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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). Food security in Paraguay is not primarily affected by food availability but rather by food access and food use, which are heavily influenced by poverty, education, culture, land tenure, and domestic agricultural production. Microfinance – the business of supplying financial services to poor people who are frequently excluded from the formal banking sector – is a viable vehicle for diminishing food insecurity in Paraguay by helping people to increase incomes, consume more, mitigate risks, and have greater empowerment. Microfinance institutions (MFIs) have swept the country with seven MFIs serving over 500,000 borrowers (Mix Market, 2012). Although microfinance does positively affect food security, it can have an even greater impact if it improves its services by incorporating behavioral-change education about nutrition through its workshops and through technology and by offering savings and insurance plans as part of its services.

II. Project

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 what are the main reasons for food insecurity in Paraguay and through what mechanisms can microfinance alleviate food insecurity.

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 and 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 poor people 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. 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.

IV. Methodology

This project employs both quantitative and qualitative methods. It uses quantitative figures that have been issued by the Paraguayan government and international institutions such as the World Health Organization to better understand the demographic, cultural, economic, and

health profile of the country. It further benefits from literature review to frame the research question and compare research findings regarding the topics of food security and microfinance.

It also relies 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.

Lastly, the project uses company surveys and records, most notably Fundación Paraguaya's unique poverty metric, to analyze overarching patterns and trends of its clients' poverty level. It 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 whether they are on the red (extremely poor), yellow (poor), or green (adequate) level. Using client responses received by one of the representative of the Carapeguá office, I was able to find the correlation coefficients to determine which indicators most strongly correlate to the nutrition indicator. The red level for nutrition was two or less meals a day, yellow was three meals a day but missing either milk, eggs, chicken, beef, fruits, and vegetables from the weekly diet, and the green level was having all the aforementioned foods and three meals a day.

III. Literature Review

According to the World Food Summit of 1996, food security exists "when all people at all times have access to sufficient, safe, nutritious food to maintain a healthy and active life." It relies on three factors: food availability which means sufficient quantities of food are available on a consistent basis, food access which is having sufficient resources to obtain appropriate

foods for a nutritious diet, and 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 which implies they are in a transitory state of food insecurity.

The nutritional insecurity Paraguayans are facing is exemplified through their diets. Odilia Bermudez and Katherine Tucker 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 (2003). Poverty is the most frequent indicator of food insecurity. The book *Poor Economics* and the paper “Many Borrow, Many Save, and All Insure: Implications for Food and Microfinance Policy” describe how the poor cut consumption on food 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). However, the causes behind food security are far more complex than this, 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, p. 202). In addition to poverty, the papers “Changes to Agricultural Decision Making and Food Procurement Strategies in Rural Paraguay” and “Ripple Effect: Biofuels, Food Security, and the Environment” suggest that land tenure and changes in the agriculture market are particularly affecting food security in Paraguay (Finnis, Benitez, Romero & Meza, 2012; Naylor, Liska, Burke, Falcon, & Gaskel, 2007).

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. Jonathon Morduch (1999) contends that microfinance fails to reach the poorest of the poor and relies heavily on subsidies that make it financially unsustainable. However, in wave of the criticism, quantitative studies have arisen proving microfinance does have an impact on poverty. For example, an analysis of CRECER, a MFI in Bolivia that uses comparative data collected from participants and a control group of non-participants, found that participants experience empowerment by being more active in their households and communities, have a greater economic capacity with 67% increasing incomes, and adopt better health and nutrition practices by taking up better best feeding practices and nourishing their children with the proper food for their respective ages (McKnelly & Dunford, 1999). Elizabeth Littlefield, Jonathan Morduch, and Syed Hashemi (2003) in “Is Microfinance an Effective Strategy to Reach the Millennium Development Goals?” elucidate multiple studies that suggest that properly managed microfinance does impact poverty and improve food security.

V. Food Security Findings

In accordance with the literature about food security in Paraguay, my research also found that most of the factors influencing food insecurity are results of poor food access and food use rather than food availability. 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.

Many Paraguayans eat a poor diet and are nutritionally insecure because these are the foods to which they have the greatest access. 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, and 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, healthier alternatives such as whole-wheat flour, diet soda, sugar-free alternatives, and low-fat dairy products are not widely available. Although 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, and closer in proximity. In addition, people are more likely to have established rapport with the storeowner to buy on credit (Gartin, 2012). The nutritional landscape predisposes Paraguayans to eat poorly. In this sense, Paraguayans are food insecure because consumer choices have to be compromised due to the high prices of healthier foods.

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. 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 is negatively affecting food access in Paraguay as well. Paraguay is notorious for its dualistic 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 better food security through increased production which leads better income generation which translates to greater consumption and overall 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 this land that land they feel is theirs is only being sold to large companies, mainly from Brazil. Many Brazilian corporations are buying lands 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 agricultural production and food security.

