RELATIONSHIPS MATTER: SOCIAL CAPITAL AND MICROFINANCE

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FRIENDS MATTER: SOCIAL CAPITAL AND MICROFINANCE

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Abstract

This study shows how social capital affects the outreach and operational self-sufficiency of microfinance institutions (MFIs) around the world. Borrowing from the literature, this thesis defines social capital as those features of human relationships—specifically social networks, social norms, and trustworthiness—which help a community to achieve economic development. This research uses quantitative data from the Microfinance Information Exchange and the World Values Survey as well as qualitative data collected during a ten-day case study with the Adelante Foundation in La Ceiba, Honduras. The regression model shows which aspects of social capital have the greatest influence on MFI performance, accounts for explanatory variables, and tests for an endogenous peer effect between MFIs. Results show that social capital—particularly friend networks and trust—has a direct influence on MFI performance, suggest that there is a tradeoff between outreach and sustainability, and proves that there is an endogenous peer effect between MFIs.

KEYWORDS: (Social Capital, Microfinance, Social Networks, Social Norms, Trust, Outreach, Operational Self-Sufficiency, Endogenous Peer Effect)

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CHAPTER I

INTRODUCTION

It's not what you know; it's *who* you know. – Anonymous

Social capital may take various forms. With the rise of Facebook, Twitter, and

other social media, one aspect of social capital—the social network—has taken off

around the world. The 2011 Egyptian Revolution, recently dubbed "the Twitter

Revolution," is one of the most recent examples of the power of social networking. Given

that social networks in Egypt catalyzed the gathering of thousands of Egyptians in Cairo

on January 25, 2011, academics have recognized that "these [social networking] tools

have gone beyond just communication and have been adapted by the actors in social

movements to transform learning, cognition, and facilitation."[1] When used appropriately,

social networks have power.

Social capital has also proven to have power in the online marketplace. For

example, the millions of customer reviews posted on shopping sights such as Amazon,

Zappos, and eBay have had an increasingly large effect on customer purchasing

decisions. Chen and Xie developed a normative model to analyze the role of customer

reviews and showed that these kinds of networks "can serve as a new element in the

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[1] Caitlin Turner, "Twitter Revolution: The Misappropriation of Cause and Effect," *Unrest Magazine: Engaging Systems of Violence*, Issue 4 (2011): 14.

marketing communications mix and work as free 'sales assistants' to help consumers identify the products that best match their idiosyncratic usage conditions."[2] Online consumer reviews show how trust between customers ultimately impacts a company's performance.

If these interactions and relationships have proven to be powerful in the sphere of politics and marketing, might social capital be important in alleviating poverty as well? According to World Bank Development Indicators, at least 80% of the world lives below the poverty line, surviving on less than ten dollars per day.[3] The World Bank identifies poverty as "a call to action to change the world so many more may have enough to eat, adequate shelter, access to education and health, and protection from violence."[4] As one of the world's largest organizations dedicated to fighting poverty, the World Bank recognizes that advances in health, education, and economics require external assistance.

Other sources offer a more passive definition of poverty. For example, the popular online dictionary resource, dictionary.com, defines poverty as "the state or condition of having little or no money, goods, or means of support."[5] However, even if people live with no money and few tangible goods, they do not necessarily lack a means of support. Poor people can acquire support through social capital.

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[2] Yubo Chen and Jinhong Xie, "Online Consumer Review: Word-of-Mouth as a New Element of Marketing Communication Mix," *Management Science*, Vol. 54, no. 3 (2008): 477.

[3] World Bank Indicators, 2011 internet online, Available from http://www.globalissues.org/article/26/poverty-facts-and-stats, [September 25, 2011].

[4] Stephen William Polk. "Microeconomic Determinants of Poverty Movement," Thesis, The Colorado College. (2009): 1.

[5] Dictionary.com, 2011 internet online, Available from, http://dictionary.reference.com/browse/poverty, [December 10, 2011].

Although social capital has been highlighted since the development of new social media, it is not altogether a new phenomenon. Social capital has existed for millennia through trust, social norms, and social networks. When combined, these tools become "one of the primary resources they [people living in poverty] have for managing risk and vulnerability."[6] Therefore, even if people living below the poverty line do not have access to Facebook or online customer reviews, they have basic social capital that can be leveraged to combat poverty.

The goal of this paper is to explain the role of social capital in the battle against poverty by measuring the effects of social capital on microfinance institutions (MFIs). This paper examines poverty as an opportunity for outside agents to collaborate and work with those living in poverty, using MFI performance data from the Microfinance Information Exchange (the MIX) and international social capital data from the World Values Survey (WVS). This study also incorporates qualitative data from a ten-day field study with the Adelante Foundation—a small MFI located in La Ceiba, Honduras. By presenting quantitative and qualitative data about social capital and microfinance, this study contributes to the literature surrounding microfinance as well as the larger story of international development.

Mohammed Yunus crafted the idea of microfinance in the 1970s.[7] Yunus recognized that traditional financial institutions do not lend to the poor because of the risks involved. Because poor people do not have collateral to use when they take out a loan, banks are wholly liable and need to come up with their own resources to pay for

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[6] Michael Woolcock and Deepa Narayan. "Social Capital: Implications for Development Theory, Research, and Policy," *The World Bank Research Observer, Vol.* 15, no. 2 (2000): 242.

[7] Grameen Bank, 1998 internet online, Available from http://www.grameen-info.org/index.php?option=com_content&task=view&id=19&Itemid=114, [January 12, 2011].

defaulted loans. Additionally, the poor usually desire multiple small loans with high transaction costs rather than fewer, larger loans. Due to these financial standards around the world, poor people have traditionally not had access to financial resources.

Yunus thought that the solution to this cycle was simple: credit. He reasoned, "if the poor had access to credit at reasonable interest rates, they could use the loans to become micro-entrepreneurs who keep the profits of their labor."[8] Following this theory, Yunus founded the Grameen Bank. Grameen considers credit to be a human right and claims that its principle interest is bringing financial services to the poor.[9] Unlike most banks, Grameen does not require collateral, focuses on women, organizes borrowers into small groups, never expects interest to exceed the value of the loan, and features a built-in insurance program for its clients. Grameen now has 8.35 million borrowers around the world and has served as a role model for the entire microfinance industry.[10] Grameen and other MFIs are actively combatting poverty by providing people with access to future profits and the amenities that accompany a profitable lifestyle.

Although there is debate over the impact of MFIs on economic conditions in developing countries, there is some evidence that microfinance has a positive effect on poverty. For example, Chowdury et al. showed that there was a decline in objective poverty rates in Bangladesh by about 50% after 8 years of being enrolled in a

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[8] Polk, 5.

[9] Grameen Bank, 1998 internet online, Available from http://www.grameen-info.org/index.php?option=com_content&task=view&id=27&Itemid=176, [December 6, 2011].

[10] Grameen Bank, 1998 internet online, Available from http://www.grameen-info.org/index.php?option=com_content&task=view&id=26&Itemid=165, [December 6, 2011].

microfinance program.[11] Similarly, Hiatt and Woodworth used econometric analysis to show that microloans in Latin America improve economic conditions for current MFI clients.[12]

How can these positive effects of microfinance be spread and sustained? Many MFIs today experience a tradeoff between outreach and sustainability. MFIs that focus on outreach to poorer populations by offering many smaller loans are often not financially sustainable or efficient.[15] On the other hand, financially sustainable MFIs tend to offer larger loans to fewer clients. Although this ensures continued operations and fewer transaction costs for the MFI, it diverges from the central mission of providing financial

Other studies focus on the impact that microfinance programs have on women. One of the most famous articles, by Pitt and Khandker, showed that household consumption "increases by 18 taka for every 100 taka lent to a woman" while for men, "the increase is just 11 taka for every 100 taka lent."[13] In this same vein of study, Cheston found that microfinance also improves women's rights and wellbeing by "putting capital in their hands, allowing them to earn independent income and contribute financially to their households and communities."[14] Although the impact of microfinance varies, there are some clear benefits.

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[11] Gage, Peter. "Microfinance: The Evolution of an Emerging Industry." Thesis, The Colorado College. (2008): 17.

[12] Gage, 20.

[13] Beatriz Armendáriz and Jonathan Morduch, *The Economics of Microfinance* (Cambridge: The MIT Press, 2010), 289

[14] Polk, 19.

[15] Niels Hermes and Robert Lensink, "Microfinance: Its Impact, Outreach, and Sustainability," *World Development* 39, no. 6 (2011): 878-879.

services to all poor people. More analysis and research should address this tradeoff to help MFIs find a way to increase outreach without compromising financial sustainability.

This paper addresses this gap in the literature. Literature studying the tradeoff between financial sustainability and outreach is limited and largely anecdotal.[16] This paper helps fill this void by performing an industry-wide measurement of the impact of social capital on microfinance outreach and sustainability. Can MFIs simultaneously minimize cost per borrower and increase outreach by leveraging the power of pre-existing social capital?

This research combines quantitative analysis with qualitative observations to better explain the relationship between social capital, outreach, and financial sustainability. The first regression measures microfinance outreach as a function of social capital and explanatory variables. The second regression measures operational self-sufficiency (OSS) as a function of social capital and explanatory variables. Both regressions also estimate the indirect effect of social capital through an endogenous peer effect. To supplement the quantitative research, this study includes anecdotal evidence from a ten-day field study in La Ceiba, Honduras. While the large international data set provides valuable industry-wide information about social capital and microfinance, the case study provides a necessary example of how social capital and microfinance intersect in everyday practice.

The findings of this study have multiple implications. First, this study will offer numerous policy implications for individual MFIs. If an industry-wide analysis shows that social capital has an affect on outreach or transaction costs, institutions may reconsider how they utilize their resources for marketing and outreach. Is it possible that

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[16] Hermes and Lensink, 878.

there is a more efficient way to advertise microfinance by tapping into local networks instead of creating new ones? Second, this study will shed light on the tradeoff between outreach and sustainability and provide potential policy adjustments. Lastly and most importantly, this study will contribute to the battle against poverty. How could social capital help minimize the costs associated with running an MFI and enable more people to experience the benefits of microfinance?

This thesis includes four chapters following this introduction section. Chapter II consists of a thorough literature review and provides a foundation for this paper. Using existing literature and theory, this section defines social capital, describes the documented effects of social capital, and links those effects to economic development. This chapter concludes by showing how authors have measured the intersection of social capital and microfinance and suggests why further research is necessary. Chapter III presents the quantitative data used in the study and justifies the regression model chosen for analysis. This chapter also explains the source of the qualitative interview data from La Ceiba, Honduras. Chapter IV presents the regression results and describes the qualitative interview data included in the analysis. The last section, Chapter V, analyzes the effect of social capital on microfinance by discussing the quantitative and qualitative results together. It also outlines the limitations of the study and makes recommendations for future researchers. To conclude, Chapter V provides policy recommendations for MFIs trying to improve outreach and sustainability.

CHAPTER II

LITERATURE REVIEW

Although social capital has played a role in human development for millennia,

scholars have just recently begun to formally address the concept. The concept of social

capital is "often vague, difficult to measure, and so pervasive that testable hypotheses are

often infeasible."[1] Although social capital is difficult to define, this literature review

provides a unique definition based on the theoretical literature and empirical studies

about social capital. This research expands upon the work of several academics that have

begun to explore the ramifications of social capital.

2.1 The Definition of Social Capital

Hanifan is often credited as the first academic to introduce the concept of social

capital in 1916. In his article "The Rural School Community Center," Hanifan refers to

social capital as "goodwill, fellowship, mutual sympathy, and social intercourse among a

group of individuals who make up a social unit."[2] Hanifan refers to the intangible values

present in everyday life, such as trust and kindness, which enable tangible development

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[1] Samantha Marinello "Religion and Work Ethic," Thesis, The Colorado College. (2011): 4.

[2] L.J. Hanifan, "The Rural School Community Center," *Annals of the American Academy of Political Science*, Vol. 67, (1916): 130.

and production. He concludes that people must interact and organize in order to accumulate social capital and subsequently evolve and improve the community.

Since then, scholars of various disciplines have debated the complex definition of social capital. American sociologist James Samuel Coleman is one of the most famous contemporary pioneers of the term. In his article "Social Capital in the Creation of Human Capital," he offers an inclusive definition of social capital:

> Social capital…comes about through changes in the relations among persons that facilitate action. If physical capital is wholly tangible, being embodied in observable material form, and human capital is less tangible, being embodied in the skills and knowledge acquired by an individual, social capital is less tangible yet, for it exists in the *relations* among persons…For example, a group within which there is extensive trustworthiness and extensive trust is able to accomplish much more than a comparable group without that trustworthiness and trust.[3]

Coleman describes social capital as a seemingly qualitative concept that describes human interactions and relationships. According to Coleman, this idea of social capital explains how social action is shaped, constrained, and redirected.[4]

Woolcock and Narayan, offer a slightly more tangible definition of social capital, claiming that "the basic idea of social capital is that a person's family, friends, and associates constitute an important asset, one that can be called on in a crisis, enjoyed for its own sake, and leveraged for material gain."[5] These authors define relationships between family members, local friends, and coworkers or teammates as measurable assets that can help a community overcome poverty and vulnerability, confront conflict,

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[3] James S. Coleman, "Social Capital in the Creation of Human Capital," *The American Journal of Sociology*, Vol. 94, Supplement: Organizations and Institutions: Sociological and Economic Approaches to the Analysis of Social Structure (1988): 100-101.

[4] Coleman, 100.

[5] Michael Woolcock, and Deepa Narayan, "Social Capital: Implications for Development Theory, Research, and Policy," *The World Bank Research Observer*, Vol. 15 no. 2 (2000): 226.

and maximize new opportunities.[6] This definition appears more practical than Coleman's and hints at the relevance of social capital to the field of economic development.

