Social Capital and Health in Nicaraguan Communities

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Final Report

December 2003

Developing Social Capital in Nicaragua

Executive Summary

A. Introduction

Using household survey data and focused interviews with community leaders, we analyzed the relationship between four primary elements of social capital and health behaviors and civic involvement in six communities in Nicaragua.[1] Our goal was to examine how attitudes of trust and participation in voluntary associations can be increased by specific interventions designed to engage civic society in public health and other civic and community activities.

Following recent studies of social capital by the World Bank, this report analyzes four elements of social capital: a) group participation; b) networks; c) trust and solidarity; and d) norms of conflict and violence. Participation, networks and norms are all part of "structural" social capital while trust is classified as "cognitive" social capital.

B. Methodology

In this study, we used an analytical approach and survey instruments developed and applied by the World Bank. Both World Bank researchers and independent analysts have used these survey instruments to conduct interviews at both the household and community (focus group) level. The benefit of using the World Bank methodological and survey instruments is that it facilitates a comparative analysis with other studies on social capital. We modified the survey instruments to make them more applicable to the Nicaraguan situation and implemented the surveys in randomly selected households in six small communities selected by knowledgeable observers as having high or low participation in voluntary groups.

C. Results

We found a generally positive relationship between elements of social capital and positive health behaviors and higher levels of engagement in broader civic/political activities such as voting. Our findings indicate that both structurally (behavior involving participation) based social capital as well as cognitive notions (perceptions of trust) of social capital have positive and significant effects on desirable health behaviors.

Health behaviors

We focused primarily on the relationship between four salient components of social capital –participation, networks, attitudes of trust and norms of conflict - and positive health behavior and civic participation. Specifically, the four health behaviors are: 1) the use of modern health facilities for the last birth; 2) the use of modern medicine to treat respiratory illnesses; 3) the use of modern medicine to treat diarrhea; and 4) the use of well baby clinics for children.

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[1] Civic engagement/participation – participation in political meetings or voting -- can also be viewed as one component of social capital. Given that we are interested in designing interventions to help encourage participation, we treat civic participation and engagement as an outcome variable.

Group Participation and Organization
In general, group participation among respondents was high in the six Nicaraguan communities participating in this study. More than 60% of households interviewed reported that someone in their household was a member of a group or association. While Nicaragua's group participation rate is somewhat lower than participation rates in Burkina Faso (70%), it is higher than participation rates in Bolivia (53%) and Morocco (12%).[2]

Our analysis suggests a positive relationship between g*roup participation* and *some* of these health behaviors. We found that respondents who participated in more groups and who contributed more to their associations in terms of their time and financial resources were more likely to use modern medicine (oral rehydration salts and antibiotics) to treat diarrhea. Respondents who belonged to groups that were founded by the community were more likely to use modern medicine to treat respiratory illnesses.

Trust and Networks
Generally, levels of trust were low in Nicaragua. Only 16% of all respondents said that they could trust people generally and only one-third (33%) of respondents felt they could trust people in their neighborhood/barrio. Respondents who felt that they had networks (of support) (i.e. neighbors who they could count on in times of emergency) seemed to be more likely to trust people in general as well as people of the same race/ethnic group and local government representatives.

We found that the relationship between trust and solidarity and health behaviors was generally *positive.* Higher levels of trust in people of similar ethnic/linguistic groups, merchants, local administrators, police, teachers, doctors and nurses were associated with a greater likelihood of using modern medicine to treat diarrhea and/or respiratory illnesses. Only trust in medical personnel (nurses and doctors) and teachers was positively associated with attending well baby clinics for children. Surprisingly, *lower* levels of trust in people generally and local administrators were associated with having deliveries at modern health centers.

Our analysis suggests a *positive* relationship between feelings of trust and group participation. Respondents who participated in democratically organized groups were more likely to trust people in general.

Violence and Conflict (Norms)
Perceptions of conflict and violence varied noticeably across communities. More than half of all respondents reported their community to be peaceful. Not surprisingly, residents generally felt safer in their homes than walking around the community.

Our analysis failed to find a consistent relationship pattern between perceptions of conflict and violence and health behaviors. Respondents who felt very safe in their homes were more likely to use modern medicine to treat respiratory illnesses; but so, too, were those respondents who felt neither safe nor unsafe.

We found a positive relationship between group participation and the feeling of security in the community. Specifically, respondents who participate and who participate in

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[2] Bossert, Cakir, Bowser, 2003. Exploratory Study of Social Programs and Social Capital in Morocco. HSPH.

higher numbers of associations are more likely to feel safe in their community at night. We also found a positive relationship between higher memberships (membership loads) in more homogenous groups and the feeling that violence in the community had decreased over the last five years.

Civic Engagement/ Participation
The second outcome variable that we considered was civic and/or political participation. Our analysis suggests a robust and positive relationship between higher levels of two components of social capital- group participation and trust - and civic/political participation. Specifically, participation in groups was associated with greater likelihood of participating in neighborhood and political meetings and voluntary participation in service organizations. Respondents with higher membership loads (participation in higher numbers of groups) were more likely to participate in political and neighborhood meetings and voluntary participation in community organizations, and were more likely to contact health care (MINSA) officials about community health care problems.

Participation in groups that were more democratically organized was associated with voting in local elections and participating in political meetings. Higher levels of social interaction among one's neighbors were positively associated with most political activities, including voting in local and national elections, participating in political and neighborhood meetings, participating in voluntary service organizations/activities and contacting health care officials about community health issues. The existence of robust networks (the ability to count on your neighbors for assistance) was associated with participation in meetings and voluntary participation in service organizations.

In short, we found robust relationships between the components of social capital and positive health behaviors and higher levels of civic/political engagement. Our analysis suggests that both *structural* social capital and *cognitive* social capital may positively influence health outcome variables and higher levels of civic participation/engagement.

D. Results from Focus Group Interviews with Organizational Leaders and Members

Overall there were 63 interviews conducted with organizational leaders and members in the six communities in our study. More than one-quarter (27%) of the interviews were done with leaders of the organizations while 73% (46) were done with members of the organization. Of the leaders interviewed, 76% were male while 23% were female. Of the members interviewed, 54% were male while 46% were female.

We found that stable ("sustainable") leadership varies significantly across communities. On average, El Rosario reports only a 9% change in leadership while Waslala reports a 73% change in leadership. When we correlated percent change in leadership with participation and trust in each community, we found negative relationships with both participation and trust. This suggests that those communities with both higher participation and trust are more likely to have more stable, 'sustainable' leadership.

E. Intervention Strategies and Monitoring
The second part of this project is to design a set of intervention strategies that may facilitate increased group participation and deeper feelings of trust among community members in specific communities with *perceived* low levels of social capital. Based on

the findings of our analysis of both household surveys and focus group interviews, we developed a set of strategies and recommendations for designing interventions in two communities currently participating in the study. The objective of the intervention component of the study is two-fold: a) to improve health objectives directly and b) to encourage the development of higher levels of household participation in community activities and organizations and higher levels of trust within the community and between community members and governmental and institutional actors.

Group Organization
An analysis of the relationships between the two components of social capital – group participation and trust - and health behaviors and civic participation lead us to focus on the following intervention strategies.

- We recommend that interventions encourage community members to participate in groups.
- We encourage membership to increase activities and projects that facilitate interaction with group members and with general community residents.
- We recommend working with group leadership to restructure organizations to make them more democratic. Specifically, we encourage leaders to invite all group members to participate in the process of making the decisions that affect the group. Second, we suggest that leaders encourage the entire membership to participate in the selection of future leaders.
- We would encourage community and organizational leadership to sponsor community wide projects and social/recreational activities.

Leadership Development and Training
An analysis of focus groups and interviews with members and leaders of organizations lead us to advocate for intervention strategies that focus on leadership development and training. In the interviews and focus groups, respondents expressed concern that communities lacked sustainable leadership. Most leadership tends to be focused around specific, short-term projects. Based on our research, we suggest the following interventions.

- We recommend helping the community to identify and train a cadre of community leaders that extend across a broad range of sectors and various projects.
- We recommend training organizational leaders and community residents in conflict resolution skills and basic project management skills, including basic accounting, grant/proposal writing and leadership development.
- We recommend providing organizational and community leaders with methodological tools and resources to help them train others (train-the-trainers programs).
- Interventions should focus on helping community and organizational leaders identify external (local, national, international) sources of funding, technical support and program management support.

