvent Fundación Paraguaya must distribute a considerable amount of loans, yet it spreads itself thin by having one representative be the contact to over 800 clients. Thus, that representative cannot ensure clients are making the most of their loans. If it were to devote more resources to effective education, Fundación Paraguaya could improve the quality of the loan so that the default rate shrinks, and it would not have to attract more clients to increase its bottom line.

## **V. Limitations**

The primary limitation of this study is its small dataset. The sample size is limited since it was restricted to clients and employees of the microfinance office in Carapeguá. For this reason, there is a selection bias among the participants in my study. Because of the brief five weeks I was in Paraguay, there is no assessment of a longitudinal effect and there is a lack of periodicity to my data. I faced challenges finding informants and being able to interview women. The organization did not offer interns many opportunities to interview women clients during work hours and interns lacked adequate transportation to access these women in their free time.

Language was also a barrier in collecting data, especially among women clients. Although most people speak Spanish, the indigenous language Guaraní is more frequently used, particularly in rural areas, so many of the conversations that occurred during client and committee meetings could not be understood or transcribed. Additionally, although it improved immensely, my conversational Spanish was inadequate for the project I was undertaking, and it did not allow me to fully enter the social reality of the women clients.

Even though Fundación Paraguaya's poverty index metric does provide a general landscape, it is not accurate. When taking the survey, many of the women clients are disinterested and do not value the information they are supplying. Many indicators are ambiguous and difficult to understand such as the indicator about whether clients have a moral conscience. The representatives from Fundación Paraguaya are not trained to properly administer surveys. On multiple occasions, I witnessed them answering the questions for the women, not reading the question in its entirety, or leading the question. Lastly, interviews I had with clients and surveys about Fundación Paraguaya's services are prone to a response bias, and clients avoid identifying negative aspects of microfinance because they do not want to do anything to jeopardize receiving their loans.

## **VI. Significance**

Research of this nature helps microfinance organizations better understand their consumer base and adjust their services to have the greatest impact on their clients' lives. It is in

the interests of the MFIs for clients to establish food security. If clients establish food security, they are likely to have higher productivity levels and will be more able to fight off disease and illness, which increase the probability of them repaying their loans (Cordillo et al., 2000). As previously stated, Fundación Paraguaya can have a significant impact on the food security of its clients if it strengthens its educational component, adds savings and insurance plans, and emphasizes the quality of loan portfolio over volume of loans.

This research can also guide public policy decisions regarding credit and food security. Lowering food prices of staples in most cases does not improve food security because rather than buying more of the cheaper product, the poor use the excess money to buy better tasting calories or luxury items. On the other hand, subsidizing healthier food options would make them much more accessible to the poor. The government can also promote nutritional programs so that more people understand the importance of a nutritious diet. Also, by understanding that microfinance is a viable tool for alleviating food security, the government can subsidize MFIs so that they can focus on the quality of their service and have a more substantial impact on their clients.

## **VII. Further Research**

If I had more time and resources, I would have conducted a longitudinal study analyzing the relationship between microfinance and food security. This would have required interviewing women and collecting data before and after they received loans. The temporal data would enable me to see if food security improves the longer women are receiving loans. I would also structure the study as a randomly controlled experiment that compares a group of participants to non-participants. Such a design would establish causation rather than suggest merely a correlation between microfinance and improved food security. Also, I am interested in determining the efficacy of a nutritional education program because many clients fail to utilize loans effectively and make poor consumption choices. In the next section, I expand upon the relevance of an educational program by proposing a randomly controlled trial.

## **VIII. Conclusion**

Poverty alleviation is a means to ending food security, but food security can also be a means to poverty alleviation. Although many factors contribute to food insecurity, food insecurity in Paraguay is usually a result of inadequate food access and food use. Most Paraguayans have the capability to be food secure if they adjust their consumption behavior and if they understand and value the nutritional quality of their diets. Microfinance offers many pathways that indirectly improve food security and it can significantly alleviate food insecurity if it capitalizes on its potential by including behavioral-change education and incorporating savings and insurance plans into its services.

## Part II – NSF Proposal

The Relationship between Microfinance and Food Insecurity and the Effect of Education as Part  
of Microfinance Services

(Not included in order to protect research design)

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