Political scientist Robert Putnam is one of the most well-known scholars to have explained economic development through social capital. In his book *Building Democracy*, Putnam defines social capital as the "features of social life—networks, norms (including reciprocity) and trust—that enable participants to act together more effectively."[7] Like previous scholars, Putnam alludes to the ability to achieve collective development through social capital. Furthermore, Putnam explains that the power of social capital can be attributed to three specific features of social life.

These authors agree that social capital helps to explain human behavior and plays a role in communal development. It is unclear, however, which features of social capital should always be included in the definition and which features are most important. Hanifan lists four elements of social capital including goodwill, fellowship, mutual sympathy, and social intercourse.[8] Coleman describes three elements of social capital: obligations, expectations, and trustworthiness of structures; information channels; and norms and effective sanctions.[9] Woolcock and Narayan merely focus on norms and networks,[10] while Putnam includes norms, networks, and trust.[11] The current study synthesizes the various definitions and provides a single unique definition.

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[6] Woolcock and Narayan, 226.

[7] Marcel Fafchamps, "Development and Social Capital," *Global Poverty Research Group* (2007): 10.

[8] Hanifan, 130.

[9] Coleman, 102-105.

[10] Woolcock and Narayan, 226.

Based on theoretical definitions of social capital, as well as empirical studies related to social capital, this thesis defines social capital as those features of human relationships—specifically social networks, social norms, and trustworthiness—which help a community to achieve economic development. This definition suggests that there are three significant components of social capital that can be leveraged at any time to encourage productive behavior in a group of people: social networks, social norms, and trustworthiness.

First, this work considers social networks. The idea of a social network includes several measurable components. Putnam suggests that social capital involves interactions between people and specifically mentions social networks. Human interactions and networks can be measured through technology and by recording attendance rates at religious, athletic, or cultural events. Although the term social network is a contemporary buzzword, it is also a key component of social capital.

Second, social norms are also incorporated into several of the available definitions. Hanifan mentions goodwill, fellowship, and mutual sympathy, which might be considered social norms.[12] Those characteristics, however, are difficult to measure. Putnam also mentions social norms as a key component of social capital, without providing any specific examples.[13] By including social norms in the definition of social capital, this study can incorporate whichever social norms are most measurable.

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[11] Robert Putnam, Robert Leonardi, and Raffaella Y. Nanetti, Making Democracy Work: Civic Traditions in Modern Italy (New Jersey: Princeton University Press, 1993), 167.

[12] Hanifan, 130.

[13] Putnam, 167.

Trust is a third component of social capital. Putnam and Coleman both explicitly state that trust provides a foundation for social capital.[14] Although trust seems difficult to measure and qualitative in nature, this study uses a data set that quantitatively represents levels of trust. This research also includes interviews with questions related to trust in order to capture the qualitative importance of trust.

What if social capital actually affects economic forces? Woolcock and Narayan argue that social capital may intersect with economics particularly in the field of economic development. They claim that social capital forms a union between sociology and economics "by showing that the nature and extent of social interactions between communities and institutions shape economic performance."[15] Networks can form between individuals, communities, and institutions, often linking them together. Academics, therefore, should explore the connection between social capital and economic institutions around the world.

2.2 Social Capital and Economic Development

This paper identifies social networks, social norms, and trust as the three major components of social capital that help a community to achieve economic development. Now that social capital has been clearly defined, it is possible to explain how it affects economic development. The rest of this chapter moves beyond the theory of social capital

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[14] Marcel Fafchamps discusses Putnam's definition of social capital on page 10 in his 2007 article, "Development and Social Capital," and Coleman includes trust in his definition of social capital on pages 100-101 in his 1988 article, "Social Capital in the Creation of Human Capital."

[15] Woolcock and Narayan, 342.

and presents numerous case studies and empirical examples that show how social networks, social norms, and trust impact international economic development.

The first aspect of social capital involves social networks. The social relations behind social networks provide a critical "means by which information can be acquired."[16] Although these information channels may seem hard to quantify, one can use various proxies as measurements of social networks. In addition to conducting interviews to learn about interpersonal relationships, academics can also look at group and club memberships, religious institutions, ethnic demographics, and social network infrastructure like internet, newspaper circulation, and cell phone subscriptions. When these means of social networking accelerate or facilitate information exchange, it is possible to see the effects of social networks on economic development.

Fafchamps and Minten were two of the first academics to investigate the link between social networks and international development. In their article "Returns to Social Network Capital Among Traders," Fafchamps and Minten use data from a 1997 survey of Madagascan agricultural traders to measure the effect of social networks on firm productivity. By combining information about sectoral performance and relationships between traders, clients, and suppliers, Fafchamps and Minten reveal "the strong positive effect that social capital has on the performance of agricultural traders in Madagascar."[17] Madagascan farmers were able to minimize transaction costs by networking with clients and suppliers to obtain price information, increasing their gross margin by 60%.[18]

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[16] Coleman, 104.

[17] Marcel Fafchamps and Bart Minten "Returns to Social Network Capital Among Traders," *Oxford Economic Papers*, Vol. 54, no. 2 (2002): 26.

[18] Fafchamps and Minten, 24.

Miguel and Kremer reveal the importance of social networks in relation to medical initiatives in developing countries. Miguel and Kremer show that interactions between children who had already taken a deworming drug and those who had not yet taken the drug actually decreased the likelihood of that child adopting the drug. Many teenagers had unpleasant experiences during the treatment and told their friends about the negative side effects. This communication through friend networks "reduced the probability of [an individual's] receiving the treatment by 2.8 percentage points."[19] In this case, social networks damaged the efficacy of the development program.

Conley and Udry explore the impact of social networks on economic development in an article about the diffusion of agricultural technology in Ghana. Social networks prove to have a significant effect on agricultural development. Conley and Udry find that farmers in Ghana were more likely to adopt a new technology if they had heard about its success from a nearby neighbor with whom he or she shares information regularly. Although this article explains the spread of farming technology by measuring geographic proximity, it still shows that the diffusion of information within a community or industry depends on relationships between individuals.[20] In modern social networks, geographic proximity is becoming less important, so the diffusion of information through relationships may become even more widespread.

McMillan and Woodruff contribute to this discussion by examining the effect of social networks on trade credit. The authors find that trade credit is more likely to be

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[19] Bruce Wydick, Harmony Karp Hayes, and Sarah Hilliker Kempf, "Social Networks, Neighborhood Effects, and Credit Access: Evidence from Rural Guatemala," *World Development*, Vol. 39, no. 6 (2011): 975.

[20] Timothy G. Conley and Christopher R. Udry. "Learning About a New Technology: Pineapple in Ghana," *The American Economic Review*, Vol. 100, no. 1 (2003): 39-40.

offered when (a) the supplier has information about a customer's reliability through investigation or previous experience or (b) the supplier belongs to a network of similar firms that provide information about the customer and helps to sanction bad customers.[21] Again, personal relationships and strong networks can promote the exchange of information and impact business. The trusting networks between different suppliers enabled them to learn from one another to economize on their trade credit business.

All of the aforementioned articles reflect the importance of information exchange on economic development by using data collected through surveys about individual relationships. This seems appropriate as social networks explain human action and require personal interaction. However, it is also possible to measure the impact of social networks without distributing a survey specifically catered to that study. Academics have measured social networks by recording variables such as school, church, choir, and sporting event attendance, as well as newspaper circulation, television prevalence, telephone subscriptions, and internet usage.

For example, Putnam, Leonardi, and Nanetti wrote *Making Democracy Work: Civic Traditions in Modern Italy*, to show how social networking at various institutions affects economic development. Putnam et al. examine social networking by measuring "voter turnout, newspaper readership, membership in societies and clubs and confidence in public institutions."[22] By collecting historical data about these variables, Putnam et al.

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[21] John McMillan and Christopher Woodruff, "Interfirm Relationships and Informal Credit in Vietnam," *The Quarterly Journal of Economics* (1999): 1286.

[22] Kanchan Chopra, "Social Capital and Development Processes: Role of Formal and Informal Institutions," *Economic and Political Weekly,* Vol.37, no. 28 (2002): 2912.

are able to explain the discrepancy between economic development in northern and southern Italy.[23]

Social norms are present in all cultures and form around a variety of beliefs and traditions. Social norms can have a significant impact on social capital in positive and negative ways.[24] In 2006, Munshi and Myaux published one of the most revealing articles about economic development and social norms. In this article, the authors measure the spread of contraceptive adoption in Bangladesh—a society that uses traditional norms to regulate fertility. The study suggests that women in Bangladesh ask for advice and learn about new opportunities primarily from women within their own religious group. Therefore, the Maternal Child Health-Family Planning likely would have been more successful if it had presented the new contraceptive techniques to the women in groups according to their religious preference, instead of to individuals in their private homes. The gradual spread of the contraceptive adoption was dependent upon the interactions between women within the religious groups.[25] This article shows that social norms affect development strategies and should be considered by policy-makers.

The third component of social capital is trust. An environment that is trustworthy is one in which obligations will be repaid.[26] In order for social capital to be sustainable, there must be an element of trust. If several people working together in a group

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[23] Putnam, Leonardi, Nanetti, 187.

[24] Coleman, 105.

[25] Kaivan Munshi and Jacques Myaux, "Social Norms and the Fertility Transition," *Journal of Development Economies*, Vol. 80, no. 1 (2006): 3.

[26] Coleman, 102.

commonly default on their obligations, the group will cease to function.[27] Trust, therefore, is an important feature of social capital.

Although trustworthiness is hard to measure, it deserves attention from economists because it can have a direct impact on economic outcomes. In 2000, Fafchamps used data from agricultural traders in Madagascar to show that trust enables individuals to economize on transaction costs.[28] If traders have confidence in other traders' ability to pay for transactions, they feel more comfortable paying by check, using invoices, providing trade credit, and offering warranty. Barr and Grief add that trust "facilitates the circulation of reliable information about technology and market opportunities, as well as the blacklisting of unreliable agents."[29] These efficiencies cut costs between traders and have a direct impact on business efficiency.

Thus far, the literature review has focused on the importance of social capital to economic development. Numerous authors have proven that social networks, social norms, and trust directly affect contraceptive adoption, drug usage, and agricultural trading. The next section explores how social capital might also affect microfinance.

2.3 Social Capital and Microfinance

How does microfinance intersect with social capital? Providing credit to the poor involves high transaction costs due to the extensive screening, monitoring, and

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[27] Coleman, 103.

[28] Fafchamps and Minten, 3.

[29] Fafchamps and Minten, 4.

administration costs associated with each microloan.[30] Because MFIs are not typically

driven by profits, they often rely on subsidized loans from governmental organizations as

well as private donors.[31] At the heart of microfinance there is an ongoing conflict

between financial sustainability and outreach.

The main theories explaining the two sides of the conflict include the financial

systems approach and the poverty lending approach. The financial systems approach

concentrates on financial sustainability and suggests that MFIs should be able to cover

the costs of loans from income produced by the outstanding loan portfolio.[32] The poverty

lending approach insists that the poor cannot pay high interest rates. Poverty lending

focuses on using credit to overcome poverty regardless of the transaction costs involved.

Regardless of which side poses a stronger argument, the bottom line is that MFIs cannot

achieve their goal of reaching out to the poor if the institution is not financially

sustainable.

Because of this dilemma, many MFIs experience a phenomenon called mission

drift. To increase profits and minimize transaction costs, MFIs gradually focus on giving

fewer larger loans to wealthier clients.[33] Although this may help MFIs approach financial

sustainability, it hurts their primary mission—bringing financial services to the poor.

Can MFIs adhere to their mission of serving the poor and achieve financial

sustainability? As only 1-2% of MFIs are financially sustainable, it is increasingly

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[30]Hermes, Niels, Robert Lensink, and Aljar Meesters, "Outreach and Efficiency of Microfinance Institutions," *World Development*, Vol. 39, no. 6 (2011): 939.

[31] Polk, 6.

[32] Hermes and Lensink, 878.

[33] Hermes, Lensink, and Meesters, 939.

difficult for MFIs to reach out to poorer communities, screen potential clients, and monitor loans.[34] In 2008, Hermes, Lensink, and Meesters proved an empirical tradeoff between outreach and efficiency and showed that MFIs focused on lending to the poor are less efficient.[35] It appears nearly impossible for an MFI to simultaneously bring financial aid to those most in need and operate efficiently.

Could MFIs increase efficiency by leveraging social capital? Social capital has already proven to impact international economic development through medicine, agriculture, and trade, so it seems logical that social capital would also affect microfinance. If MFIs could utilize pre-existing social capital, they might have the potential to cut operational costs and boost self-sufficiency.

Several academics have already explored this hypothesis through case studies. In the article "Social Networks, Neighborhood Effects, and Credit Access: Evidence from Rural Guatemala," authors Wydick, Karp, and Hilliker show that a household's access to credit in rural Guatemala is closely related to church networks.[36] In addition to recording church membership rates, Wydick et al. measure the prominence of bicycles, TVs, and cell phones as proxies for networking. They conclude that networks in Guatemala serve as information channels for credit opportunities, screening functions for potential borrowers, and social collateral for loans.[37] As seen in other studies of social capital and economic development, social networks, social norms, and trust have an impact on microfinance and can help MFIs access more clients more efficiently.

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[34] Hermes and Lensink, 878.

[35] Hermes, Lensink, and Meesters, 943.

[36] Hermes and Lensink, 879.

[37] Wydick, Hayes, and Kempf, 975.

Another case study, by Okten and Osili, further proves the role of social capital in microfinance by measuring the effects of family and community networks on access to MFIs in Indonesia. According to the results of the study, family and community networks in Indonesia help to provide information, lower search costs, and enforce loan repayment for the potential microfinance client.[38] Again, social capital appears to influence microfinance by making the outreach, information exchange, and enforcement practices more efficient. Instead of investing in marketing programs and hiring extra employees to track the status of a loan, MFIs might be able to rely on pre-existing social capital to do that work for them.