Developing Social Capital in Nicaragua

I. Introduction

Considerable literature on trust and social capital has theorized and demonstrated some linkages among attitudes about trust and trustworthiness, behavior involving participation in voluntary associations of civic society, and relationships between voluntary associations and organizations of the state, the performance of government programs, and health behavior and outcomes. (Putnam, 1993, 2000; Woolcock, 1998; Hardin, 2001; Scott, 1985; Kawachi and Berkman, 2000, Rose, et al. 1998; Rose-Ackerman, 2001; Sztompka, 1999; Wessels, 1998). Most of the recent literature has focused on assessing the relationship between social capital indicators and indicators of other social goods such as health outcomes and behaviors. Few studies have attempted to assess how to build social capital – namely by exploring possible interventions that can be done to increase trust and participation that might lead in turn to improvements in health behaviors and outcomes.

Given our lack of understanding about the development and effects of social capital, one of the suggestions for building social capital focuses on how local governments and civic organizations might work together to strengthen community participation in activities directed toward improving life chances of youth, developing adult skill levels, assisting micro-enterprise and micro loan program development, as well as healthy life style and safe motherhood programs. The literature on community organization for these social objectives focuses on a variety of activities that might strengthen social capital, including allowing local organizations to set specific priorities for collaborative activities. (Isreal, 1995) While we have empirical evidence about the effectiveness of some forms of community organizing and their effects on social behavior and indicators such as health status, few studies have addressed the role of social capital in influencing this process and the outcomes.

The broad long-term objective of this research is to provide both conceptual and practical contributions to the understanding of the development of social capital and its role in supporting the effectiveness of social programs and positive health behaviors in Nicaragua. The central research objective is to establish a baseline of 1) attitudes of trust within the community and toward government officials and 2) the behavior of participation in voluntary associations in six communities (in five different departments) with varying levels of social capital. This baseline will establish a general understanding of the levels of trust and participation that can be compared to other low and middle income countries where similar surveys have been conducted. It can also provide information on the differences in levels of trust and participation among the communities chosen for study within Nicaragua. We have analyzed the relationship between social capital and selected indicators of utilization of health services and practices. It is expected that this information can be used in future projects to implement and evaluate specific intervention projects designed to engage civic society in public health and other social activities and to promote changes in health behavior and health status.

II. Research Question

The broad long-term objective of this project in Nicaragua is to increase our understanding of social capital and the processes by which it is developed, and to understand the role of social capital in supporting effective social programs and improving health behaviors. The central research question motivating this project is to examine how attitudes of trust toward governmental and civic voluntary organizations and behavior of participation in voluntary associations can be increased by specific interventions designed to engage civic society in public health and other social activities. Additionally, we hope to determine the impact of these changes in health behavior and health status.

As part of our program, we are working with existing NGOs, public sector organizations (such as the mayor's office), and formal and informal community leaders in Nicaragua to develop a program of interventions in two of the six communities currently participating in the social capital study. The objective of the intervention component of the study is two-fold: a) to improve health behaviors indirectly and b) to encourage the development of higher levels of household participation in community activities and organizations and higher levels of trust within the community and between community members and governmental and institutional actors. Ultimately, we hope that higher levels of social capital will translate into improved health behaviors and higher levels of socio-economic development.

Towards this end, we will be monitoring NGO interventions in these two selected communities over the next year to determine what activities may more directly increase social capital. We are to work with communities to develop a plan of action based on their articulation of their needs and issues of concern. One of the goals of the intervention is to promote greater interaction and increased trust between public and non-profit organizations and institutions that extends beyond the delivery of services and goods. While we are not limiting our interventions to issues of health, our expectation is that improved health behaviors will be a byproduct of promoting greater trust and participation and increasing social capital.

In addition to complementing NGO activities with specific direct health interventions, our suggestion is that the types of community organizing interventions should also include components that: build on existing organizations in the community (rather than impose new organizational structures); develop participation mechanisms that encourage increased and continuing attendance at meetings and encourage broad participation in project activities; develop communication, consensus building and conflict resolution skills both in the community organization and within the wider community to build higher levels of trust within the community; encourage decision making and empowerment of community members (especially those who have not participated previously); and finally, create enduring ties of support with organizations outside the community and/or with communities with higher income levels.

III. Summary of Findings

This report analyzes the relationship between individual health behaviors and the characteristics of local communities with four elements of social capital. These elements are: a) participation in groups; b) trust; c) networks; and d) conflict and violence. We

explore an additional element of social capital - civic and political engagement – as an outcome variable.

Health behaviors

We focus on the relationship between four primary components of social capital – namely, group participation, networks, attitudes of trust and norms of violence – on positive health behavior and civic participation. Specifically, the four health behaviors are: 1) the use of modern health facilities for the last birth; 2) the use of modern medicine to treat respiratory illnesses; 3) the use of modern medicine to treat diarrhea; and 4) the use of well baby clinics for children.

Group Participation and Organization

In general, group participation among respondents was high in the six Nicaraguan communities participating in this study. More than 60% of households interviewed reported that someone in their household was a member of a group or association. While Nicaragua's group participation rate is somewhat lower than participation rates in Burkina Faso (70%), it is higher than participation rates in Bolivia (53%) and Morocco (12%).[3]

Our analysis suggests a positive relationship between g*roup participation* and *some* of these health behaviors. We found that respondents who participated with higher membership loads and who contributed more to their associations in terms of their time and financial resources were more likely to use modern medicine (oral rehydration salts and antibiotics) to treat diarrhea. Respondents who belonged to groups that were founded by the community were more likely to use modern medicine to treat respiratory illnesses.

Participation rates increased as levels of urbanity increased. Almost two-thirds (62%) of urban and 59% of semi-rural households were members of groups, while only 47% of rural households participated. Group members tended to come from the same community, religion, race and income background. In contrast, group members did not seem to share similar family backgrounds, gender, age, occupation, education level, ethnic group or political viewpoint/affiliation traits. Generally, levels of contribution of time and money were high. Overall, 80% of respondents contributed time or money. Given the level of widespread poverty, however, it is not surprising that people seemed more likely to give time than money. Only 30% respondents said they would give money while more than 80% would contribute their time and services.

When asked what groups were of primary importance, almost two-thirds listed religious groups, another 10% listed credit-related groups and another 7% listed non-governmental organizations (NGOs). Education seemed to be the primary good attributed to participation in groups (60%).

Group decision-making seemed to be carried out in one of two ways. In the first, leaders were reported to make decisions unilaterally and then inform the members of the group (35%). The other method was to have group members hold discussions and then make the decision together (40%). Almost half of respondents (47%) noted that membership

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[3] Bossert, Cakir, Bowser, 2003. Exploratory Study of Social Programs and Social Capital in Morocco. HSPH.

voted for their leaders (as opposed to leaders appointing their successor or a small group of members selecting the next leader).

Trust and Networks
Generally, levels of trust were low in Nicaragua. Only 16% of all respondents said that they could trust people generally and only one-third (33%) of respondents felt they could trust people in their neighborhood/barrio. Similarly, respondents did not seem to feel they had extensive networks of friends or people that they could count on. Less than half felt that only one or two people could be counted on to help in a short-term financial need, while 28% felt that they had no one they could count on for assistance. In a related question, most (55%) felt that they could ***not*** count on their neighbors to take care of their children in an emergency situation, compared to 20% of respondents who said they could count on their neighbors.

Not surprisingly, respondents who felt that they had networks (of support) (i.e. neighbors who they could count on in times of emergency) seemed to be more likely to trust people in general as well as people of the same race/ethnic group and local government representatives.

We found that the relationship between trust and solidarity and health behaviors was generally *positive*. Higher levels of trust in people of similar ethnic/linguistic groups, merchants, local administrators, police, teachers, doctors and nurses were associated with a greater likelihood of using modern medicine to treat diarrhea and/or respiratory illnesses. Only trust in medical personnel (nurses and doctors) and teachers was positively associated with attending well baby clinics for children. Surprisingly, *lower* levels of trust in people generally and local administrators were associated with having deliveries at modern health centers.

Our analysis suggests a *positive* relationship between feelings of trust and group participation. Respondents who participated in democratically organized groups were more likely to trust people in general.

Violence and Conflict (Norms)
Perceptions of conflict and violence varied noticeably across communities. More than half of all respondents reported their community to be peaceful. Not surprisingly, residents generally felt safer in their homes than walking around the community. One reason for the low levels of security when walking the community may have to do with the fact that almost 45% felt that violence in the community had *increased* over the last five years while only 8% felt it had decreased.

Our analysis failed to find a consistent relationship pattern between perceptions of conflict and violence and health behaviors. Respondents who felt very safe in their homes were more likely to use modern medicine to treat respiratory illnesses, as were those who felt neither safe nor unsafe.