The 5.1% of the Paraguayan population living on under \$1 a day has issues purchasing food (WHO, 2012). However, for a majority of the food insecure, they have enough money to achieve food security although they adopt consumption behaviors that prevent them from doing so. A consistent field observation was that many of the women clients had televisions, nail

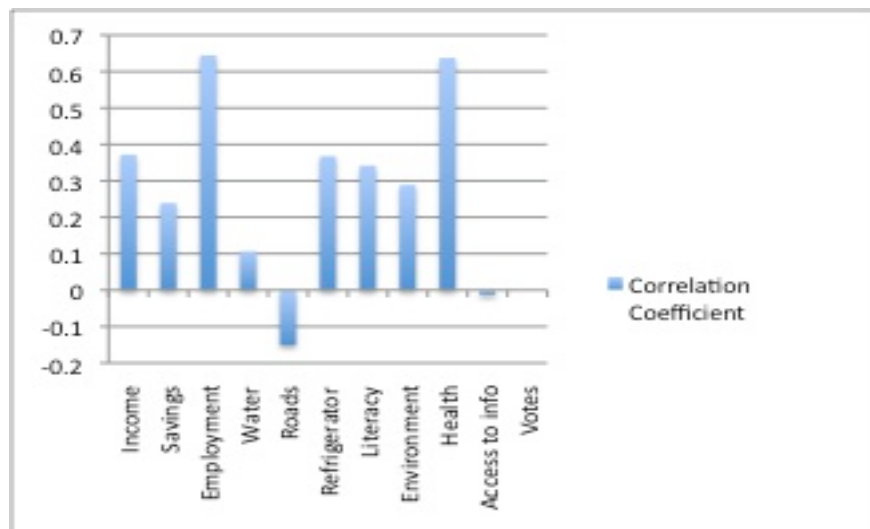
polish, radios, toys for their children, but they were struggling to obtain enough food. I asked one of my informants about this phenomenon, and she replied, “Televisions last, but food turns bad.” Essentially, impoverished people see greater value in luxury goods such as electronics because they last longer than food. Banjee 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 is evident in cardiovascular diseases which account for 28% of all deaths, communicable, maternal perinatal, and nutritional conditions which account for 20%, and diabetes which 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.

As discussed earlier, food security is a multifaceted and complex problem. Using

Fundación Paraguaya's poverty metric, I found the correlation coefficients of various data sets to see what indicators relate most closely to the nutrition indicator. Income earnings above poverty line, stable employment, savings, unpolluted environment, access to information (radios and televisions), potable water, access to roads in all weather conditions, personal hygiene and sexual health, Spanish literacy, and votes in elections were the comparative data sets I used. The strongest correlations were stable employment with $r=.644$ and personal hygiene and sexual health with $r=.637$ which were positively related to food security. Although there are deficiencies in data which will be explained later on, the data provides a better understanding of food security among women clients. Relating strongly to stable employment not only indicates that women who are consistently employed probably spend more on food, but the data also suggests that they are not as vulnerable to external shocks which means their consumption remains relatively consistent. Additionally, the personal hygiene and sexual health indicator implies that those who are food secure are able to live healthier lives which underlies the importance of food security.

Graph 1: Food Insecurity Indicators Using Fundación Paraguay's Poverty Metric



VI. Microfinance Alleviating Food Insecurity Findings

In my research, 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 grand of an impact as MFIs are suggesting, but it is not ineffective as critics of microfinance insist. In most cases, it is helping poor people 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. Yet, it has even greater potential to help the poor 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). Income generation also coincides with stable employment which has a strong correlation to nutrition according to Fundación Paraguaya's poverty metric.

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, being able to send children to school, or buying more food. Whether or not women are escaping poverty,

microfinance can still help them by increasing consumption among clients. In the few interviews I had with women clients, everyone 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 comfort 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 experience credit supply effects of farmers who 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 the 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.

Microfinance leads to greater empowerment of women who are more likely to spend their loans on their family's needs rather than on alcohol and gambling. 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, Winters, & Gordillo, 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 children as well.

Although Fundación Paraguaya does offer an educational component, it is not fully maximizing the potential of its sessions. I observed on multiple occasions a representative failing to give a lesson, and if they did the 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. Not only can representatives give stronger, more effective lessons about nutrition, but also Fundación Paraguaya can benefit from using advanced technology. For example, it can send daily text messages with health facts since all of its clients have phones. The consistent reminders may help women to sustain healthy practices. Additionally, applications can be designed for women to track how they spend their

money or what they are eating. Representatives can then analyze that information to suggest how women can better budget their money or improve their health. 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 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 which hurts those clients who have highly seasonal incomes (Schicks, 2010). Although to remain fiscally solvent Fundación Paraguaya must generate a considerable amount of loans, 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 improves 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.

VII. Limitations

The limitations of this study are its heavy reliance on participant observation and literature review. The sample size is limited since it was restricted to clients and employees of

the microfinance office in Carapeguá. For this reason, no one I interviewed could be randomly selected. Because of the brief five weeks I was in Paraguay, there is a longitudinal effect and lack of periodicity to my data. I had issues with being able to interview women and find informants. The organization did not offer the interns many opportunities to interview women clients during work hours and interns lacked adequate transportation to access these women in their free time. Furthermore, Fundación Paraguaya led me to believe that it had collected significant data and I was privy to that information which was not the case.

Language was also a major barrier in collecting data, especially among women clients. Although most people speak Spanish, the indigenous language Guarani 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 below average for the project I was undertaking.

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.

VIII. 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, the ways Fundación Paraguaya particularly can have a significant impact on the food security of its clients is to strengthen its educational component by providing better information and utilizing cellular technology, add savings and insurance plans, and emphasize 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 how important a nutritious diet is. 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.

IX. Further Research

If I had more time and resources, I would have liked to have conducted a longitudinal study on nutrition with temporal data. This would have required interviewing women and taking anthropometric measurements before and after they received loans. Also, I would be interested to determine the efficacy of a nutritional education program. Because Fundación Paraguaya is so large and prominent through out Paraguay, certain towns could be used as control groups and

others could receive the educational program. After an allotted amount of time, a survey can be conducted to see if the program had any significant effects.

X. Conclusion

Poverty alleviation is a means to ending food security, but also food security can 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.

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