Could social capital be the key to future microfinance? Although there are several articles showing the importance of social capital in the field of microfinance, they use case studies and focus on individual countries. There is currently no industry-wide analysis measuring the impact of social capital on MFIs around the world. The current study combines quantitative data from an international data set with qualitative interview data collected during a ten-day field study in Honduras. Both quantitative and qualitative data are necessary to study the effect of social capital on outreach and sustainability because of the complexity and qualitative nature of social capital. Given that there is a proven tradeoff between outreach and financial sustainability, this research hopes to show how this tradeoff might be overcome through social capital.

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[38] Cagla Okten and Una Okonkwo Osili, "Social Networks and Credit Access in Indonesia," *World Development*, Vol. 32, no. 7 (2004): 1225.

CHAPTER III

DATA DISCUSSION

The objective of this section is to present the data used in this study. The first

section explains the process that was necessary to organize the final data set. Next, there

is a discussion of the dependent and independent variables with justification for their

inclusion in the research. Finally, there is a description of qualitative data from a case

study with the Adelante Foundation in La Ceiba, Honduras.

3.1 The Data Process

The data set used in this thesis includes information from three major data

sources. All information about MFIs comes from the Microfinance Information Exchange

(the MIX). The MIX is a non-profit organization that collects and shares financial,

operational, product, client, and social performance data from international MFIs.[1] The

original MIX Market MFI Data Set included data collected between 1995 and 2011.

There were over 100,000 observations from 1,926 MFIs operating in 115 countries.

Originally this thesis incorporated several World Bank Indicators to represent

physical social capital infrastructure. The two most relevant indicators were Internet

Users per 100 people and Mobile Cellular Subscriptions per 100 people. Unfortunately,

[1] MIX Market, 2010 internet online, Available from
http://www.themix.org/about-mix/about-mix, [November 18, 2011].

these variables had to be dropped due to multicollinearity problems. The only World Bank data used in the final data set was national population, so MFI outreach could be measured as a percentage of national population. The World Bank data span from 1960 to 2010 and include measurements for 209 countries. Given this extensive coverage, it was easy to merge World Bank data with the MIX data according to country and year.

The third source of data is the World Values Survey (WVS). The World Values Survey Association conducts surveys in countries around the world as "a worldwide investigation of sociocultural and political change."[2] The WVS addresses topics such as the importance of religion, interactions with family, relationships with neighbors and friends, participation in clubs and associations, and levels of trust. Given the definition of social capital as those features of human relationships—specifically social networks, social norms, and trustworthiness—which help a community to achieve economic development, the WVS is the perfect data source.

Despite the appropriateness of the WVS data, the data set proved to be problematic because survey coverage was inconsistent. This thesis used the WVS Five Wave Aggregated File, which included survey information from 87 countries conducted between 1981-2008. Although there were more than 256,000 observations, they were not divided evenly by country and year. For example, there were over 1,000 interviews conducted in Mali but all occurred in 2001. In India, however, the WVS included observations from about 2,500 interviews conducted in 1996, 1998, 2003, and 2007. Somehow the WVS data had to be cleaned in order to have exactly one observation per year per country.

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[2] World Values Survey, 2011 internet online, Available from http://www.worldvaluessurvey.org/wvs/articles/folder_published/article_base_46 [November 18, 2011].

The first required manipulation of the WVS data involved collapsing the survey data. Because people from each country completed the surveys individually, observations only reflected individual opinions. In order to merge the WVS data with the MIX data according to year and country, however, survey answers needed to be representative of the entire nation. It is troubling to assume that the average survey response is an accurate representation of the entire population, representing the range of sample opinions, let alone the range of population opinions. Although the WVS Association conducts thousands of interviews and distributes thousands of surveys in each country, it would be impossible to collect information from every citizen. Therefore, one must assume that the collection of responses to the WVS is an appropriate reflection of the larger population of that country.

After collapsing the individual observations, there was still a problem of inconsistent coverage. For example 1,999 individuals completed the WVS in Armenia in 1997. However, the MIX data included Armenian MFI information for multiple years. To successfully merge the WVS national data with the MIX dataset, the WVS data had to be stretched to create observations for all of the necessary years. Therefore, for countries with only one survey year, it is assumed that this year is representative of multiple years. Similarly, in countries where there are multiple survey years, one must assume that each survey year represents the closest years where there was no survey.

For example, in India, the WVS only conducted surveys in 1995, 2001, and 2006. The MIX, however, included consistent annual data for Indian MFIs from 1995 through 2009. In this case, survey averages from 1995 were assumed to be representative of 1995-

1998, survey averages from 2001 were assumed to be representative of 1999-2003, and survey averages from 2006 were assumed to be representative of 2004-2009.

At this point in the process, the MIX dataset had appropriate social capital information matched with every MFI according to country and year. The total number of observations fell to 6,025 because several MFIs were dropped due to insufficient data. The only remaining MFIs were those that operate in countries where the WVS distributes surveys. The following countries are the only countries included in both the MIX and WVS data set:

> Albania, Argentina, Armenia, Azerbaijan, Bangladesh, Bosnia and Herzegovina, Brazil, Bulgaria, Burkina Faso, Chile, China, Colombia, Croatia, Dominican Republic, Egypt, El Salvador, Ethiopia, Georgia, Ghana, Guatemala, Hungary, India, Indonesia, Iraq, Jordan, Kyrgyzstan, Macedonia, Malaysia, Mali, Mexico, Moldova, Morocco, Nigeria, Pakistan, Peru, Philippines, Poland, Romania, Russia, Rwanda, Serbia, Slovakia, South Africa, Tanzania, Thailand, Trinidad and Tobago, Turkey, Uganda, Ukraine, Uruguay, Venezuela, Vietnam, Zambia, Zimbabwe.

Between the MIX and WVS dataset, there were over 50 possible independent variables. For practicality reasons and because of multicollinearity problems, not all independent variables could be included in the model. The following sections systematically introduce the dependent variables and independent variables and explain why those variables were included.

3.2 Dependent Variables

The research includes two regressions to show how social capital affects MFI performance: an outreach regression and a sustainability regression. The outreach regression uses the percentage of the national population enrolled in a microfinance

program as the dependent variable, and the sustainability regression uses the Operational

Self-Sufficiency ratio as the dependent variable. These were the most appropriate

dependent variables because "increasingly, outreach and sustainability have been adopted

as the two main criteria used to assess the performance of Microfinance Organizations."[3]

Both of these regressions regress the single dependent variable on all of the independent

variables described in the following section. Figure 3.1 defines the two dependent

variables.

FIGURE 3.1

TABLE OF DEPENDENT VARIABLES

Variable Name	Description
Outreach	The percentage of the national population enrolled in a microfinance program (number of active clients/ total population).
Sustainability	Operational self-sufficiency (OSS) total financial revenue divided by total expenses (financial expense + net impairment loss + operating expense).

The two dependent variables are estimated in two similar but separate regressions.

The goal of the first regression is to show how social capital influences outreach. As

stated in the guidebook published by the Consultative Group to Assist the Poor (CGAP),

it is relatively easy to measure outreach: "The best measurement of outreach is

straightforward: The number of clients or accounts that are active at a given point in

time."[4] In order to capture the most realistic measurement of outreach, however, the

number of active borrowers at an MFI needs to be relative to the national population size.

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[3] Richard L. Meyer, Geetha Nagarajan, and Elizabeth G. Dunn, "Measuring Depth of Outreach: Tools for Microfinance," *The Bangladesh Development Studies* Vol. 26, no. 2 (2000): 173.

[4] Rosenberg, 3.

By dividing the number of active clients by national population, one reflects the total number of MFI clients as a percentage of national population.

The second regression was designed to show how social capital affects an MFI's ability to be financially sustainable. The OSS measurement shows whether or not an MFI generates enough financial revenue to independently cover operating expenses. Although there are several factors affecting financial sustainability, several sources suggest that the OSS ratio best captures the overall sense of sustainability.[5] By having an outreach and sustainability regression, one can compare the results side-by-side to see if there is truly a tradeoff between outreach and financial sustainability.

3.3 Independent Variables

This research measured the effect of three categories of independent variables on outreach and sustainability: social capital variables, MFI performance variables, and endogenous peer effect variables.

Social Capital Variables

The goal of this study is to measure the impact of social capital on an MFI's outreach and sustainability. Therefore, the discussion of independent variables commences with social capital. Figure 3.2 describes all of the variables that constitute the social capital category.

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[5] The importance of the OSS Ratio is mentioned by Giovanni Ferro-Luzzi and Sylvain Weber, in their article, "Measuring the Performance of Microfinance Institutions," and by the Consultative Group to Assist the Poor available from,
http://www.cgap.org/gm/document-1.9.9603/FA%20summary%2008.pdf.

FIGURE 3.2

TABLE OF SOCIAL CAPITAL VARIABLES

Variable Name	Description
Education	Average level of education per person in a population with 1 being the lowest (Inadequately completed elementary education) and 8 being the highest (University degree/ higher education).
Number of Children	Average number of children per adult in a population (ranging from 0 to 8).
Religious Attendance	Average religious attendance in a population ranging from more than once a week to practically never.
Trust	Percentage of population that believes most people can be trusted, generally speaking.
Importance of Family	Percent of population that labeled family as very important in life.
Importance of Friends	Percent of population that labeled friends as very important in life.
Technology	Percent of population that uses internet or email on a weekly basis.

The seven variables listed above proved to be the best (relatively uncorrelated) representations of social capital. The WVS included abundant data related to social networks, social norms, and trust; however, many variables had to be dropped from the study because of multicollinearity problems. For example, the WVS asked several questions related to family such as: How important is family in life? How much do you trust your family? How much leisure time do you spend with your family? Although all of these questions are related to the definition of social capital, they are obviously intertwined.

There are four variables that represent the social networking component of social capital: education, number of children, religious attendance, and technology. Several

authors point to church and school as an important hub for social networks.[6] Therefore,

education, number of children, and religious attendance variables provide critical

information about the prevalence of social networking through churches and schools. The

technology variable was included to represent social network infrastructure—another

important component of social capital. Although the technology variable is technically a

measurement of internet usage, it also represents cellphone prevalence because internet

and cellphone usage data were highly collinear.

The importance of family and the importance of friends variables represent social

norms. As seen in the article about contraceptive adoption in Bangladesh by Munshi and

Myaux, social norms related to the relationships between family and friends can have a

large influence on economic development.[7] Populations that consider friends and family

to be very important are likely to interact differently than those who have a lesser opinion

of family and friends. Friend and family networks, and social norms related to friends and

family, are critical aspects of social capital.

Last, there is a trust variable, which represents the third and final important aspect

of social capital. To measure the level of trust in a population, the WVS included the

question, "Generally speaking, would you say that most people can be trusted or that you

need to be very careful in dealing with people?"[8] Respondents could answer by saying,

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[6] Wydick et al. mention the importance of church networks in their article "Social Networks, Neighborhood Effects, and Credit Access: Evidence from Rural Guatemala." Miguel et al. and Hanifan also discuss social networking in the context of educational institutions.

[7] Munshi and Myaux, 34.

[8] World Values Survey, "Integrated Questionnaire of the 1981-2002 Aggregated Values Surveys," 2011 internet on-line, 114, Available from http://www.wvsevsdb.com/wvs/WVSAnalize.jsp, [December 6, 2011].

"Most people can be trusted," "Can't be too careful," or "Don't know."[9] Although trust seems qualitative in nature and difficult to quantify, this question from the WVS provided quantitative data reflecting the overall levels of trust in a population. Additionally, several interview questions were designed to collect supporting qualitative data related to trust.

MFI Performance Variables

The next seven independent variables serve as control variables. There are several factors that must always be considered in order to better explain a bank's performance. For example, consider a bank with a low profit margin that operates in a country with poor social capital. One might think that the low profit margin is a result of bad social capital. However, the problematic profit margin might be a result of portfolio at risk, a high write-off ratio, or a high loan-loss rate. To accurately reflect how social capital causes changes in outreach or sustainability, the study must include several other variables that also might be responsible for those changes.

There are many variables that affect a bank's outreach and sustainability; therefore, it can be difficult to know which variables should be part of the equation. It is particularly difficult to select explanatory variables for an MFI's performance due to the unusual banking practices specific to microfinance. Microfinance requires extra resources due to unusually low interest rates, heightened risk of default, and high transaction costs. By including the most important determinants of an MFI's performance, as defined by CGAP, this analysis includes the necessary control variables.

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[9] Ibid.

In 2009 CGAP published a guide that defines key measures of performance in the field of microfinance. The CGAP guide "offers basic tools to measure performance in a few critical areas" and provides an outline of important explanatory variables that should be included in any study of MFI performance.[10] The guide lists five categories that should be addressed when discussing MFI performance:

1. Sustainability/ Profitability
2. Asset/ Liability Management
3. Portfolio Quality
4. Efficiency/ Productivity
5. Outreach.[11]

Unfortunately, this thesis could not include variables specific to each category due to data limitations. The following section describes the explanatory control variables included in the study and explains why other variables outlined by CGAP were not included. Figure 3.3 describes all of the explanatory control variables according to their CGAP category.

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[10] Rosenberg, Richard. "Measuring Results of Microfinance Institutions: Minimum Indicators that Donors and Investors Should Track – A Technical Guide." Washington, D.C.: Consultative Group to Assist the Poor/ The World Bank, 2009, 1.

[11] Begoña Gutiérrez -Nieto, Carlos Serrano-Cinca, and Cecilio Mar Molinero, "Microfinance Institutions and Efficiency," *Omega Vol.* 35, no. 2 (2007): 132.