We found a positive relationship between group participation and the feeling of security in the community. Specifically, respondents who participate and who participate in higher numbers of associations are more likely to feel safe in their community at night. We also found a positive relationship between membership loads (participation in a

greater number of groups) and more homogenous groups and the feeling that violence in the community had decreased over the last five years.

Civic Engagement/Participation
The second outcome variable that we consider is civic and/or political participation. Participation in political or public awareness activities seemed quite low. While more than 80% of respondents reported voting in recent national and local elections (very high by international standards), few trusted political leaders. Voting seemed to be the extent of political participation since *most* respondents had **not** attended a meeting, protest, electoral campaign, or contacted the media or police about a local problem.

Our analysis suggests a robust and positive relationship between higher levels of two components of social capital- group participation and trust - and civic/political participation. Specifically, participation in groups is associated with greater likelihood of participating in neighborhood and political meetings and voluntary participation in service organizations. Respondents with higher membership loads (participation in higher numbers of groups) are more likely to participate in political and neighborhood meetings and voluntary participation in community organizations, and are more likely to contact health care (MINSA) officials about community health care problems.

Participation in groups that are more democratically organized was associated with voting in local elections and participating in political meetings. Higher levels of social interaction among one's neighbors were positively associated with most political activities, including voting in local and national elections, participating in political and neighborhood meetings, participating in voluntary service organizations/activities and contacting health care officials about community health issues. The existence of robust networks (the ability to count on your neighbors for assistance) was associated with participation in meetings and voluntary participation in service organizations.

IV. Data and Methodology

Data
In six purposefully selected communities with reputations for low and high social capital in Nicaragua (see below for selection criteria), the research team used modified[4] questionnaire instruments developed by the World Bank and implemented in several other low- and other middle-income countries (Krishna and Shrader 2001, Harpham et al 2002).[5] Spanning more than 600 questions, the survey asked respondents specific questions about their participation in civic groups, their perceptions of trustworthiness of others in the community and local politics, and their feelings of empowerment. The respondents were asked to to rank the trustworthiness of different organizations related to health and local politics (health offices, mayor's office, political parties, religious organizations, voluntary organizations). The participatory behavior of social capital was measured by the survey by asking respondents to identify organizations to which they belong and a series of questions about the intensity and duration of that participation. In

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[4] HSPH worked with a local team of researchers (ALVA, S.A.) to adapt and reword some of the questions so that they would more directly relate to the experiences of respondents living in poor communities of Nicaragua.
[5] Recently, HSPH has used this methodological survey instrument in a recent study of social capital in Morocco (Bossert, Cakir, Bowser, 2003). Working Draft.

addition, information about health behaviors was collected by asking a health survey to all households with children less than five years of age.

The survey asked questions on social capital in the following thematic areas: 1) participation in groups; 2) trust and solidarity; 3) collective activities; 4) social cohesion and integration; 5) conflict and violence; 6) political participation and empowerment.

Members of a local team of researchers (ALVA, S.A.) secured census data on each community. Based on the number of households, they determined the rate of selection (i.e. every second or third household). Interviewers attempted to interview the head of the household (usually male). In those cases where the head of household was not present, they interviewed the oldest adult in the house.

A separate survey of leaders of these community organizations was used to assess the perceived relationships between voluntary organizations of civil society and the political institutions and governmental organizations. This survey served as a basis of identifying potential partners for the community-initiated programs.[6]

Information on individual characteristics such as types of housing, living conditions, and education levels provided some information on socio-economic levels of respondents. In addition, information on community demographics and poverty levels was collected from Instituto Nicaragüense de Fomento Municipal's (INIFOM) Municipal Demographics 2000 and Nicaragua Poverty Census.[7] Health statistics were measured by asking specific questions based on DHS questions about births and treatment for diarrhea and respiratory illnesses. The survey was implemented by ALVA, S.A. a local consulting firm, over a period of 2 months.

Social Capital Indicators
One of the objectives of this study was to determine whether health behaviors, group membership and relationships between civil society and public and non-profit organizations were significantly different across communities with different levels of social capital.

Social capital theorists have drawn a distinction between cognitive and structural elements of social capital (Uphoff 1999). Cognitive elements include values, attitudes and beliefs. Trust is an example of 'cognitive' social capital. Structural elements refer to networks, roles, rules and precedents. Participation, networks and norms are all part of "structural" social capital. In this study, we use indicators that capture both structural and cognitive elements social capital.

Recent studies on the relationship of social capital to economic development have used a complementary set of distinct indicators (Grootaert 1999, 2001; Narayan and Pritchett,

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[6] The findings presented in this report are based primarily on an analysis of the household survey data. We incorporate our analysis of focus groups with community leaders into the interventions and recommendations section of this report.

[7] The Nicaragua Poverty Map (Census) was produced by the Program for the Improvement of Surveys and the Measurement of Living Conditions in Latin America and the Caribbean (MECOVI), the Technical Secretary of the Office of the President (SETEC); the National Institute for Statistics and Studies (INEC) and Social Investment Emergency Funds (FISE).

1999) to measure social capital. These variables attempt to more explicitly identify the nature of participation and composition of group membership so as to better understand the relationship between participation and social capital.

In the initial stages, this project identified communities *perceived* to have lower levels of social capital. Associates of the Harvard School of Public Health and ALVA, S.A. convened and facilitated a series of workshops with government, community and NGO representatives to assess *perceived* levels of social capital in various communities across Nicaragua. The consensus among participating representatives was that El Rosario and Villanueva were purported to have higher levels of social capital than the communities of Cinco Pinos, Pantasma, Rivas and Waslala.

Admittedly, workshop assessments based on external (outside) observation of behavior may not necessarily reflect or accurately capture the cognitive social capital (beliefs, trust and attitudes) present in a community. Thus, we then compared *purported* levels of social capital in the communities to the social indicators derived from an analysis of the household survey. Generally, El Rosario and Villanueva ranked high (or in the top half) in most of the social capital indicators, thereby validating the external *perceived* assessments of varying levels of social capital across communities.

While the empirical evidence does support our initial hypotheses, we want to clarify that we have made no judgment regarding these communities and refer to the *purported* levels of social capital in each of the communities, based on external observations. We now turn to a description of the standard set of social capital indicators.

The first indicator, *group participation*, is a dichotomous variable that takes on a positive value if the survey respondents noted participation in any community group.[8] More than sixty percent (61.6%) of respondents stated that they belonged to at least one group or association.

The second of these social capital indicators is *density of associations* or "average membership load." This is measured by the number of memberships per household.[9] The average for the study sample is .80 memberships per household.

Meeting attendance or "*average meeting load*" is the third social capital indicator. Arguably, membership in an association has little value if one does not attend meetings with other group members. The meting attendance index measures the average number of times each month that someone from the household attended groups meetings, averaged across the number of active memberships in each household. The sample average is 5.9 indicating that on average, a household attends almost 6 meetings a month.[10]

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[8] The advantage to using the participation variable is that it allows for comparison across other HSPH social capital studies.

[9] If more than two respondents reported belonging to the same type of group (i.e. religious group), we assumed that they were members of the same group.

[10] At this time, there are two methodological points that we need to clarify. First, we construct the 'average meeting load' indicator based only on those households (310 out of 504) who said that they belonged to at least one group. Second, the majority of respondents who belonged to a religious group noted that they met 'daily.' Subsequent interviews and discussions revealed that the more accurate meeting load was three times a week (12 times a month) and our analysis is based on that assumption.

The fourth measure used to capture the context of social capital is an *index of heterogeneity*. The World Bank questionnaire identified up to two of the most important associations for each household. For these groups, a number of supplementary questions were asked which provided some insight into the internal homogeneity of the group. Specifically, these were related to neighborhood, kin/ethnic groups, religion, gender, age, race, occupation, level of education, and political orientation. On that basis, we constructed a score ranging from 0 to 9 for each of the two groups whereby a value of 1 on each criteria indicated that members of the association were "mostly from different" kin groups, education levels, etc. The score of the two groups was averaged and the resulting index was scaled from 0 to 90, whereby the value 90 corresponds to the highest level of heterogeneity. The average score of the heterogeneity index was 61.3.

Contribution Score is an index (0 to 100) that measures the total value of work and goods and services contributed by each household to the groups in which they participate. The idea is that, *ceteris paribas*, members should have a greater attachment and interest in the groups to which they donate money and/or volunteer their time. The sample average is 3.0.