FIGURE 3.3

TABLE OF MFI PERFORMANCE VARIABLES

Variable Name	Description
Profit Margin (1)	Net operating income divided by financial revenue. Reflects the amount of profit over and above costs.
Debt-to-Equity Ratio (2)	Total liabilities divided by total equity. Reflects the proportion of equity and debt an MFI uses to finance its assets.[12]
Borrowers per Staff (4)	The number of active borrowers divided by the number of personnel working at an MFI.
Mature Age (5)	Whether or not an MFI has been operating for 8 or more years.
Large Outreach (5)	Whether or not an MFI makes a large active attempt to target, attract, serve, retain, or otherwise interact with a clientele in selected populations, geographic areas, or targeted initiatives.
Profit Status (1)	Whether or not an MFI is listed as for-profit and records an above-average financial revenue ratio (financial revenue divided by assets).
Personnel (5)	The total number of staff working at an MFI.

(1) Sustainability/ Profitability
(2) Asset/ Liability Management
(3) Portfolio Quality
(4) Efficiency/ Productivity
(5) Outreach

This research includes two explanatory variables to address the first CGAP

category. These sustainability and profitability ratios are critical to explaining

performance because no business or service provider can continue to operate and expand

unless it can cover its expenses.[13] CGAP suggests that subsidies have an impact on MFI

sustainability and profitability; however, the MIX data set did not include subsidy data,

so this aspect of MFI performance had to be omitted. Profit margin and profit status

proved to be the most available representations of profitability. No sustainability ratios

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[12] Investopedia.com, 2011 internet online, Available from, http://www.investopedia.com/terms/d/debtequityratio.asp#axzz1gWsvpQ6M, [December 14, 2011].

[13] Rosenberg, 8.

could be included as independent variables because one of the regressions uses OSS as a dependent variable.

The second CGAP category relates to an MFI's ability to manage its assets and liabilities. According to CGAP, this category addresses "the ongoing process of planning, monitoring and controlling the volumes, maturities, rates and yields of assets and liabilities."[14] The debt-to-equity ratio falls into this category because it reveals "the proportion of equity and debt the company is using to finance its assets."[15] If an MFI has a high debt-to-equity ratio because it is financing its operations with debt, there is a chance that the MFI will not generate sufficient earnings to pay for its assets, which could result in bankruptcy. The MIX data set had consistent coverage for debt-to-equity ratios, so it was the best variable to represent this category.

The third CGAP category—portfolio quality—proved to be most problematic. The two most common measures of portfolio quality are portfolio at risk (>30 days and >90 days) and the write-off ratio. Although the MIX included observations for both of those variables, they proved to be collinear with other variables in the regression and could not be included. Because there is no representation of this category, one must assume that measures of risk are somehow accounted for by the other variables.

The fourth category—efficiency and productivity—reflects, "how efficiently an MFI is using its resources, particularly its assets and personnel."[16] Although the MIX

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[14] Consultative Group to Assist the Poor. "Participant Course Materials, Financial Analysis for Microfinance Institutions," 2008 internet online, Available from http://www.cgap.org/gm/document-1.9.9603/FA%20summary%202008.pdf, [December 14, 2011].

[15] Investopedia.com, 2011 internet online, Available from, http://www.investopedia.com/terms/d/debtequityratio.asp#axzz1gWsvpQ6M, [December 14, 2011].

[16] Gutiérrez -Nieto, Serrano-Cinca, and Molinero, 132.

dataset offered many variables from this category, most variables suffered from multicollinearity problems. For example, cost per loan, loans per staff member, loans per loan officers, and borrowers per loan officer were all collinear. The borrowers per staff member variable had the most observations and avoided multicollinearity issues and proved to be the best representation of this category.

Lastly, CGAP considers outreach an important determinant of MFI performance. The measure of outreach has two major components: breadth and depth. Breadth represents the number of clients, whereas depth measures the client poverty level. Although the outreach regression uses the number of active borrowers as a dependent variable, the MIX provided other data that affect outreach. For example, an MFI's age, number of personnel, and official outreach policy are likely to affect client enrollment. The MIX data set did not have client profile information, so there was no way to include explanatory variables for depth.

Endogenous Peer Effect Variables

The seven MFI Performance variables described in the preceding section will also be used to test for an endogenous peer effect. This process and these variables will be described in Chapter IV.

3.4 Data Summary Statistics

Figure 3.4 numerically summarizes the social capital and MFI performance variables. Although the summary statistics for the outreach and sustainability regressions are similar, there are slight differences due to the different number of observations

included in each estimation. None of the binary MFI performance variables (mature age, large outreach, and profit status) are included in the summary statistic tables because the calculations measure the percent change in the

dependent variable when those binary variables are present. For any binary variable, the minimum is always 0 and the maximum is always 1, therefore, averages and

standard deviations do not provide useful information.

FIGURE 3.4

TABLE OF SUMMARY STATISTICS

Outreach					
Variable Name	Observations	Mean	Stan. Dev.	Min.	Max.
Social Capital					
Education	4355	4.27	0.90	2.24	6.54
Number of Children	4355	2.13	0.52	1.05	3.96
Religious Attendance	4355	3.51	1.14	1.37	7.57
Trust	4355	0.18	0.09	0.03	0.53
Importance Family	4355	0.99	0.01	0.95	1.00
Importance Friends	4355	0.83	0.11	0.53	0.99
Technology	4355	0.09	0.10	0.00	0.34
MFI Performance					
Profit Margin	4355	-0.10	5.44	-152.16	298.29
Debt-to-equity-ratio	4355	12.80	330.54	-1331.03	21050.21
Borrowers per Staff	4355	132.58	189.93	0.00	7577.59
Personnel	4355	185.71	468.99	1.00	12814.00

Sustainability					
Variable	Observations	Mean	Stan. Dev.	Min.	Max.
Social Capital					
Education	4802	4.28	0.90	2.24	6.54
Number of Children	4802	2.13	0.53	1.05	3.96
Religious Attendance	4802	3.55	1.15	1.37	7.57
Trust	4802	0.19	0.10	0.03	0.53
Importance Family	4802	0.99	0.01	0.95	1.00
Importance Friends	4802	0.83	0.11	0.53	0.99
Technology	4802	0.09	0.10	0.00	0.34
MFI Performance					
Profit Margin	4802	-0.12	1.83	-89.87	0.67
Debt-to-equity-ratio	4802	11.86	315.31	-1331.03	21050.21
Borrowers per Staff	4802	136.53	184.26	0.00	7577.59
Personnel	4802	399.99	1857.01	1.00	38545.00

Because most of the summary statistics for the outreach and sustainability observations are nearly the same, it is appropriate to discuss most of the summary statistics simultaneously. Although there are nearly 500 more observations included in the sustainability regression, there are only several summary statistics that differ from the outreach regression.

In both sets of observations, the average level of education attained by survey respondents was about 4.3. According to the WVS, an education level of 4 represents complete secondary school and falls in the middle of the range. However, a separate calculation of all standard deviations showed that the average standard deviation for education observations was 2.22. This finding suggests that although the average level of education falls roughly in the middle, there is likely a large gap between education levels. It is likely that half of the population has not even finished secondary school, while the other half has completed education beyond the secondary level. Although the average education level comes from this data, it is not an accurate representation of the education gap.

Similarly, although the average number of children was 2.1 in both sets of observations, the average standard deviation was actually 1.89. This suggests that there is a relatively large gap between families with few children (1 or less) and families with many children (3 or more). It is also interesting that the maximum number of children in both sets of observations reaches only 3.96, given that the WVS answers ranged from 0 to 8 or more children.

The average religious attendance was about 3.5 for both the outreach and sustainability regression. However, like for education and number of children, a separate

calculation of the average standard deviation revealed that the average standard deviation was actually 2.02. This suggests that the population is largely divided between those who are very religious and attend church on a weekly basis and those who are not very religious and only attend religious services on a monthly or yearly basis. A measurement of the percentage of the population that attends religious services on a weekly basis would have provided a better representation of the religiosity of the population.

The summary statistics for the importance of family show that there was a small range of observations, yielding a limited variety of responses. In both the outreach and sustainability observation sets, on average, 99% of the population labeled family as very important. This issue is further discussed in Chapters IV and V.

Average technology use, measured as the percentage of the population that uses internet or email on a weekly basis, was about 9% in both the outreach and sustainability data. In fact, the maximum technology use was only 34%. If not for multicollinearity problems, cell phone usage data may have provided a better representation of technology usage.

The summary statistics for the MFI performance variables differed slightly between the outreach and sustainability observations. Although average profit margin was negative for both sets of observations, there was a much larger range of profit margins for the outreach observations than the sustainability observations. However, there was a greater range for personnel in the sustainability observations (the greatest number of personnel among the sustainability observations was 38,545 compared to a maximum 12,814 personnel among the outreach observations), bringing up the average number of personnel to nearly 400 for the sustainability dataset.

3.5 Qualitative Data

The qualitative data used in this study was collected during a ten-day field study with the Adelante Foundation in La Ceiba, Honduras. Given the qualitative nature of social capital, qualitative data enhance the quantitative data by providing personal insight into social networks, social norms, and trust. The qualitative data also illuminate outreach and sustainability issues unrelated to social capital. Although the qualitative data only reflect the opinions of clients and staff from the Adelante Foundation, most of the themes apply to the larger microfinance industry.

The Adelante Foundation, which empowers poor women throughout Honduras through microloans and education, uses a group-lending model based on Yunus' original microfinance model used in the Grameen Bank. In Adelante's group lending model, small groups of women form Solidarity Groups before taking out loans. Each woman in the group is jointly responsible for the money, so if one woman misses a payment, the other women in the group must cover for her.[17] This form of banking relies on elements of social capital as the principal form of collateral.

Nine client interviews took place at the end of the bi-weekly group meetings led by a loan officer at a client's home or business. Interviews lasted about five minutes and took place between one client and the facilitator, except for several longer interviews between the facilitator and multiple clients. By conducting many brief interviews, the facilitator was able to communicate with a diverse group of clients and hear a variety of opinions.

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[17] Adelante Foundation, "Adelante's Loan Program," internet on-line, Available from http://www.adelantefoundation.org/loan_program.htm, [11 October 2011].

Client participation was voluntary, which may have added bias to the population sample. Usually the loan officer would recommend a particular client for the interview, although some clients volunteered independently of the officer's recommendation. Because of this participant recruitment method, the information in this study is (at best) representative of current Adelante clients who are active in the loan program. It was not possible to collect data from former Adelante clients or potential Adelante clients not yet enrolled in the loan program. The facilitator tried to ask the same five questions about outreach and efficiency at every interview, although probe questions were often necessary to promote discussion.

In addition, four 1:1 employee interviews took place at Adelante's main office in La Ceiba, Honduras and lasted between five and ten minutes. Participation was voluntary; however, the facilitator specifically invited the General Manager, the Director of Operations, the Director of Accounting, and the Director of Marketing in order to interview staff from different departments. Although there was no formal interview with a loan officer, information from conversations in the field supports the qualitative section of the study.

Questions were designed to investigate sustainability, as well as outreach, from an employee's perspective. The facilitator tried to ask each staff member the same five questions but often asked several additional questions specific to the employee's line of work. The Human Subjects Review Board at Colorado College approved all interview questions prior to the field study. Translated questionnaires are included in the appendix.

CHAPTER IV

DATA ANALYSIS

This chapter introduces the regression model used for analysis and presents the quantitative and qualitative results. The first section explains the regression model used in the current study and acknowledges supporting literature. Next there is a discussion of the necessary model manipulations and statistical tests. The rest of the chapter describes the outreach and sustainability regression results as well as the interview results.

4.1 The Model

The model used in this study originates from the literature about social capital and microfinance. Based on the literature and the limitations of the data set, the current study uses a cross-sectional time series regression incorporating theory presented by Manski in his article "Identification of Endogenous Social Effects: The Reflection Problem."[1] Many authors offer potentially relevant models, but this regression equation—combined with Manski's theory—proved most appropriate and interesting for this study.

As described in the literature review, many authors have measured the effect of social capital on marketing, outreach, and efficiency. In an article about network-based marketing, Hill, Provost, and Colinsky focus on the likelihood that an individual will adopt a particular product because of social networks. Although their model connects

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[1] Charles F. Manski, "Identification of Endogenous Social Effects: The Reflection Problem," *The Review of Economic Studies* 60, no. 3 (1993).

marketing (outreach) to social capital, it explores the effect on an individual deciding whether or not to enroll—not on the performance of the MFI. Conly and Udry use a spatial weighting model that quantifies the diffusion of innovation through networks and relationships by measuring the physical distance between farmers. As the data collected for the current study do not include any information about geographic proximity, a spatial weighting model is not applicable. Similarly, in the article "Social Networks and Credit Access in Indonesia," Okten and Osili use a step-wise analysis to show that community participation and networks impact an individual's ability to access credit and spread knowledge about credit opportunities.[2] Because of data limitations, it would be difficult to develop a relevant step-wise analysis for this study.

In the article "Social Networks, Neighborhood Effects, and Credit Access: Evidence from Rural Guatemala," authors Wydick, Karp, and Hilliker explore networks in rural Guatemala that affect an individual's access to credit. After collecting 465 surveys in rural Guatemala, the authors show that "individuals may imitate the choices made by other members of the same social networks or group."[3] This idea suggests that MFIs might be able to provide more people with credit if they leverage social networks and pre-existing connections between community members instead of actively recruiting new clients and marketing the product. Wydick et al. prove that "endogenous peer effects have a significant effect on microfinance adoption."[4] To quantitatively measure this peer endogenous effect, they use a model designed by Manski.

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[2] Okten and Osili, 1244.

[3] Hermes and Lensink, 879.

[4] Wydick, Hayes, and Kempf, 982.

In his book, *Identification Problems in the Social Sciences*, Manski claims that the endogenous peer effect occurs when "the propensity of an individual to behave in some way varies with the prevalence of that behavior in the group."[5] This theory has always influenced sociology and psychology; however, it can also have a large impact on economics.[6] For the purposes of this study, endogenous peer effects have the potential to influence an MFI's outreach and sustainability.