The sixth social capital indicator, *(Democratic) Participation Score*, is an index (0-2) derived from several questions about the way in which groups are organized and function. Groups that are more democratically organized score higher on the index. For instance, one point is given if either one of the following is true (and a score of two is earned if both are true): a) decisions are made by all group members following a discussion (as opposed to the group leader unilaterally making the decision) and b) group members elect their members (as opposed to the group leader choosing his successor).

Community Trust Index is an index (0-3) derived from questions about the extent of trust and networks in the community. A higher index score indicates higher levels of trust in one's neighbors. The three questions are: a) If you needed a small amount of money, how many persons (beyond family members) could you turn to?; b) If you encountered serious economic problems (i.e. job loss), how many people (beyond family members) could you count on to help out?; and c) if you had to go away for a few days, could you trust or count on your neighbors to look after your children?[11]

Social Interaction Index is an index (0-4) derived from questions about interaction with neighbors. A higher index score indicates greater interaction with others in one's neighborhood. Specifically, the index reflects regular conversations with neighbors; regular visits with others in the community; and attendance at parties and social events.[12]

The ninth social capital indicator, *Community Orientation,* is a dichotomous variable that takes on a positive value if the groups in which respondents participate were formed by members of the community (as opposed to outsiders).

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[11] The mean answer was that only 1-2 people could be counted on. Thus, a score of ' 1' was given if MORE than 1-2 people could be counted upon.
[12] The average number of events attended in one year was 3. A score of '1' was given only when respondents participated in more than 3 events (sample mean) in one year.

Number of Community Activities is the number of social (i.e. parties and ceremonies) activities that the household has participated in within the last year.[13] See Appendix 1 for a list of the specific questions that were used to compile the battery of indicators.

Methodology

Given that we are using survey data, we used data analysis specifications that account for sample design and survey data collection. Briefly, survey data have three important characteristics: sampling weights, clustering and stratification. In sample surveys, observations are selected through a random process, but different observations may have different probabilities of selection. Weights are equal to the inverse of the probability of being sampled. Including sampling weights in the analysis gives estimators that are approximately unbiased for whatever we are attempting to estimate in the full population. If we omit weights, our estimates may be very biased. Here we weight by size of household.

In surveys, different groups of clusters, called strata, are sampled separately. Sampling is done independently across strata. Thus, strata are statistically independent and can be analyzed as such. In many cases, this produces smaller (and correctly so) estimates of standard errors. In this study, our strata are our six communities.

So, to summarize, we use sampling weights in order to arrive at the correct point estimates. We consider stratification to avoid biased standard errors. By doing so, we are taking every precaution to make sure that our estimates are unbiased and our results robust (and conservative).

Given that many of our dependent variables are dichotomous variables, we use the maximum likelihood logit estimation (for survey design) and report odds ratios.[14] In cases where the dependent variable is an ordered variable, we use a maximum likelihood ordered logit estimation and report coefficients (expected value). We run each of the specifications with a single social capital indicator so as to isolate the effects of our variable of interest.

For all specifications, we control for area (rural, semi-rural, urban), the level of education of the respondent and level of extreme poverty in the community.[15] We control for these variables to take into account possible associational relationships between higher levels of social capital and higher levels of development, education and urbanization. (Higher levels of economic development are usually associated with higher rates of urbanization and higher levels of education.).

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[13] We present this indicator to compare differences across communities but do not use it in our analysis.
[14] The correlation between heterogeneity index and membership density were highly correlated so we did not include the same two social capital indicators in the same specification.
[15] The household survey did not ask respondents for information on household income or assets. As such, we use the level of extreme poverty in the community to control for income. Given that poverty is widespread in Nicaragua, we used "% of residents living in extreme poverty" to increase variation.

V. The Communities and Respondent

Background

Nicaragua has had a long and rich history of community participation and local cooperation. After the 1979 revolution, the Sandinista government made health care and education a priority and relied on community participation to realize their goals.[16] During this time, many international non- governmental organizations (NGOs) established cooperative relationships with Nicaragua. More recently, NGOs sought out and expanded collaborative relationships with Nicaragua with the goal of rebuilding those communities destroyed by Hurricane Mitch in 1998.

USAID, along with other donors, is currently supporting several NGO community organizing programs in Nicaragua. These programs include health promotion, good governance and democracy, and education. Anecdotal information suggests that there are some areas in Nicaragua where there has been very active community organizing and that there have been more effective programs in these areas. There are other areas with significantly less community participation and these may be associated with less effective health programs. This suggests that there is a variation in the degree of social capital in different communities and that social capital may be associated with effective programs.

The communities and respondents

The survey interviewed individuals in 504 households in six communities that were purposefully selected on the basis of whether they were considered to have low or high levels of social capital. The communities were selected in a workshop seminar with representatives of the major health projects, NGOs, and government programs involved in community activities throughout Nicaragua. The workshop described the concepts of social capital and developed criteria for selection of high and low social capital communities and involved an iterative presentation and review of proposed communities by separate working groups. The communities (and their respective regions) include: Cinco Pinos (Chinandega), El Rosario (Carazo), Pantasma (Jinotega), Rivas (Rivas), Villanueva (Chinandega), and Waslala (RAAN). Only El Rosario and Villanueva were noted as having higher levels of social capital.[17] Of the six communities included in the study, only one is rural (Pantasma) while the communities of Cinco Pinos, Villanueva and Waslala are semi-rural. Only El Rosario and Rivas are urban. Table 1 presents a comparison of demographic characteristics of each of the six communities under study and the number of respondents in each. Appendix 2 presents some tests of statistical significance of various demographic characteristics of the communities and social capital indicators.

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[16] Specifically, the government trained about 80,000 *brigadistas* (volunteer paramedical health aides) to provide vaccinations and health education to rural areas. Over the next few years, life expectancy increased and infant mortality decreased. In 1983, the World Health Organization declared Nicaragua a "Model Nation in Health Attention." Today, brigadistas still serve an important role in rural communities. Similarly, the Sandinista government trained a cadre of more than 80,000 volunteer teachers to educate children and adults in rural communities. Source: Eurchuk, AMNI Centre, Faculty for Social Work, Toronto, 2000.

[17] Again, we refer to the perceived levels of social capital, as assessed by external stakeholders who have been working with communities across Nicaragua.

Table 1. Demographic Characteristics of Municipality, By Community

	Cinco Pinos (87)	El Rosario (108)	Rivas (88)	Villanueva (110)	Pantasma (55)	Waslala (56)
	Semi-rural	Urban	Urban	Semi-rural	Rural	Semi-rural
Population	6,471	4,494	41,703	27,522	37,847	43,676
Land Area (000s km^2)	60	11	281	780	563	1,329
Population Density (people/km^2)	127	357	149	35	67	31
% Urban	21	56	62	24	16	84
Altitude (meters above sea level)	400	470	58	60-660	.	420
Distance from Managua (km)	240	51	111	186	222	241
Literacy Rate	17	.	.	.	23	42
% of population in extreme poverty	28.3	17.1	11.6	39.1	39.8	43
Number of Pre-schools	17	.	.	.	70	3
Number of Primary Schools	15	.	.	.	83	38
Number of Secondary Schools	2	.	.	.	1	5
Number of Health Care Centers	1	.	.	.	1	1

Source: Transmisión de Gobiernos Locales 2000, INIFOM, Nicaragua

Almost 70% of respondents were women. Almost 83% had some education, ranging from preschool to university degrees. Forty-four percent were housewives, 11% agricultural workers, and 10% reported employment with a small art-related enterprise. More than half of all respondents were unemployed (53%). Only 11% of households had children under the ages of 13. Table 2 presents socio-economic characteristics by community and *purported* level of social capitals.

Almost 87% of respondents reported having legal ownership (titles) of their homes. Almost three-fourths of households have sturdy homes made of brick, concrete or cement. Just under two-thirds have floors of tile or concrete, while 40% have dirt floors. Across all households, only 21% of families draw water from a local well (13% rely on a public well). Almost three-fourths have their proper tap/faucet. Rural households, however, rely primarily on local wells. Specifically, almost 90% of all rural households rely on getting their water from a well, and 67% use the local public well. Comparing all households, almost 81% have electricity supplied by the public system, while almost 18% still rely on gas and candles to illuminate their homes. In the rural areas, the lack of basic infrastructure is again striking: 97% of interviewed households rely on gas, kerosene and candles to illuminate their homes. Only 19% of interviewed households have flushing toilets while 75% still use latrines. 95% of households burn and/or bury their trash.

Table 2. Socio-economic Characteristics of Respondents, By Community (based on respondents)

	Cinco Pinos (87)	Pantasma (55)	Rivas (88)	Waslala (56)	El Rosario (108)	Villanueva (110)
	Semi-rural	Rural	Urban	Semi-rural	Urban	Semi-rural
Purported Levels of Social Capital	Low	Low	Low	Low	High	High
Level of Education						
· Illiterate, no schooling	16.1%	32.7%	3.4%	19.6%	11.1%	11.0%
· Literate, no schooling	6.9%	3.6%	---	3.6%	1.9%	4.6%
· Kindergarten	1.2%	---	---	---	2.8%	---
· Primary	33.3%	58.2%	28.4%	42.9%	35.2%	41.3%
· Secondary	26.4%	5.5%	45.5%	25.0%	35.2%	30.3%
· Technical Training	11.5%	---	8.0%	5.4%	7.4%	6.4%
· University	4.6%	---	14.8%	3.6%	6.5%	6.4%
Employment/Occupation						
· Agriculture/Farmer	22.1%	29.6%	2.3%	3.6%	4.8%	11.0%
· Trade/Businessman	7.0%	1.9%	12.9%	10.7%	3.8%	13.8%
· Artisan	4.7%	5.6%	5.8%	8.9%	4.9%	7.3%
· Housewife	32.6%	55.6%	43.5%	42.9%	51.4%	39.5%
· Professional	13.9%	---	18.8%	7.1%	6.7%	9.2%
Currently Employed?						
· Yes	49.4%	42.6%	38.6%	44.6%	27.8%	48.2%
· No	46.0%	57.4%	54.6%	51.8%	62.0%	45.5%
Housing Material (walls)						
· Blocks, Bricks	48.3%	41.8%	93.2%	55.4%	83.3%	86.4%
· Wood	1.2%	45.5%	4.6%	42.9%	8.3%	3.6%
· Adobe	48.3%	9.1%	2.3%	1.8%	2.8%	9.1%
Housing Materials (roof)						
· Concrete	---	---	1.1%	---	1.9%	1.8%
· Tiles	66.7%	5.5%	6.8%	---	11.1%	82.7%
· Fiber	---	1.8%	7.8%	---	5.6%	---
· Zinc	32.2%	90.9%	81.8%	100%	78.7%	14.6%
· Wood	---	---	---	---	1.9%	---
Housing Materials (floor)						
· Concrete/Cement	19.5%	34.6%	35.2%	35.7%	21.3%	27.3%
· Bricks/Tiles	18.4%	---	54.6%	7.1%	42.6%	33.6%
· Wood	1.2%	7.3%	---	12.5%	1.9%	---
· Dirt/Sand	60.9%	58.2%	10.2%	44.6%	34.3%	39.1%
Access to Water						
· Private Well	21.8%	23.6%	4.6%	---	1.9%	5.5%
· Public Well	19.5%	67.3%	5.7%	---	---	6.4%
· Tap	51.7%	---	89.8%	100%	97.2%	83.6%
· River/Stream	3.5%	5.5%	---	---	---	1.0%
% Urban	21	16	62	84	56	24

VI. Findings

This report analyzes four elements of social capital and relates them to individual and community characteristics and to health behaviors and civic participation. The four social capital elements are: a) participation in groups; b) trust and solidarity; c) networks; and d) conflict and violence. For each of the major thematic areas, we present the general findings of the frequency of responses to the questionnaire followed by cross tab analysis of the variation in responses among the different community characteristics and other individual socio-economic and demographic indicators. We

also present results of regression analyses testing the relationships between two of the elements of social capital and health behaviors and civic participation.

Tables 3a and 3b presents the various social capital indicators by region. The two communities purported to have higher levels of social capital – El Rosario and Villanueva - did measure higher in several of the social capital indicators, specifically, the percent of the community that participates in a group, the number of active memberships per household (membership density) and meeting attendance. Only 48% of residents of Pantasma participate in a group while 74% of residents of El Rosario are members of a group.

Across the sample, the number of active memberships per household (*membership load*) is .80. On average, households in communities with low levels of social capital only had .70 active memberships. In contrast, households in areas with higher perceived levels of social capital maintained .92 active memberships. On average, groups tended to be heterogeneous (heterogeneity index across all respondents is 61.3 – greater than 50 on a scale of 0-90). Groups in Cinco Pinos, however, tended to be more heterogeneous than the average, with an index of 65.6, the highest of all communities. In Pantasma, where participation rates are low, groups were fairly homogeneous with an index of 53.1, the lowest in the sample.

Appendix 2 contains the exact wording of the questions used to construct the indicators used in this study. It also describes some of the other possible social capital indicators used in other studies. The indicators can be used separately or combined to create a social capital index. In this study, we use each indicator separately so as to be able to isolate the effect of each membership characteristic.

Table 3a. Social Capital Indicators, by Community

Communities	% of community that participates in a group	Membership Load/Density (# of Memberships per Household)	Meeting Load (Average Number of Meetings per membership per month)	Index of Heterogeneity	Cash & Work Contribution Sore
Cinco Pinos	56.3	.71	5.1	65.6	3.6
El Rosario	73.6	1.0	7.9	59.6	3.1
Pantasma	48.1	.57	4.3	53.1	.79
Rivas	61.1	.81	4.9	63.3	2.6
Villanueva	63.6	.83	5.8	61.7	3.4
Waslala	57.1	.66	5.5	62.5	3.8
Average	61.6%	.80	5.9	61.3	3.0
Low Social Capital	56.1%	.70	5.0	60.5	3.3
High Social Capital	68.5%	.92	6.9	62.1	2.8
F test of difference of means b/t communities and indicators	(p>.1249)	(p>.3607)	(p>.1181)	(p>.4125)	(p>.2964)
F test of difference of means b/t communities with (perceived) different levels of social capital and indicators	(p>.0053)	(p>.0102)	(p>.0000)	(p>.7461)	(p>.1108)
Number	482	482	294	297	410

Table 3b. Social Capital Indicators, by Community

Communities	Democratic Participation Score*	Community Trust Index**	Social Interaction Index***	Number of Community Activities per Year	% of Groups Initiated by Community
Cinco Pinos	28.6	5.8	5.8	3.5	81.4
El Rosario	26.9	5.6	5.6	2.8	86.1
Pantasma	16.0	9.1	3.6	1.7	87.5
Rivas	29.6	5.7	19.3	3.7	77.5
Villanueva	46.3	16.4	5.5	3.1	87.7
Waslala	21.9	12.5	5.4	3.5	84.6
Average	30.5	9.1	7.7	3.1	84.3
Low Social Capital	25.3	7.7	9.4	3.2	81.8
High Social Capital	35.9	11.0	5.5	2.9	86.9
F test of difference of means b/t communities and indicators	(p>.4253)	(p>.0723)	(p>.0139)	(p>.8535)	(p>.6157)
F test of difference of means b/t communities with (perceived) different levels of social capital and indicators	(p>.0403)	(p>.6057)	(p>.4609)	(p>.4496)	(p>.2698)
Number	295	504	504	500	254

* Percent that scored a 2 (most democratic); Index range 0-2.
** Percent that scored a 3 (higher levels of trust); Index range 0-3.
*** Percent that scored a 4 (high levels of social interaction); Index range 0-4.

1. Group Participation and Organization

In general there was high participation in groups. An analysis of the data finds that 297 of the 482 households interviewed (61%) reported that someone in their household was a member of a group or association.[18] While this is somewhat lower than participation rates in Burkina Faso (70%), it is higher than participation rates in Bolivia (53%) and Morocco (12%).[19]

Not surprisingly, there was tremendous variation in participation rates across communities. At the high end, over seventy percent (74%) of residents of El Rosario, a community perceived by workshop participants as having higher levels social capital, noted participating in a group. Villanueva, the other community purported to have higher levels of social capital, followed closely behind with 64% of its respondents identifying themselves as members of a group. More than half (57%) of Waslala's and Cinco Pinos' (56%) residents participated in a group. Trailing behind were Rivas (61%) and Pantasma (48%) where participation rates were much lower.

We expected that participation would be higher in the communities that had been identified by the initial workshop as likely to have more social capital. Our study confirmed this. Just over two-thirds (69%) of residents of communities with a reputation for high levels of social capital participated. In communities with reputations for lower

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[18] Although our original sample is 504 households, we have missing information for 22 households. As such our final sample size for households for which we have information is 482.

[19] Bossert, Cakir, Bowser, 2003. Exploratory Study of Social Programs and Social Capital in Morocco. HSPH.

levels of social capital, only half (56%) of the respondents acknowledged participating in a group. Participation rates increased as levels of urbanity increased. More than two-thirds (69%) of urban and 60% of semi-rural households were members of groups, while only 48% of rural households participated. The average membership load of every respondent was less than one group (.80). For communities with higher levels of social capital, the average membership load was .92; in low social capital communities, the number was .70.