Wydick, Hayes, and Kempf incorporate endogenous peer effect theory to explain how behavioral imitation occurs within social networks in Guatemala. For example, if there is a proven endogenous peer effect between members of Guatemalan church networks or neighborhoods, behavior imitation within those networks might promote microfinance in that region. Therefore, Wydick et al. borrow Manski's equation to apply endogenous peer effect theory to the accessibility of microfinance through social networks.

Because the data set in the current study does not include individual client information specific to each MFI, it is only possible to measure the endogenous peer effect between MFIs. By using MFI information in the Manski equation, this study measures the indirect impact of social capital on MFI performance and shows how the behavior of a group of MFIs affects the behavior of an individual MFI operating in the same region. This test for an endogenous peer effect provides practical information for the microfinance industry given the recent proliferation of MFIs around the world.

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[5] Charles F. Manski, *Identification Problems in the Social Sciences* (Cambridge: Harvard University Press, 1995), 127.

[6] Manski, 1993, 531.

In order to test for an endogenous peer effect, this research had to incorporate seven more variables in addition to the social capital and MFI performance variables described in Chapter III. The seven new variables show how the performance of a group of MFIs influences the performance of an individual MFI operating in the same region. To create these variables, each independent firm-level MFI Performance variable was regressed on all of the national-level social capital variables. Predicted values of the independent firm-level MFI performance variables from this regression are then used as indicators of endogenous peer effects.

FIGURE 4.1

TABLE OF ENDOGENOUS PEER EFFECT VARIABLES

Variable Name	Description
Predicted Profit Margin	Reflects the average profit margin for a group of MFIs operating in the same region. Reflects the amount of profit over and above costs.
Predicted Debt-to-Equity Ratio	Reflects the average debt to equity ratio for a group of MFIs operating in the same region. Reflects the proportion of equity and debt MFIs use to finance assets.
Predicted Borrowers per Staff	Reflects the average number of active borrowers per staff for a group of MFIs operating in the same region.
Predicted Mature Age	Shows if there are many mature (at least 8 years of operation) MFIs operating in the same region.
Predicted Large Outreach	Shows if there are many MFs with large outreach policies operating in the same region.
Predicted Profit Status	Shows if there are a lot of profit-oriented MFIs operating in the same region.
Predicted Personnel	Reflects the average number of staff working for an MFI.

The endogenous peer effect variables show how competition between MFIs influences an individual MFI and how social capital indirectly affects an individual MFI through other MFIs. For example, assume that social capital has an impact on the profit

margin for a group of MFIs. An individual MFI might recognize that change in profit margin among its competitors and adjust its own behavior accordingly. Therefore, social capital can have a direct impact on MFI performance as well as an indirect impact through an endogenous peer effect.

With all three sets of independent variables defined, it is appropriate to explain the rest of the regression model. The two final regressions use linear panel data methods to acknowledge firm-specific effects. The two dependent variables—outreach and sustainability—were regressed on the three sets of independent variables:

1) Social Capital Variables
2) MFI Performance Variables
3) Endogenous Peer Effect Variables.

This unique model shows how social capital affects a particular MFI's performance, how the behavior of a group of MFIs affects a particular MFI's performance, and accounts for explanatory control variables that affect a particular MFI's performance.

The first round of regressions proved to be problematic because the independent variables varied linearly. As stated in Manski's corollary, an endogenous peer effect cannot be identified in the linear model if any of the three following conditions hold:

1) z is a function of x
2) $E(z|x)$ does not vary with x
3) $E(z|x)$ is a linear function of x.[7]

Because the endogenous peer effect variables are a linear function of all of the social capital variables, it was not immediately possible to use Manski's linear model. This study avoided the linear variation problem by taking the log of all variables and repeating the regression process.

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[7] Manski, 1993, 535.

The model for outreach and sustainability is therefore as follows:

$$Pchange = \beta_0 + \beta_1 socialcapital + \beta_2 MFIperformance + \beta_3 endogenous peereffect + \varepsilon$$

This equation shows the percent change in outreach or OSS caused by each of the social capital, MFI performance, and endogenous peer effect variables previously described. The coefficient preceding each independent variable represents the amount that the dependent variable will increase or decrease for every one percent change in the independent variable. The percent change in the dependent variable had to be manually calculated using the independent variable coefficients.

4.2 Statistical Tests

Before beginning to analyze the results, it was crucial to address several other potential problems. Heteroskedasticity was removed, using White-corrected errors. All of the variables had previously been tested and adjusted for multicollinearity. Skewness turned out to be the most difficult problem to correct in the data. For the outreach regression, the original data were skewed due to several obvious outliers. After dropping 477 outliers from the data set, the chi2 value dropped to 41.46. This chi2 value remains higher than the benchmark 9.96, suggesting that the data are still slightly skewed.

In the sustainability regression, the histogram (Figure 4.2) reveals a normal distribution of the residuals, suggesting that the data are normally distributed.

FIGURE 4.2

HISTOGRAM OF RESIDUALS
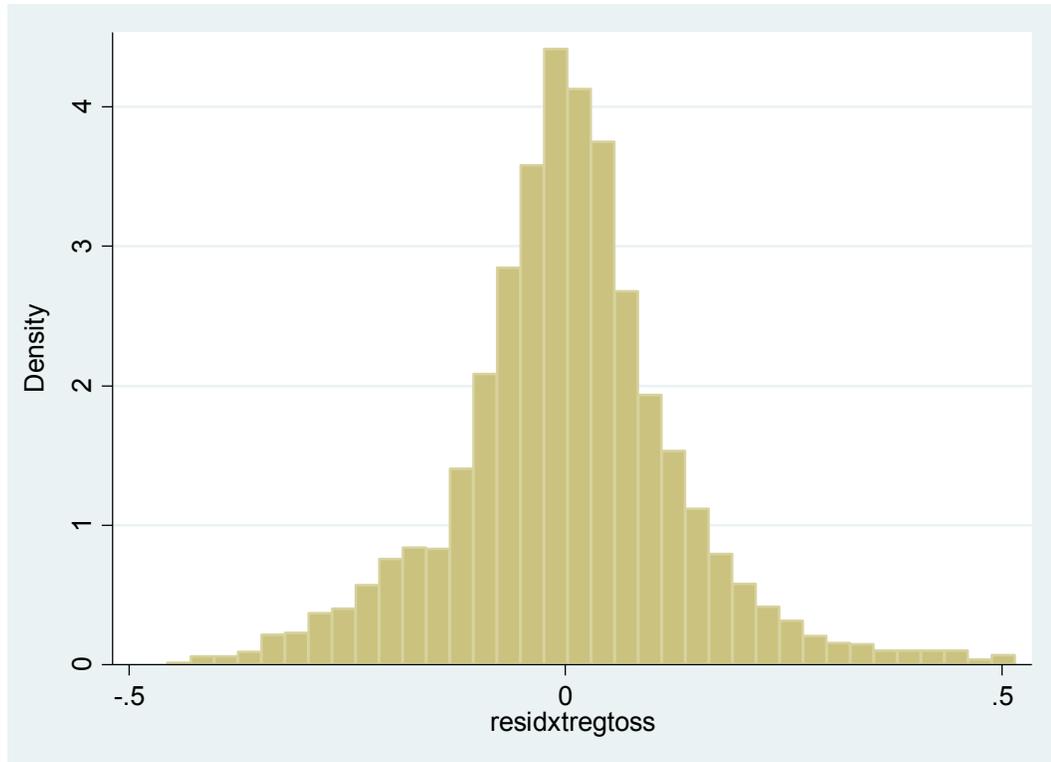
Despite the issue with skewness, all other statistical problems with the data set were addressed, allowing for analysis of the results.

4.3 Regression Results

Both the outreach and the sustainability regressions yielded interesting and significant results. Figure 4.3 presents all of the results from the outreach and sustainability regressions. Although coefficients represent the effect of the independent variable on the dependent variable, they had to be manually transformed into a percent change to show by what percent the independent variable would affect the dependent

variable. The Z-stats show whether or not a coefficient is statistically significant and are marked by corresponding asterisks.

FIGURE 4.3

OUTREACH AND SUSTAINABILITY REGRESSION RESULTS TABLE

	Outreach			Sustainability		
Variable Name	Coefficient	Z-Stat	% Change	Coefficient	Z-Stat	% Change
Social Capital						
Education	-4.93E-04	-1.15	-1.25	3.49E-02	0.39	1.42E-02
Number of Children	2.77E-03	5.77***	7.05	0.50	4.48***	0.28
Religious Attendance	-3.66E-04	-1.24	-0.93	-8.27E-02	-1.49	-2.87E-02
Trust	-2.26E-04	-2.70***	-0.57	-4.30E-02	-2.80***	-1.65E-02
Importance Family	-1.91E-02	-1.01	-47.86	8.89	2.19**	1622.43
Importance Friends	2.65E-03	2.96***	6.75	0.72	3.92***	4.40E-01
Technology	3.95E-03	4.17***	10.02	1.071	4.67***	4.54E-01
MFI Performance						
Profit Margin	-4.31E-04	-2.43**	-1.09	2.43	1.62	55271.80
Debt to Equity Ratio	1.13E-05	0.16	2.87E-02	1.11E-02	0.48	4.66E-03
Borrowers per Staff	9.29E-05	6.54***	0.24	4.04E-02	6.96***	1.90E-02
Mature Age	1.04E-04	2.88***	7.22E-03^	2.51E-02	3.13***	2.51E-02^
Large Outreach	3.19E-04	5.14***	2.21E-02^	1.20E-02	1.20	1.20E-02^
Profit Status	7.45E-06	0.25	5.16E-04^	8.25E-03	1.09	8.25E-03^
Personnel	2.22E-04	16.61***	0.56	8.81E-03	2.77***	3.60E-03
Endogenous Effects						
Profit Margin	-4.66E-04	-1.19	-1.18	-0.26	-2.80***	-7.89E-02
Debt to Equity Ratio	-6.19E-04	-10.62***	-1.57	-2.35E-02	-1.66*	-8.52E-03
Borrowers per Staff	-1.49E-03	-5.31***	-3.75	-0.26	-4.14***	-2.75E-02
Mature Age	2.22E-05	3.57***	5.63E-02	1.23E-02	3.36***	4.77E-03
Large Outreach	-5.48E-03	-3.16***	-13.90	-1.02	-2.97***	-0.30
Profit Status	-4.09E-03	-2.19**	-10.38	-0.39	-0.94	-0.14
Personnel	1.52E-04	3.30***	0.39	7.13E-03	1.84*	2.89E-03
Constant	2.26E-02	1.75*		-17.02	-2.20**	
Number of Observations		4355			4802	
Wald Chi-Squared		596.14			520.09	
R-Squared		0.433			0.182	

*Significant at 90%

**Significant at 95%

***Significant at 99%

^ Binary variable measured as "percent change when variable is present"

4.4 Outreach Regression Results

The first regression was designed to measure the impact of social capital on outreach. The regression results answer the question: How does the presence of social capital affect an MFI's ability to acquire more clients?

The outreach regression results are based on 4,355 observations and are statistically significant. Although several hundred observations had to be eliminated to improve the skewness, the Wald Chi-Squared value is 596.14, suggesting that the overall model is statistically viable. The model also has significant explanatory power as the R-Squared value suggests that this model explains 43.3% of the variance in outreach. The following portion of this study systematically explains the outreach regression results in three sections: social capital, MFI performance, and endogenous peer effect variables.

Social Capital

There are seven independent social capital variables included in the regression. Four out of the seven social capital variables are statistically significant at the 99% confidence level: number of children, trust, importance of friends, and technology.

As shown in the results table, the number of children, importance of friends, and technology have positive coefficients. For every 1% increase in those independent variables, the percentage of the national population enrolled in microfinance programs increases by over 5%. Technology has the largest influence on outreach, increasing enrollment by 10.023% for every 1% increase in technology use nation-wide.

Trust is the only significant coefficient that has a negative impact on outreach. However, the effect of trust on outreach is negligible in comparison to the other

significant variables. According to the summary statistics, on average, only 18% of people said that they trust others, generally speaking. There would have to be a large shift in the trustworthiness of a population before trust would cause a significant change in outreach. The negative impact of trust is especially interesting when compared to the qualitative results pertaining to trust.

Education, religious attendance, and importance of family are all statistically insignificant and therefore show no evidence of impact on outreach.

MFI Performance Explanatory Variables

The model included seven independent explanatory variables relating to MFI performance. Borrowers per staff, mature age, large outreach, and personnel are significant at the 99% confidence level, while profit margin is only significant at the 95% confidence level. Profit margin has the largest effect on outreach, while the other four explanatory variables cause tiny changes in outreach.

Borrowers per staff, mature age, large outreach, and personnel all have positive, although small, effects on outreach. It is not surprising that these variables have a positive effect on outreach, as one might expect that older institutions with more employees, a higher ratio of borrowers to staff, and a large outreach policy would enroll more clients. Given this logic, however, it is surprising that these variables have such a small impact on enrollment in comparison to the social capital variables.

Profit margin is the only significant explanatory variable that has a negative impact on outreach. In fact, for every 1% increase in the profit margin, there is a 1.09%

decrease in outreach. This phenomenon provokes questions relating to profitability and outreach that will be addressed in Chapter V.

Endogenous Peer Effect

Given that six out of the seven variables tested for endogenous peer effects are statistically significant, there is clearly a reflection problem between MFIs.