Almost two-thirds of male respondents were involved in a group, while only 55% of women were involved. Participation rates were high for most households whose respondents had any educational training. Surprisingly, respondents that were self-taught (76%) had higher participation levels than any other group. Just over two-thirds of respondents with university education were members of a group. Only those with technical training had lower rates of participation (47%). That said, neither education nor age was statistically related to group participation.

There were striking differences in participation across men and women. Not surprisingly, 84% of participants in agricultural groups were male. Almost 70% of participants in credit associations were women. The majority of participants in NGOs (64%), political groups (65%) and sports associations (77%) were men. Participation in religious groups (90%) and school committees (100%) was primarily by women. Participation in groups was generally voluntary (34%) or by invitation (35%).

Almost two-thirds (63%) of respondents reported participation in religious groups, another 15% listed credit-related groups and another 12% listed non-governmental organizations (NGOs). (See Table 4). When asked what groups were most important, sixty percent said religious groups. Another 10% placed primary importance on credit groups/associations. Another 7% said that NGOs were the most important group to which they belonged. Results were consistent when comparing answers across communities with varying levels of social capital (as perceived by external observers). The two exceptions are that 7% of households in communities with lower levels of social capital placed a higher premium on their participation in cooperatives while 12% of households in communities with *higher* levels of social capital listed NGOs as one of the most important associations.

Almost 50% of men reported that religious groups were the most important association to which they belonged. Almost 10% named NGOs and credit associations as the most important. Two thirds of women (66%) mentioned religious groups as their most significant membership. Another 10% listed credit associations while 7% named NGOs as the groups they considered most important. Only 4% listed women's groups as the most important.

Table 4. Group Membership

	Membership in group as a % of all membership	Who participates?		Number of Households with members	"What is the most important group in your life at present?" %				
		% Men	% Women		Full Sample	Low Capital	High Capital	Men	Women
Agricultural Groups	6.4%	84.2%	21.0%	19	4.0%	2.7%	5.5%	7.8%	2.1%
Cooperatives	1.3%	75.0%	75.0%	4	3.4%	6.6%	0.0%	6.8%	1.6%
Credit Groups/Associations	14.8%	38.6%	68.2%	44	9.8%	9.3%	10.0%	8.7%	10.3%
Non-governmental organizations	12.1%	63.9%	41.7%	36	7.4%	3.3%	11.6%	8.7%	6.7%
Political Parties/ Groups	6.7%	65.0%	45.0%	20	3.0%	4.0%	2.1%	3.9%	2.6%
Religious Groups	63.3%	56.9%	90.4%	188	60.6%	62.3%	58.9%	49.5%	66.5%
School Committees	2.4%	0.0	100.0%	7	.67%	0.0%	1.4%	0.97%	0.52%
Sports Groups	4.4%	76.9%	30.8%	13	2.4%	1.4%	.7%	3.9%	1.6%
Women's Groups	2.7%	0.0	100.0%	8	2.7%	3.3%	2.1%	0.97%	3.6%
Other	9.8%	.	.	29	9.5%	7.1%	7.7%	8.8%	4.5%

IN this group, other includes (with percent reporting): alcoholics anonymous (.67), commercial associations (.34), government programs (1.3), youth groups (1.3), neighborhood associations (1.7), health committees (.67), professional associations (.34), unions (1.0), and parents' groups (.34)

Most reported that the primary benefit of participating was spiritual (53%). Another one-fourth of households admitted that they believed that participation was improving their living conditions. Some also reported improved self-esteem and community improvement as important reasons for participating.

Education seemed to be the primary good to which participation had given respondents access (60%). As shown in Table 5, in Cinco Pinos, Villanueva and Waslala, more than one-third of respondents noted that participation in associations had given them access to credit and savings. More than one-third of respondents in El Rosario, Rivas, Villanueva and Waslala reported receiving access to health related benefits.

Table 5. Access to Specific Benefits from Participation in Groups, by community

	Cinco Pinos	El Rosario	Pantasma	Rivas	Villanueva	Waslala
Education	65.0%	63.1	54.8	43.6	57.6	70.3
Health	21.3	37.9	12.9	38.9	36.0	36.1
Water Supply & Sanitation	1.6	5.0	9.7	12.7	5.9	8.3
Credit & Savings	37.7	4.3	16.1	7.3	34.9	40.5
Agricultural Inputs	21.3	2.2	16.1	5.5	10.5	5.4
Irrigation	11.5	1.1	0.0	3.6	4.7	5.4

* Note: Percentages do not total 100% since respondents can participate in more than one group.

Groups were reported to have originated by members of the community (rather than the government or local authority initiatives). Group members tended to come from the same community, religion, race and income background. In contrast, group members did not seem to share similar family backgrounds, gender, age, occupation, education level, ethnic group or political viewpoint/affiliation traits. Organized associations were

reported by respondents to be open to collaborating with similar groups both within the community (61%) and outside of their immediate communities (78%). In contrast, household respondents said that groups were less likely to collaborate with groups that had different goals and objectives, irrespective of whether the groups were located within or outside of the community. Generally, groups did not receive resources or technical assistance from outside the community and most were dependent on membership contributions. Almost two-thirds of respondents (60%) noted that group membership had increased in the last five years.

Generally higher rates of participation were coupled with more frequent meetings. Almost 12% of respondents noted that they met once a month with their group. Another 15% reported meeting once a week. Slightly more than 10% met three times a week. The average meeting load for all respondents was 5.9 meetings per month. In communities reputed to have low social capital, the average meeting load was five (5) times a month, while in high social capital communities, the average was almost seven (6.9) times a month.

Several of the social capital indicators capture the element of participation. These include participation in a group, membership load, meeting load, index of heterogeneity, cash and work contribution score and democratic participation score. (see below for analysis)

Organization
Group decision-making seemed to be carried out in one of two ways. In the first, leaders were reported to make decisions unilaterally and then inform the members of the group (35%). Respondents of El Rosario, Pantasma and Waslala stated that this was the manner in which their groups most frequently operated. The other method was to have group members hold discussions and then make the decision together (40%). Groups in Cinco Pinos, Rivas and Villanueva tended to be organized this way.

Almost half of respondents (47%) noted that membership voted for their leaders (as opposed to leaders appointing their successor or a small group of members selecting the next leader). Here we recognize that a significant share of our sample participated in religious groups which are hierarchically organized. Excluding membership in religious groups from our sample, we found that almost two-thirds (71%) of members voted for their leaders.

Interviews with Organizational Members and Leaders
Overall there were 63 interviews with organizational leaders and members in all communities. Each assembled group contained approximately 2-3 leaders from community organizations and between 6-9 members. Overall, more than one-fourth (27%) of the interviews were with leaders of the organizations while 73% (46) were with members of the organization. The participants were drawn from agricultural, credit, religious, non-profit and governmental groups.

Of the leaders interviewed, 76% were male while 23% were female. Of the members interviewed, 54% were male while 46% were female. Almost one-fourth (24%) of those interviewed sample had some secondary education while 13% had a university

education. On average, the education level for *leaders* of organizations is some secondary education. Just over 20% worked in agriculture.

An analysis of interviews with leaders and members of organizations revealed an interesting relationship between participation and group organization. Specifically, we found that there was a significant difference across communities in the stability or 'sustainability' of leadership. On average, El Rosario reported only a 9% change in leadership while Waslala reported a 73% change. When we correlated percent change in leadership with average percent participation in each community, we found a negative relationship with participation. This suggests that communities with higher participation rates had more stable or 'sustainable' leadership structures.

In communities with higher participation rates, interviewed leaders and group members felt that their organization should meet with their assemblies more frequently. Higher participation rates had a positive association with greater perception that the majority of the community benefited from the organization and that the leadership was sufficiently trained and competent.

Table 6 shows a few key characteristics of organizations in each of the communities. An F-test was used to indicate any statistical difference between the different communities for each characteristic. See Appendix 3 for a complete list of the questions and responses.

Table 6. Participation and Organizational Leadership

Community	% reporting regular change in leadership	% reporting that more than 50% of population feels they benefit from organization	% reporting that leaders have good/excellent level of education and training
Cinco Pinos	64%	64%	36%
El Rosario	9%	82%	32%
Pantasma	29%	22%	44%
Rivas	50%	38%	88%
Villanueva	58%	75%	50%
Waslala	73%	92%	83%
Difference between groups (t-test of equal variances between means)	F=2.7 P=0.02	F=3.7 P=0.005	F=2.5 P=0.03
Correlation with participation	R=-0.23 P=0.07	R=0.274 P=0.02	R=0.20 P=0.11

2. Groups and Networks

Networks are an important component of social capital. The World Bank survey instrument identifies networks or support systems as the number of people that one can count on in hard times. When asked how many people could be counted on if the respondent needed to borrow a small amount of, less than half (42%) of respondents felt that only one or two people could be counted on to help in a short-term financial need, while 28% felt that they had no one they could count on for assistance.[20] Somewhat

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[20] The actual question reads: 'If you suddenly needed a small amount of money (equivalent to one week's salary), how many people beyond your immediate household/family could you count on for support?'

surprisingly, only 38% of respondents in purported high social capital communities felt that they could count on 1-2 people; in Villanueva, only one-third (33%) of respondents felt that they could count on 1-2 people. On the other hand, almost half (45%) of respondents in area with lower social capital felt that they could count on 1-2 people; in Pantasma, 55% of respondents felt that they could borrow a small amount of money from 1-2 people.

When faced with more serious economic problems, only 34% thought they could count on 1-2 people, while 38% said they had no one.[21] Once again, respondents in communities with reputations for lower levels of social capital (41%) were more likely to feel as though they had 1-2 people that they could count on than those living in other areas (35%). To illustrate, respondents in El Rosario (41%), Pantasma (44%), and Rivas (49%) were more likely to think that people could be counted on to help. In Villanueva, only 28% said they could count on 1-2 people to help.

In a related question that asked if respondents could count on their neighbors to take care of their children, most (55%) felt that they could **not** count on their neighbors to take care of their children in an emergency situation, compared to 20% who said they *could* count on their neighbors. In El Rosario and Waslala, only 10% and 15% respondents (respectively) thought that they could count on their neighbors to care for their children. Again, surprisingly a higher number (23%) of respondents in areas with purported low levels of social capital believed they could count on their neighbors while only 16% of respondents in high social capital areas felt this way.

Several of the social capital indicators capture the idea of networks and interaction among community residents. Specifically, the community trust index and the social interaction index reflect the existence of networks and interaction among community residents. (see below for analysis)

Health behavior indicators
Despite poor access to basic infrastructure services, use of formal health services seems to be the quite high in the communities studied. Approximately 87% of respondents gave birth at a formal health care facility (public hospital or health care center). In contrast, in Morocco, only 65% of respondents had given birth at modern health facility. In communities perceived to have higher levels of social capital, 90% of respondents delivered at modern health facilities, while in low social capital communities, the number fell to 85%.

Only 5% of eligible households (those with children under 5 years of age) reported cases of diarrhea for a child of less than five years old in the last two weeks. Of those afflicted households, 85% of parents reported using medicine (includes antibiotics and/or oral rehydration salts) obtained at the health care center. Only 13% used natural medicine treatment. Surprisingly, respondents in communities with low levels of social capital were more likely to use modern medicine to treat diarrhea (88% v 79% for respondents living in high social capital areas).

While diarrhea remains a huge problem throughout the developing world, respiratory-related infections seem to be particularly rampant in the communities studied in

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[21] The actual question reads: 'Suppose that you suffered a serious economic problem (i.e. job loss). How many people beyond your immediate family/household could you turn to for help in this situation?'

Nicaragua. Almost 70% of eligible households reported a case of respiratory infection in a child of less than five years old in the last two weeks. More than 80% of respondents reported using medicine obtained at a health care pharmacy or pharmacy (as opposed to relying traditional natural remedies). Almost 91% of respondents reported maintaining formal medical control of their child's growth and development with local health care centers. Rates of incidence did not vary across communities with different levels of social capital.

Social Capital Indicators and Health Behaviors
Central to this study is the question of whether specific elements of social capital, such as group participation, have an impact on health behaviors. Our analysis finds a weak, albeit positive relationship between elements of social capital and health behaviors. We find that group participation tends to be positively (and significantly) associated with the use of modern medicine (antibiotics and/or oral rehydration salts) in treating diarrhea. Specifically, as reported in Table 7, participation in groups, higher memberships loads (belonging to greater numbers of groups) and higher levels of contributions (of time and cash) were associated with the use of modern medicine to treat cases of diarrhea in children.

Respondents who belonged to groups that had been founded or initiated by community residents themselves (as opposed to outsiders) were more likely to use modern medicine to treat recent cases of respiratory illnesses. Ironically, we found a negative relationship between respondents who had more interactions and discussions with their neighbors and the likelihood of maintaining medical control of children (by taking them to well baby clinics).

Table 7. Social Capital Indicators and Health Behaviors

Independent Social Capital Variables	Used modern care health facility for last birth	Used modern medicine to treat last case of child diarrhea	Used modern medicine to treat last case of respiratory illness	Maintain medical control of child
Group Participation	n.s.	12.2 (p=.069)	n.s.	n.s.
Membership Load/ Membership Density	n.s.	12.0 (p=.072)	n.s.	n.s.
Meeting Load (Average # of Meetings per membership per month)	n.s.	n.s.	n.s.	n.s.
Heterogeneity Index	n.s.	n.s.	n.s.	n.s.
Democratic Participation Index	n.s.	n.s.	n.s.	n.s.
Social Interaction	n.s.	n.s.	n.s.	.709 (p=.071)[a]
Community Confidence	n.s.	n.s.	n.s.	n.s.
Work & Cash Contribution	n.s.	3.59 (p=.064)	n.s.	n.s.
Community Orientation	n.s.	n.s.	3.50 (p=.086)	n.s.
	N=255	N=52	N=91	N=267

1. Dependent variable is dummy variable (1= used modern health care facility for last birth, used modern medicine to treat previous cases of diarrhea/respiratory illness, maintained control of child; 0=no).
2. Odds ratios are reported.
3. All logistic regressions control for area (urban v. rural), extreme poverty level and education level of respondent.
a. The coefficient (expected value) was negative which translates into an odds ratio of less than one (n<1).

3. Trust and Solidarity

General levels of trust were very low in Nicaragua. In contrast to Morocco where 47% of people expressed general trust, only 16% of all respondents felt that they could trust people generally. Surprisingly, 19% of respondents in communities with reputations for low social capital areas trusted people in general, while only 14% of communities with reputations for high social capital did.

Levels of trust in some types of people were low. Only 22% said that they could trust people of the same ethnic/linguistic group, while 25% said they could not. Only 8% noted that they would trust people of a different ethnic/linguistic group, while 59% said they could not. Less than 10% reported that they trusted central government representatives while almost two-thirds would not. Slightly more people trusted their *local government* representatives (14%), but 46% were still wary. Somewhat more (20%) respondents trust the police.

However, those who provided social services – teachers, health care workers, and even shopkeepers – were considered more trustworthy. Roughly 58% of respondents noted that they trusted teachers while only 6% would not. Almost half (45%) expressed trust and confidence in medical personnel (doctors and nurses) and merchants.

Only 34% reported that they could trust most of the people who lived in their respective community/barrio. In communities with *purported* higher levels of social capital, 40% trusted their neighbors; this sentiment was much lower in low social capital areas (29%). Almost two-thirds (63%) of all respondents felt that they had to be alert or vigilant to make sure that others in the community did not take advantage of them. In communities with reputations for low social capital, 68% felt that they had to be vigilant, while only 56% of respondents of communities with reputed higher levels of social capital felt this way.

More than half of surveyed households (52%) felt that they could not trust community members in matters of lending money. In reputed high social capital areas, only 47% felt this way, while in low social capital areas, 56% of respondents felt this way with respect to lending money. However, more than three-fourths (77%) of respondents felt people in their neighborhood were ready to assist them if necessary.

When asked about the level of trust between members of the community/neighborhood in the last five years, only 18% of all respondents said that levels of trust and solidarity had improved. Surprisingly, 21% of respondents in communities with reputations for low social capital said that relations of trust had improved while only 14% of residents in high social capital areas felt that way. More than one-third (35%) of residents of Pantasma and one-quarter (25%) of Waslala (communities with reputed low levels of social capital) felt as though community relations had improved.

An analysis of interviews with leaders and members of organizations revealed an interesting relationship between trust and group organization. As mentioned earlier, we find a significant difference across communities in the stability or 'sustainability' of leadership. When we correlated percent change in leadership with general trust in the community, we found a negative relationship with trust. (See Table 8). This suggests

that communities where general levels of trust are higher had more stable or 'sustainable' leadership structures.