The debt-to-equity ratio, borrowers per staff, large outreach, and profit status variables all have negative effects on outreach. The results suggest that as profitable MFIs with large outreach programs enter a given area, other MFIs in that area will experience a decrease in enrollment. The presence of for-profit MFIs with large outreach programs has a particularly detrimental effect on other MFIs operating in the same region and can cause more than a 10% decrease in enrollment. On the contrary, the presence of older MFIs has a positive, although negligible, effect on enrollment. In summary, there is a strong endogenous peer effect between MFIs. The more MFIs there are in a given area, the fewer clients any particular MFI will be able to attract.

4.5 Sustainability Regression Results

The second regression measures the impact of social capital on an MFI's ability to be self-sufficient. This regression uses the same independent variables as the outreach regression; however, it includes 477 more observations than the outreach regression. Unlike the residuals from the outreach regression, the sustainability regression had no obvious outliers, so no observations had to be dropped to correct skewness. Perhaps as a

result, the sustainability regression has less than half of the explanatory power of the outreach regression.

Whereas the R-squared value for the outreach equation was 0.433, the sustainability regression had an R-squared value of only 0.182. The sustainability model is still statistically viable, however, because it has a high Wald Chi-Squared value of 520.09. Like the previous section explaining the outreach regression results, this section begins by discussing the social capital variables, followed by the explanatory variables and the measurements of the endogenous peer effects.

Social Capital

Overall, social capital has a positive effect on sustainability. Five out of the seven social capital variables are statistically significant at the 95% confidence level or above. The only two variables that have no significant effect on sustainability are education and religious attendance.

As shown in Figure 4.3, a higher number of children, a stronger belief in the importance of family and friends, and increased use of technology leads to increased OSS. However, these four variables do not increase sustainability by the same amount. When the average number of children per family increases by one child, sustainability improves by only 0.28%. Similarly, when the number of people who claim that friends are very important and who use internet at least once per week increases by 1%, sustainability increases by about 0.4s%. There seems to be a positive connection between these aspects of social capital and sustainability; however, the measureable impact on OSS appears to be negligible.

On the other hand, the importance of family appears to have a huge impact on sustainability. According to the data, if the percentage of people in a given country who regard family as very important increases by 1%, OSS increases by1622.43%. This value is questionable and receives further investigation in Chapter V.

The only significant social capital variable that has a negative effect on sustainability is trust. If the percentage of people in a given country who claim that they generally trust others increases by 1%, OSS decreases by 0.0165%. Therefore, even if trust proves to negatively impact sustainability, the effect is relatively small. Chapter V discusses the potential reasons why trust seems to negatively impact MFI outreach and sustainability.

MFI Performance Explanatory Variables

The same seven explanatory variables included in the outreach regression are also included in the OSS regression as control variables. Although social capital has a significant effect on an MFI's ability to be self-sufficient, there are many other variables that are likely to influence self-sufficiency. Out of the seven explanatory variables, only borrowers per staff member, age, and personnel proved to have a significant effect on sustainability.

All three significant variables—borrowers per staff member, age, and personnel— are significant at the 99% confidence level. Despite their statistical significance, the coefficients suggest that they have a small effect on OSS. For every 1% increase in borrowers per staff or personnel at an MFI, OSS increases by less than 0.1%. Similarly,

when an MFI reaches a "mature" age, OSS only increases by 0.0251%. Overall, this set of seven explanatory variables does not seem to dramatically influence sustainability.

Endogenous Peer Effect

As in the outreach regression, six out of the seven variables tested for endogenous peer effects are significant at the 90% confidence level or above. Overall the endogenous peer effect seems to negatively impact MFI performance. If there are more MFIs with high profit margins, high debt-to-equity ratios, high borrower to staff ratios, and more MFIs that have large outreach policies, an individual MFI in that area will experience a decrease in sustainability. However, the endogenous peer effect caused by those variables never decreases sustainability by more than 1%.

Age and personnel are the only two significant variables that have a positive impact on sustainability. If there is a strong presence of mature MFIs in a given area, an individual MFI will experiences a 0.00477% increase in sustainability. Similarly, if MFIs in a given area have more personnel, OSS for an individual MFI will increase by 0.00289%. In conclusion, the endogenous peer effect influences sustainability, but it affects sustainability less than outreach.

4.6 Qualitative Results

As discussed in Chapter III, this study includes experiential qualitative data to augment the quantitative data. During a ten-day field study in La Ceiba, Honduras, the researcher conducted 13 interviews with clients and staff from the Adelante Foundation.

Client interviews focused on social capital and outreach, while staff interviews focused on sustainability.

4.7 Client Interview Results

Most client interviews evolved into a casual discussion structured around several guiding questions. Most questions related to social capital and investigated the intersection between social capital and outreach. The results reveal certain patterns that suggest social capital within the community also impacts sustainability. Figure 4.6 provides an overview of the client interviews, including client demographics and significant quotes.

FIGURE 4.6

CLIENT INTERVIEW SUMMARY TABLE

Client Number	*Location*	*Business Type*	*Significant Quotes*
1	Rural	Minimarket	– I was with another organization, but I didn't like it because the other women I worked with would receive money, and then their husbands would take it from them…So two of us had to make everyone else's payments.
2	Urban	Minimarket	– Here, we are a village. So because it's so small, we already knew each other. – I have always had a good relationship with the loan officers. – What happens is that not everyone here is trustworthy. You have to pick people carefully.
3	Coastal	Seafood	– The most important characteristic of the group is to be united because one person's problem is everybody's problem. We help each other out. – We discuss the problem at the meetings, and we look for the best way to solve the group member's problem between us. – For me it's better if the Foundation visits people region by region to explain the Foundation's mission.
4	Suburban	Clothes	– Trust is important because we are a group. We have to trust each other. – Whatever we don't know, we have to learn from the Foundation.
5	Suburban	Bulk food products	– The Foundation grows through us…through friends. We recommend the program to our friends, and then they recommend the program to their friends…That's how it grows…Like a domino effect. – We support each other. Together. When someone cannot make a payment, the group tries to cover for that person and pay for the friend.

6	Urban	Minimarket	– If we work together it's more enjoyable, and it's easier to make the payments on time. – We always find some solution in the group. We get together and always look for an answer. We've never struggled…we've never fallen behind with the payments. – We need to help them [the Foundation] find more clients.
7	Urban	Piñatas and apartment rentals	– I'd say we work well in a group. We are very united. One person's trouble is everyone else's trouble. – We solve the problem. If one person in the group can't pay, another person can. That's how we help each other.
8	Rural	Clothes	– We're all working because everyone is accountable for herself. Everyone is responsible for working hard and paying their part.
9	Rural	Jewelry	– It depends if we have a strong relationship. If someone misses a payment, I'll have to make up for it. Everyone is responsible for making her own payment. I might ask to borrow money from a friend, but I won't ask to borrow from someone I'm not very close with.
11	Rural	Food	– If someone is sick, we have a special fund, and we will cover her payments for her until she gets better. Then when she is better, she should pay us back. If someone doesn't want to work, I'm not going to lend money to her.
12	Rural	Clothes and jewelry	– We are always depending on each other, and up to this point no one in the group has failed to make a payment. – One can't only think about economics. One also has to think about personal things, their family, their way of life.
15	Suburban	Clothes and flower arrangements	– We're neighbors. If not, I would not have entered the group. Not just anyone can convince me! – The best part of the Foundation is the lectures that they give to us. They are based on our daily lives. They understand how we live and keep it personal in addition to addressing business needs. – What changes would be helpful? I've never asked myself that question.

To begin every interview, the facilitator asked the client how she discovered the Adelante Foundation. 13 out of 14 clients learned about the opportunity through friends. Only one client—Client 3—joined because she saw a promotion organized by the foundation. Client 8 described how her sister encouraged her to join a Solidarity Group but admitted that she first learned about the Foundation from a friend.

Later in the interview, the facilitator asked another question related to outreach: "How do you think the Foundation could reach out to more people and acquire more clients in this region?" Client 5 described the outreach process as a domino effect catalyzed by friends from a Solidarity Group. Friendship seemed to be the best method of outreach, even when the facilitator asked about technology, religious networks, and school networks.

Because the quantitative data set included variables that represent school networks, religious networks, and technology, the facilitator tried to investigate the role of these variables in the outreach process. Although several clients mentioned God, saints, and prayers, only two clients specifically alluded to church groups or church networks. Similarly, most clients mentioned school and education when asked about their children, but Client 2 and Client 5 were the only clients to suggest that students composed a large portion of their clientele base.

Although most interviews did not include a question about technology, observations during the interviews suggest that there is a strong presence of cell phones, television, and radio. At least nine clients presented cell phones during the interview, and the loan officers confirmed that most of the clients had at least one cell phone. However, cell phones appeared to be useful for organizing meetings or checking in with clients—

not as a recruiting tool. At least one television or radio was observed at 6 of the client

homes before, during, or after the interview took place. Despite the widespread use of

television and radio, most clients used those resources primarily for entertainment. Most

televisions and radios broadcasted telenovelas, cartoons, and soccer games with limited

advertising. Except for one client who mentioned Facebook, internet usage was largely

absent in the client communities.

Another question designed to evaluate which aspects of social capital were most

important to the group-lending model asked about strengths and weaknesses of the

Solidary Group. At some point in every interview, the client was asked what

characteristics were most important to the Solidarity Group. This question was left open-

ended to see if clients recognized trust above all other aspects of social capital. Trust

proved to be only somewhat important, as only 4 out of 14 clients explicitly mentioned

trust at least once during the interview.

According to participant responses, trust plays a significant role in outreach in the

recruitment of new clients as well as in weekly microfinance operations. Client 2 alluded

to the selection process and said, "What happens is that, not everyone here is trustworthy.

You have to pick people carefully." Clients wanted a close-knit group composed of

trustworthy friends and neighbors. Because clients formed their own groups, they also

had the power to veto someone not deemed trustworthy: "If some random client comes,

and we see that she is going to hurt the group, we get together and tell her that she can't

join. We need to know that someone is responsible and that they will make their

payments." Clients saw trust as integral to the selection process and the future success of

the group.

After meeting a variety of clients who all valued social capital differently, it is clear that social capital affects how an MFI operates. For example several interviewed participants came from one of the most successful Solidarity Groups in the region. The loan officer explained that they never fall behind on payments and have been very successful. When asked about their success, the clients gave a variety of answers. Client 10 said that they were always able to make payments on time because they kept an eye on each other. Client 9 alluded to the importance of strong relationships by saying, "I might ask to borrow money from a friend, but I won't ask to borrow from someone I'm not very close with." This group meeting ran quickly and smoothly, and all payments were given to the loan officer appropriately.

On the contrary, the facilitator also observed a meeting between clients from one of the least successful Solidarity Groups. Less than 50% of the group attended the meeting, and no one knew why the missing group members were not at the meeting. Cliques had formed within the larger solidarity group, and they argued over the best way to make up for all of the missing payments. The female loan officer from the Foundation in charge of this group had to ask for additional support from one of the male loan officers because the group was so unruly and disorganized. After the meeting, both loan officers had to walk door-to-door to ask clients who had skipped the meeting for their payments. The entire process was less efficient and more resource-intensive for the Foundation.

Lastly, to see how clients viewed other MFIs in the area, the facilitator asked each client if she had ever taken a loan from a different organization and why she chose to work with the Adelante Foundation. Seven clients mentioned Adelante's unique bi-

weekly business lectures, and others alluded to the personal connection they feel to the

Foundation. Client 15 best summarized the importance of the lectures by saying, "The

best part of the Foundation is the lectures that they give to us. They are based on our

daily lives. They understand how we live and keep it personal in addition to addressing

business needs." Although the personal visits and bi-weekly business lectures are

resource intensive, they foster a relationship between the Foundation and its clientele.

4.8 Staff Interviews Results

During the course of the week, four staff interviews took place at Adelante's main

office in La Ceiba. The facilitator asked roughly the same four questions to each

interviewed staff member, with several additional questions relating to that staff person's

position. The interviews were designed to investigate operational self-sufficiency and

outreach policies from an internal perspective. Figure 4.7 provides significant quotes

from the staff interviews.

FIGURE 4.7

EMPLOYEE INTERVIEW SUMMARY TABLE

Staff Number	*Position*	*Significant Quotes*
1	Director of Accounting	− After the client has succeeded with many of our tasks…we are able to check and confirm that she is a faithful client who pays well. Then we can trust her and give her individual credit. − It would be great to have a strong technology that would allow the people in the countryside to submit their applications from the countryside in order to accelerate the credit paperwork. − Right now we are only working with subsidies from IAEF. Aside from that, we have to work with whatever capital our portfolio yields and reinvest whatever it produces.
2	General Manager	− It's not as easy at it seems or as idyllic as it sometime sounds to improve the life of an extremely poor person because you have so many factors going against you. − We've been working on improving efficiency a lot over the last two years. We have improved our self-sufficiency enormously. − Word of mouth was by far the best marketing device…you can use radio adds, you can use television ads, you can use flyers, but by far word of mouth is the most effective. − We've done a lot of things to try to increase our customer satisfaction...A lot of other organizations don't do that.
3	Director of Credit Operations	− We could cut costs in order to be more efficient and achieve better sustainability, but then we would be neglecting the social aspect and our closeness with the clients. − We already made a ton of changes always without neglecting the clients, and that has benefited logistics, movements, the strategy for the loan officers, the routes…We have improved a lot since last year. − Loan officers need to have a personal connection with their job and not merely see it as a source of employment and income.
4	Director of Marketing	− Because they [clients] don't have much access to technology, it has to be word of mouth. − The greatest challenge has been self-sufficiency, but I think that they are already improving that. − Each one has to vouch for the other, so they form guarantees between themselves. That's why we don't have any guarantee or ask for any guarantee of any kind: we trust the word of the clients.

Each interview started with the question: "What do you think is the greatest challenge for the Adelante Foundation?" Although the interviewees provided a variety of answers, 2 out of 4 of the interviewed employees claimed that acquiring liquid funding was the greatest challenge. The Head of Accounting explained that the Foundation currently receives subsidies from one bank. Aside from that source of funding, the rest of the funds must come from the Foundation itself—anything that the portfolio produces must be reinvested into the Foundation in order to address the needs of clients. The Head of Operations also claimed that the greatest challenge was the lack of sufficient cash for deposits and investments.

The General Manager included several challenges in her response. Although she did not mention funding as the primary challenge, she depicted a resource-intensive industry. According to the General Manager, the greatest challenge is truly seeing clients grow their businesses and improve their lives. The challenge arises because of numerous uncontrollable obstacles such as natural disaster, national security, and high risk. The General Manager best summarized her thought by saying, "It's not as easy at it seems or as idyllic as it sometime sounds to improve the life of an extremely poor person because you have so many factors going against you." Because of various characteristics inherent to the microfinance industry, the Foundation requires constant funding to break even.

The second question in each interview asked about improving efficiency and self-sufficiency within the Foundation. Overall, employees suggested that efficiency had improved significantly over the past two years, allowing greater self-sufficiency. The General Manager listed several examples of successful improvements in efficiency: a new incentive for employees to use their own motorcycles for client visits instead of

Foundation vehicles, a new clientele banking identification system to expedite the deposit process, and restructuring office operations at the branch level. The Head of Accounting spoke about a new technology that could accelerate credit paperwork but admitted that the Foundation did not have the resources to implement at this point. The Head of Marketing pointed to client retention as a way to improve self-sufficiency.

Lastly, the Head of Operations explained that there is a tradeoff between efficiency and adherence to the mission. He suggested that the Foundation might have more cash to work with if it could improve efficiency by cutting costs. However, he expanded upon the idea and said that this change would only work at the expense of the social aspect. He concluded that that it was more important to maintain a close relationship with clients than to cut costs.

The General Manager, however, described several changes that improved efficiency while simultaneously maintaining closeness to the client. For example, she explained that the Foundation had recently been consolidating neighboring Solidarity Groups, so "the total assembly has more people...the credit officer only has to make one visit instead of two…and that cuts down on gas and all the different kinds of costs associated with visiting clients." Results from the interviews also show that social capital might play a role in improving efficiency in a way that doesn't damage the Foundation's relationship to the client.

The interviews revealed that the Adelante Foundation leverages social capital on a daily basis to improve efficiency. When asked about the group-lending model versus the individual credit program, the Head of Marketing, Operations, and Accounting all referred to the individual credit program as a kind of graduation from the group-lending

program. Clients become eligible for individual credit only after they have passed many group tasks. Because the clients get to choose who can be a part of the group, they provide the first test for the Foundation. If a potential client does not appear trustworthy or responsible, clients will not admit her to the group, and she will never be eligible for individual credit. The group-lending model serves as a sort of test administered by the clients themselves instead of employees of the foundation.

Similarly, outreach is almost entirely dependent on social capital. The General Manager said that despite interest rate incentives associated with a larger Solidarity Group, clients aren't going to invite new clients "at the expense of getting reliable people because they know that they are still going to have to vouch for each other's loans…so for that reason the methodology is conducive to people using word of mouth to try to get their neighbors, their cousins, and their friends involved." The Head of Marketing added, "They [clients] need to have trust in each other [because] they are the ones who choose the group they will be working with." Lastly, the Head of Operations confirmed that the Foundation uses neighborhood councils, church networks, and women's groups as recruitment tools. These staff interviews provided additional evidence to suggest that social capital plays a role in both outreach and efficiency.

CHAPTER V

DISCUSSION AND CONCLUSIONS

This study explores how social capital affects an MFI's outreach and operational self-sufficiency. The central question of this study asks: If MFIs operate in regions rich in social capital, how could they leverage that social capital to increase outreach and improve efficiency? Several other academics have addressed this question prior to the current study. In their article, "Social Networks, Neighborhood Effects, and Credit Access: Evidence from Rural Guatemala," Wydick, Hayes, and Kempf show that social capital impacts the spread and accessibility of microfinance. However, the breadth of their study was limited because all data came from 465 household surveys, distributed throughout the Sololá province in Western Guatemala. The current study also focuses on one country in Central America; however, is also investigates outreach and sustainability on a larger scale by incorporating more diverse international data.

The qualitative data from Honduras and the quantitative regression results complement each other and contribute to the literature surrounding microfinance. A case study provides detailed information specific to a particular region or population. An international data set, usually does not achieve the same level of detail as a case study, but it allows academics to look at international trends by combining information from around the world. Given the complexity of social capital, a purely quantitative data set

often fails to fully explain the international trends. Therefore, international trends revealed in the quantitative results may be illuminated by the qualitative data collected during a case study. This paper uses qualitative evidence from Honduras to support the quantitative results and international patterns.

By using quantitative data about social capital and MFIs from 115 countries and qualitative data collected during a ten-day field study in Honduras, this research shows that social capital can increase outreach and improve efficiency. The study also shows which operational aspects of microfinance are most challenging and have the greatest impact on outreach and sustainability. Lastly, this thesis borrows Manski's model to confirm an endogenous peer effect between MFIs. This chapter concludes the study by explaining how and why these variables affect an MFI's outreach and efficiency.

5.1 Social Capital

Education

A higher level of education did not prove to be significant in either regression. Therefore, based on the quantitative data, one cannot confirm that a higher level of education influences MFI operations. The average standard deviation for the highest level of education attained was 2.22. Given that the scale of education ranged from 1 (inadequately completed elementary education) to 8 (university degree/ higher education), a standard deviation of 2.22 suggests that the average education level might not accurately represent the spread of education levels. The quantitative analysis may have yielded more significant results if the variable measured the percentage of

population with a university degree or higher education instead of the average education level.

Similarly, the qualitative data also failed to provide any conclusive insight into the role of education. Perhaps education does not affect outreach because most microfinance clients are adults (or young adults no longer in school) and therefore do not interact with school networks. Unlike Miguel and Kremer's study about the role of school networks in the spread of anti-worming medication, microfinance clients do not interact within schools.[1] Most clients come from similar backgrounds and do not have access to higher levels of education.

One might think that education would have a significant effect on an MFI's ability to be financially sustainable, so it is puzzling that there is no significant correlation between higher education and OSS. Observations from the case study in Honduras suggest that perhaps there is no significant correlation between national levels of education and MFI operations within that country because upper management often acquires an education from universities outside of the country in which the MFI operates. For example, both the Executive Director and General Manger at the Adelante Foundation are U.S. citizens and completed schooling in the U.S., so the average level of education in Honduras does not accurately represent the average level of education within an MFI.

Number of Children

A higher number of children was significant in both regressions and had a positive influence on both outreach and sustainability. Maybe families with more children

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[1] Wydick, Hayes, and Kempf, 975.

tend to interact more with other families, encouraging the spread of microfinance. It is difficult to know, however, why a higher average number of children nationwide would increase sustainability at an MFI. In fact, a study by Fafchamps and Minten showed that "family members in agricultural trade remain a negative influence on firm performance."[2] One would think, therefore, that a higher average number of family members would negatively impact an MFI's performance.

The significant results associated with the number of children might be related to the discrepancy between parents and adults. The behavior of an adult with children is likely to differ from the behavior of an adult with no children. The increase in outreach and sustainability associated with an increased number of children might suggest that parents are more likely to positively contribute to MFI performance than adults with no children. Although most interviewed clients did not mention their children during interviews unless prompted, most of Adelante's clients had large families and many supported their families independently. When clients adjust their business behavior according to their role as a parent, they also affect the MFI from which they are receiving loans.

Religion

Surprisingly, attendance at religious services had no significant impact on outreach or sustainability according to quantitative and qualitative results. It is difficult to make a generalization about why religion did not affect microfinance operations on an international scale, but perhaps there is an explanation specific to Honduras.

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[2] Fafchamps and Minten, 19.

Literature about religious networks and microfinance in Central America suggest that religious networks promote social interactions and the spread of microfinance. Specifically, Wydick et al. found that microfinance outreach occurs most often in church networks in rural Guatemala, so one might think that church networks in Honduras have comparable power.[3] In 2007, CID-Gallup distributed a survey to 1,200 Hondurans to evaluate how religiosity has changed. According to the survey, 92% of Hondurans said that they were born into Catholic, Protestant, or Evangelical families, but only 83% said they still practice those religions.[4] The percentage of respondents who responded as "other" or "no religion," increased by nearly 10%.[5] This decrease in Honduran religiosity provides one explanation as to why so few microfinance clients learned about the program through church networks.

Trust

Because trust is one of the three main components of social capital, the results concerning trust deserve special attention. Trust emerged in the qualitative data as a significant theme. 4 out of 14 clients mentioned trust in their interviews when asked about the most important characteristics of their Solidarity Group, and 2 out of 4 interviewed employees spoke of the importance of trust when dealing with clients. The literature also suggests that trust plays a role in business and can make transactions more efficient. In a study about agricultural trading in Madagascar, Fafchamps and Minten

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[3] Wydick, Hayes, and Kempf, 981.

[4] CID-Gallup Latinoamérica. "Catholicism Lose Ground in Honduras: Majority of the Population Does Not Follow this Religion," 2007 internet on-line, Available from http://www.cidgallup.com/docs/boletines/BOLHON65a-Ingles.pdf, [December 6, 2011].

[5] Ibid.

show how trust facilitates negotiations, information exchange, and flexibility.[6] According to the qualitative data and conclusions from the literature, trust appears to have a positive effect on outreach and sustainability.

However, the quantitative data show that trust negatively impacts outreach and sustainability at the 99% confidence level. This discrepancy between the qualitative and quantitative data might be explained by differences in the measurement of trust. The variable representing trust in this study came from the WVS. In the WVS question about trust, survey respondents had to respond to the following question: "Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?"[7] Therefore, the variable representing trust in the regressions was a percentage of people who said that "most people can be trusted" on the survey. The question does not necessarily show how much people value trust; rather, it depicts how easily people trust others in their community.

The best interpretation of the data, therefore, is that trust is important to microfinance outreach and sustainability, but clients must carefully select whom they trust. The quantitative results suggest that as more people generally trust others, outreach and sustainability will decrease. In some ways, the qualitative data support this finding because both clients and staff explained that trust is important, but not everyone can be trusted. To benefit from trust, clients and employees must test each other and cultivate a trusting relationship. In order for trust to positively affect an MFI's outreach and sustainability, clients and staff cannot be overly trusting.

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[6] Fafchamps and Minten, 3-4.

[7] World Values Survey, "Integrated Questionnaire of the 1981-2002 Aggregated Values Surveys," 2011 internet on-line, 114, Available from http://www.wvsevsdb.com/wvs/WVSAnalize.jsp, [December 6, 2011].

Importance of Family

In both the outreach and sustainability regressions, the variable representing importance of family produced troubling results. For the sustainability regression, importance of family was significant at the 95% confidence interval. However, the data show that if 1% more of the population thought family was very important, MFI sustainability would increase by 1622.43%. Although the family variable was not significant in the outreach regression, the coefficient suggested that if 1% more of the population thought family was very important, outreach would decrease by 47.86%. In both regressions, the coefficient produced an unnaturally large percent change.

The unreasonably large coefficients may have been caused by the variable representing the importance of family. According to the WVS average, 99% of respondents said that they considered family "very important." Perhaps that survey question could not yield reasonable results for the regression analysis because responses were so uniform. Without any examples of populations that did not value family, there was no way to understand how much the importance of family affected the dependent variables. Furthermore, the importance of family was rarely mentioned in interviews, further suggesting that it does not have a significant impact on microfinance.

Importance of Friends

The importance of friends turned out to be one of the most influential elements of social capital. Both the quantitative and the qualitative data reveal that MFIs operating in communities that value friendship have greater outreach and run more efficiently. The

quantitative results showed that with every percent increase in population that considers friendship very important, outreach will increase by 6.75% and OSS will increase by 0.44%. Given that 93% of clients said that they learned about microfinance through other friends and given the staff explanations of group lending, the qualitative results also suggest that friendship is critical to outreach and sustainability.

These results are not too surprising, as the literature provides examples of other scenarios where friendship and social norms affect outreach. For example, the article by Munshi and Myaux about the adoption of contraceptives showed that women were only willing to try new contraceptive techniques if their female friends had also tried it.[8] The current study suggests that this phenomenon also applies to the adoption of microfinance.

Starting a small business can be frightening and challenging, so encouragement from close friends holds a lot of value. In a group interview, Client 12 said that not everyone has courage and feels comfortable with the idea of starting a business. Similarly, Client 8 explained how her sister encouraged her to join and to not feel frightened. Input from friends can have a large influence on one's decision to join a microfinance group. Furthermore, forming a loan group of close friends makes the payment process run more smoothly and minimizes work for the MFI. Client 9 said, "I might ask to borrow money from a friend, but I won't ask to borrow from someone I'm not very close with." If a group is composed of women who aren't close friends, no one will have the support they need to make payments on time, and the MFI will have to cope with defaulted loans. Friendship plays a significant role in the recruitment of new clients and in the maintenance of healthy loan portfolios.

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[8] Munshi and Myaux, 34.

Technology

 According to the quantitative data, technology has the greatest impact of all of the social capital variables on outreach and sustainability. Regression results show that every 1% increase in the percent of people who use internet at least once per week leads to a 10.02% increase in outreach and a 0.46% increase in OSS.

 At first glance, a 10% increase in national enrollment seems unrealistic, given that even in the country with the greatest proportion of enrolled citizens, only 0.0042% of the national population was enrolled in a microfinance program. This unrealistic result may be related to the independent variable that was chosen to represent technology. On average, only 0.087% of the population said that they use the internet at least once per week, so even a 1% increase in this amount of internet usage would have huge ramifications because the number of people with access to internet would increase tenfold.

 If access to technology doubled and the average percentage of the population that used internet at least once per week jumped to 0.174%, outreach would increase by more than 20% and OSS would improve by about 1%. However, this hypothetical increase in technology is hard to interpret because such a change would have an impact on many other industries besides microfinance. If a country suddenly experienced such tremendous development that access to technology doubled, microfinance might actually become less important as new industries emerged and citizens found access to new opportunities.

 Fortunately, the qualitative data allows for a better understanding of the role of technology. According to client and staff interviews, technology does not affect outreach

although most clients use cell phones. Sometimes clients use cell phones to contact other

women in their Solidarity Groups and to organize meetings, but most do not use cell

phones as their principal method of communication. Both the General Manager and Head

of Marketing emphasized that word of mouth was the best recruiting tool, as opposed to

flyers, emails, or telemarketing. Maybe future studies will be able to better understand

how computers and internet affect microfinance clients; however, most microfinance

clients have not yet adopted those technologies.

On the other hand, qualitative data support the quantitative finding that

technology increases efficiency at an MFI. According to the regression results, a 1%

increase in internet usage has a greater effect on OSS than any other social capital

variable (aside from the questionable importance of family variable). Although it is hard

to know how an increase in national internet usage would affect an MFI, Adelante's staff

mentioned several new technologies such as an online information sharing tool and

electronic credit paperwork that can greatly increase efficiency. Unfortunately, these new

technologies are expensive, so many smaller—and often more inefficient—MFIs cannot

afford them.

5.2 MFI Performance

As mentioned in Chapter IV, the seven explanatory control variables used to

explain MFI performance do not appear to have a large impact on outreach or

sustainability. Although the debt-to-equity ratio, borrowers per staff ratio, age, outreach,

and number of personnel variables were all significant at the 99% confidence level, a 1%

increase in any of those variables caused a less than 1% increase in outreach. The results

associated with age, outreach, and personnel are particularly surprising because one would think that older MFIs with more personnel and a large outreach policy would acquire more clients.

Profit margin was the only significant variable that causes more than a 1% change in outreach. For every 1% increase in profit margin, outreach actually decreases by 1.09%. This is a particularly interesting finding because it supports the literature about mission drift—the phenomenon that claims that MFIs will drift from their mission to serve the poor and focus on giving fewer, larger loans to wealthier clients to increase profits and decrease transition costs.[9] The qualitative data confirm that mission drift is always a possibility. The Head of Operations at the Adelante Foundation explained how the Foundation could cut costs and increase profits but concluded that those actions would damage the Foundation's interaction with clients. In order to cut costs and increase profits, it seems as though an MFI must cut client time, focus on fewer wealthier clients, and therefore decrease outreach.

The effect of profit margin on OSS yields insignificant but problematic results. Although the results were insignificant, the data show that a 1% increase in profit margin causes a 55,271.80% increase in OSS. While difficult to know what provoked this result, it is likely sensitive to specific observations or outliers.

As in the outreach regression, all significant variables, including borrowers per staff, age, and number of personnel, caused less than a 1% change in OSS. Sustainability depends on how an MFI "is using its resources, particularly its assets and personnel," so

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[9] Hermes, Lensink, and Meesters, 939.

one would think that the borrowers to staff ratio would have a large effect on OSS.[10]

However, the data show that a 1% increase in the borrowers per staff member ratio only

causes OSS to increase by 0.019%. Although the significant MFI performance variables

had a positive effect on OSS, the effect is too small to provide many conclusions.

The most likely cause of these insignificant results is a data limitation. As

outlined in Chapter III, there are five categories that explain MFI performance:

1) Sustainability/ profitability
2) Asset/ liability management
3) Portfolio quality
4) Efficiency/ productivity
5) Outreach.

Because of multicollinearity problems, this study could not include variables that

fully represent the four categories. Future studies might include data about subsidies and

returns on assets and equities in order to better understand the first category. This study

also lacked explanatory variables that fit into the third category because of

multicollinearity problems. Future studies, therefore, might incorporate information

regarding the loan loss rate, write-off ratio, and portfolio at risk. In conclusion, borrowers

per staff and the number of personnel seemed to have the largest positive impact on

outreach and sustainability; however, more data are needed to know which other

performance variables affect outreach and sustainability.

5.3 Endogenous Peer Effect

Results from the outreach and sustainability regressions show that there is a

significant endogenous peer effect between MFIs operating in the same region. Six out of

seven of the MFI performance variables measuring an endogenous peer effect were

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[10] Gutiérrez -Nieto, Serrano-Cinca, and Molinero, 7.

significant at the 90% confidence level or above. This finding suggests that the behavior of a group of MFIs operating in a given area will have a significant impact on an individual MFI operating in the same area. This quantitative finding supports the contemporary argument that the recent proliferation of MFIs may actually have a negative impact on the efficacy of microfinance.

The three variables that cause a negative endogenous peer effect in both the outreach and efficiency regressions are debt-to-equity ratio, borrowers per staff, and large outreach. Large outreach causes the largest endogenous peer effect because as the number of MFIs with large outreach policies increases by 1%, enrollment at an individual MFI in that area will decrease by 13.90% and OSS will decrease by 0.30%. As more MFIs operating in a given area increase their debt-to-equity ratio, their borrowers per staff ratio, and their outreach policy, each MFI operating in that area will be able to attract fewer clients and run less sustainably.

There were two variables that resulted in a positive endogenous peer effect. As more mature MFIs enter a given area and increase their number of personnel, other MFIs in that area actually experience minor increases in outreach and sustainability. However, as the number of mature MFIs increase by 1%, other MFIs will experience less than a 1% improvement in outreach and sustainability. Similarly, as the number of personnel working at other MFIs increases by 1%, an individual MFIs only experiences a 0.39% increase in outreach and a 0.003% increase in sustainability. New MFIs working in regions saturated with older MFIs will have an easier time attracting new clients and run more sustainably. However, these positive endogenous peer effects are minimal when

compared to the negative endogenous peer effects associated with high debt-to-equity ratios, high borrowers per staff ratios, and large outreach policies.

If many MFIs in a particular region are struggling to maintain a low debt-to-equity ratio, have high borrowers per staff ratios, and large outreach policies, there is probably a larger problem affecting that region. If there are many people requiring microfinance loans, and the institutions providing the loans must finance their operations through debt, it is only logical that a new MFI entering that region will suffer from the same regional problems. Although there are some firm level adjustments that might remedy financial problems in this industry, all MFIs operating in a given region will face some of the same conflicts inherent to the microfinance industry.

5.4 Limitations of the Study and Suggestions for Future Research

Before concluding, it is necessary to acknowledge some of the limitations inherent to the study. The first problem with the study involves the WVS data. As described in Chapter III, the WVS data involved several data manipulations and assumptions. Due to incomplete coverage and incomplete responses by survey participants, the available data had to be averaged and applied to multiple years. Also, one must assume that the WVS population sample is truly representative of the entire country. There is no way to receive complete surveys from the entire population every year, so there will always be assumptions associated with this kind of data.

There was also limited MFI data from the MIX. With over 4,000 data points, the MIX data set was large enough to yield significant results; however, the original data set included over 10,000 data points. Much of the microfinance data had to be eliminated

from the study because it came from countries not included in the WVS data set or because there was incomplete information about the MFI. The MIX provides reliable data about MFIs around the world, so it would have been ideal to have corresponding social capital data.

These data limitations may have contributed to the skewness problem discussed in Chapter IV. After the outreach and the sustainability regression, the residuals did not pass the skewness/kurtosis test for normality. Even after dropping the obvious outliers, tests were unable to prove that the data were not skewed. Fortunately, a histogram showed that the residuals followed a generally normal distribution.

An increase in sample size and diversification of the data could potentially solve these problems and lead to interesting future studies. For example, future researchers might try to complete a similar study using client information specific to the MFIs included in the MIX data set. The WVS data could be linked to the microfinance data by country, but using specific client information would provide for a richer analysis. If each MFI also had client information that related to social capital, it would be possible to test for endogenous per effects between clients.

This research shows how MFIs operating in the same country affect each other, but future studies might explore how MFI clients operating in the same country affect each other. If clients working with one MFI claim that friendship is very important, will a client working with another MFIs in the same country also value friendship? How would the trust between clients of one MFI affect the trust of clients working with another MFI? This study showed that there was an endogenous peer effect between MFIs, so it is likely that there is some kind of endogenous peer effect simultaneously occurring at the client

level. In order to measure this effect, one would need complete information about the
social capital of MFI clients.

Future researchers should also consider investigating the effect of entrepreneurial
spirit on MFI outreach and sustainability. Social norms that inhibit successful
microfinance surfaced as a recurring theme in the qualitative research. During the field
study, social norms such as passiveness, conformity, and resistance to change appeared to
negatively impact the growth and development of microfinance. For both clients and MFI
employees, these characteristics inhibited growth and efficiency. Future studies could
incorporate data, which represent the entrepreneurial social norms in order to offer a
better explanation of how social capital affects microfinance.

5.5 Contributions and Implications

This study shows that MFIs can increase outreach and improve sustainability by
leveraging certain elements of social capital. It also supports literature surrounding the
"mission drift" phenomenon by showing that an increased focus on profits will hurt
outreach. Lastly, the study borrows Manski's test for an endogenous peer effect to show
that increased MFI competition can have a negative effect on an individual MFI trying to
excel in that region. By using quantitative and qualitative data, this study yields sound
conclusions about MFI outreach and sustainability and offers policy implications for
MFIs operating around the world.

First, this project proves that social capital has a direct influence on an MFI's
operations. In order to leverage social capital, MFIs should acknowledge the power of
peer reviews. The interviews with microfinance clients from the Adelante Foundation

confirmed the quantitative finding that friendship is important to outreach and efficiency.
Therefore, to keep clients happy and promote positive reviews between friends, MFIs
should focus on customer satisfaction. If MFIs invest in customer satisfaction from the
start, they will be able to let clients promote the institution among their friends and family
and reduce the need for marketing initiatives.

Trust is another aspect of social capital that has a significant impact on MFI
outreach and sustainability. Quantitative results show that blind trust will hurt an MFI's
outreach and sustainability; therefore, an MFI should dedicate time to building a trusting
relationship with clients. As Adelante's Director of Marketing said, "That's why we don't
have any guarantee or ask for any guarantee of any kind: we trust the word of the
clients." Given that Adelante has a 0% write-off ratio and only 5% at-risk portfolio after
30 days, this trust guarantee seems to work well. Building a relationship with clients is a
resource-intensive process but is ultimately beneficial to the Foundation's growth and
self-sufficiency.

Second, this study shows that "mission drift" is a tangible problem for MFIs.
Quantitative data show that as profit margin increases by 1%, outreach decreases by more
than 1%. Additional qualitative data from the Head of Operations at the Adelante
Foundation suggest that cutting costs to boost profits often occurs at the expense of the
client. In order to avoid mission drift, MFIs must look for ways to cut costs without
hurting the client relationship. Adelante's General Manager gave the example of
combining loan groups from neighboring communities and arranging a single meeting
place in a central location. This change allows the loan officer to make one visit instead
of two, cuts gas costs, yet it still allows the clients to receive equal face time with the loan

officer. There are ways to cut costs without hurting outreach. MFIs must think creatively to simultaneously increase sustainability and maintain healthy relationships with clients.

Lastly, the study shows that there is a strong endogenous peer effect between MFIs. The behavior of a group of MFIs undoubtedly affects the outreach and sustainability of an individual MFI operating in the same region—usually in a negative way. Instead of opening in regions already saturated with microfinance programs, emerging MFIs should look for new markets where there is less competition. New MFIs should research the area where they plan to begin operations in order to learn how they could capitalize on social capital attributes specific to that region and learn from the mistakes of other MFIs in that region. If a group of MFIs operating within a given region suffers from high debt-to-equity ratios, an individual MFI in that region will probably experience a large negative impact on outreach and OSS. MFIs should consider entering regions where there are older MFIs that have been operating for eight years or more, as mature age proved to be the only MFI performance variable associated with a significant positive endogenous peer effect.

MFIs around the world struggle with the tradeoff between outreach and sustainability due to the resource-intensive requirements associated with alleviating poverty through microfinance. MFIs must think of new ways to cut costs if they want to be self-sufficient, and the power of social capital should not be underestimated. If MFIs know and trust their clients, they will experience benefits in outreach and sustainability.

APPENDIX A

CLIENT INTERVIEW QUESTIONNAIRE

1. When and how did you discover the Adelante Foundation?
   → Did you see an advertisement?
   → Did you learn about it through friends?

2. How did you and the other women create a Solidarity Group?
   → Were you friends beforehand?
   → Did you meet through the Foundation?

3. In your opinion, what are the most important characteristics of the Solidarity Group?
   → Why does you group work well together?
   → Do you value trust, communication, friendship, unity, etc.?

4. Have you worked with other microfinance organizations before Adelante?
   → Why did you switch to Adelante?
   → How was your experience with the other organization?

5. How do you think the Adelante Foundation could recruit more clients?
   → Are there any networks that communicate more than others?
   → Do people communicate through the church, athletic association, familial groups, etc.?

APPENDIX B

EMPLOYEE INTERVIEW QUESTIONNAIRE

1. What do you think is the greatest challenge for the Adelante Foundation?
   → Funding, outreach, sustainability?

2. How do you see technology affect the Foundation?
   → How does technology help the Foundation run more efficiently?
   → Do you utilize cell phones, internet, television, or radio technologies?

3. How do you think the Foundation could use its resources more efficiently?
   → Generally speaking, which areas could be improved to increase financial independence?
   → Human resources, financial resources, technology, etc.?

4. If the group-lending model works so well, why do you only give larger loans to individuals?
   → If group responsibility is so important, how does the individual loan process work?

5. How does the Foundation acquire new clients?
   → Does the Foundation use any local networks to reach out to more people?
   → Does the Foundation visit church groups, artisan groups, or neighborhood councils?

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