Table 8. Trust and Organizational Leadership

Community	% reporting regular change in leadership
Pantasma	29%
Waslala	73%
Cinco Pinos	64%
Rivas	50%
Villanueva	58%
El Rosario	9%
Difference between groups (t-test of means)	F=2.7 P=0.02
Correlation with trust	R=-0.22 P=0.08

Trust and Solidarity and Health Behaviors

We tested for possible relationships between trust and solidarity and health behaviors. Table 9 below shows the logistic regression output for several trust and solidarity indicators and the four health behavior variables, which include the use of a modern health facility for the last delivery, the use of modern medicine to treat diarrhea and respiratory illnesses, and regular attendance at well baby clinics at the local health care center. The results suggest a generally positive and robust relationship between trust and health behaviors is mixed at best. Higher levels of trust in people of similar racial/linguistic groups, police, teachers, doctors and nurses were associated with increased likelihood of using modern medicine to treat diarrhea. Feelings of trust in merchants, local government representatives, teachers, and medical personnel were associated with use of modern medicine to treat respiratory illnesses. Only trust teachers and medical personnel were positively associated with attending well baby clinics. Somewhat surprisingly, we found that those who reported *lower* levels of trust in people generally and local administrators in particular were associated with having child deliveries at modern health centers.

Table 9. Trust and Solidarity and Health Behaviors

Independent variable	Dependent Variable Used health facility for last delivery	Dependent Variable Used modern medicine for treatment of diarrhea	Dependent Variable Used modern medicine for treatment of respiratory illness	Dependent Variable Maintain medical control of child
General trust in people	.204 (p=.004)[a]	n.s	n.s.	n.s.
Degree of trust in people of similar race				
A little	n.s.	n.s	n.s.	n.s.
Often/Always	n.s.	5.86 (p=0.107)	n.s.	n.s.
Degree of trust in merchants				
A little	n.s.	n.s.	2.48 (p=.097)	n.s.
Often/Always	n.s.	n.s.	n.s.	n.s.
Degree of trust in local administrators				
A little	n.s.	n.s.	n.s.	n.s.
Often/Always	.374 (p=0.059)[a]	n.s.	6.54 (p=.028)	n.s.
Degree of trust in central government representatives				
A little	n.s.	n.s.	n.s.	n.s.
Often/Always	n.s.	n.s.	n.s.	n.s.
Degree that trust in police				
A little	n.s.	n.s.	n.s.	n.s.
Often/Always	n.s	23.1 (p=.021)	n.s.	n.s.
Degree that trust in teachers				
A little	n.s	n.s.	4.17 (p=.051)	n.s.
Often/Always	n.s	181.9 (p=.007)	n.s	3.61 (p=.085)
Degree that trust in nurses				
A little	n.s	13.5 (p=.086)	n.s.	n.s
Often/Always	n.s	n.s.	2.66 (p=.080)	3.99 (p=.031)
	N=267	N=53	N=180	N=267

1. Dependent variable is dummy variable (1= used modern health care facility for last birth, used modern medicine to treat previous cases of diarrhea/respiratory illness, maintained control of child; 0=no).
2. Independent Variable Baseline response is "Not at all."
3. Odds ratios are reported.
4. All logistic regressions control for area (urban v. rural), extreme poverty level and education level of respondent.
a. A negative coefficient (expected value) translates into an odds ratio of less than one (n<1).

Participation and Trust and Solidarity

A review of literature on social capital and empirical research suggests that participation and trust, two of the principal components of social capital, are highly correlated. However, in Nicaragua, we find that despite high levels of participation there were low levels of trust. While participation in groups is high (62%), overall feelings are trust are low (16%). We might attribute the low levels of trust to the recent history of violence associated with Nicaragua's decade long civil war and the deep political divisions that

continue to shape the country's landscape. Almost half (44%) of respondents indicated that political differences were the principal cause of problems in the community. And almost two-thirds (65%) believe that these (political) differences have resulted in violence, which is negatively associated with trust.

Another reason for the relatively low levels of trust some communities in Nicaragua may be related to the relative "youth" of the communities. Waslala and Pantasma were only recently established. Waslala, in fact, was a community created at the end of the civil war in which *recompas* and *contras* were resettled together. It is not surprising then that only 3% of the respondents in Waslala reported trusting people in general.

Despite this low level of trust, we found, as theorists of social capital would predict, that higher levels of participation were related to higher levels of trust. Table 10 shows that, generally, higher levels of social capital – as measured by the battery of indicators - translate into higher levels of trust. Participation in groups and higher membership loads are associated with higher levels of trust in people in general. These two indicators are also associated with higher levels of trust in people of the same races/linguistic groups, people of different races and central government representatives. In addition, group participation is also associated with a greater likelihood to trust teachers.

Higher group heterogeneity was associated with higher levels of trust in others, although the coefficient was noticeably small (coefficient of .019). One reason for this might be that exposure to more diverse groups of people within organizations might facilitate or encourage feelings of trust with others outside of the group.

Respondents who participate in groups that are more democratically organized tend to feel greater trust for people in general. Specifically, groups that encourage all members to participate in decision making process and in the selection of leaders allow members to participate in the decision making process help foster feelings of trust in people generally.

Higher levels of the social interaction index are associated with higher levels of trust. Activities such as visiting (and receiving) neighbors, discussing issues with others, attending social events seems to foster higher feelings of trust in people of the same race/linguistic group, local and central government representatives and in the police.

The feeling that one has networks of support upon which can be counted seems to parlay into greater propensity to trust others. Specifically, respondents who believe that they can count on others in times of (economic) hardship are more likely to trust people in general, people of the same race/linguistic group, and local government representatives. In contrast, higher levels of work and service contribution were associated with lower levels of trust generally in people.

Admittedly, the larger debate about the importance of horizontally vs. vertically organized networks on facilitating social capital is unresolved. That said, our findings suggest that horizontally organized networks can assist in the formation of social capital by fostering trust (Putnam, 1993) and influence positive health behaviors. In contrast, our findings fail to uncover a strongly robust relationship between heterogeneity and feelings of trust, positive health behaviors or civic engagement.

Table 10. Social Capital Indicators and Trust

Social Capital Independent Variables	1 Trust in People in General	2 Teachers	3 Trust in people of same race/ linguistic group	4 Trust in people of different race/ linguistic group	5 Trust in central govt represen-tatives	6 Trust in local govt. represen-tatives	7 Trust in police
Group Participation	.523 (p=.081)	.351 (p=.094)	.532 (p=.015)	.416 (p=.065)	.522 (p=.018)	n.s.	n.s.
Membership Load/ Membership Density	.473 (p=.010)	n.s.	.501 (p=.000)	.359 (p=.008)	.283 (p=.018)	n.s.	n.s.
Meeting Load (Average # of Meetings per month)	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Heterogeneity Index	n.s.	n.s.	n.s.	.019 (p=.043)	n.s.	n.s.	n.s.
Democratic Participation Index	.696 (p=.002)	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Social Interaction	n.s.	n.s.	.440 (p=.000)	n.s.	.271 (p=.002)	.229 (p=.010)	.167 (p=.063)
Community Confidence	.498 (p=.000)	n.s.	.284 (p=.003)	n.s.	n.s.	.306 (p=.004)	n.s.
Work & Cash Contribution	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Community Orientation	-.739 (p=.087)	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
	N=501	N=479	N=503	N=481	N=480	N=501	N=501
	coefficients	coefficients	coefficients	coefficients	coefficients	coeff.	coeff.

1. In columns 1-7, the dependent variable is an ordered ranking where higher values indicate higher levels of trust. Baseline response is "not at all."
2. In Columns 1-7, regression is ordered logistic specification; results not reported as odds ratio but as coefficients (expected value). Higher values reflect higher levels of trust.
3. All regressions control for area (urban v. rural), extreme poverty level and education level of respondent.

4. Conflict and Violence

Another element of 'structural' social capital is respect for norms of general behavior. One of the most commonly accepted and understood norms relates to violence and conflict. In this section, we present an analysis of the World Bank survey questions related to norms of violence and conflict. Generally survey respondents felt their communities were peaceful (53% said "very peaceful," 32% reported "somewhat peaceful"). In communities with reputations for higher levels of social capital, 65% said that they felt the community was very peaceful; whereas only 45% of respondents in low social capital communities said they felt it was "very peaceful." Approximately 70% of respondents in Cinco Pinos and El Rosario said that their communities were "very peaceful." In contrast, 40% of residents of Pantasma and Rivas said that there communities were "very peaceful"; and in Waslala, only 18% said that the community was "peaceful" while 20% said that it was "very violent."

Across the entire sample, most felt very (50%) or more or less (21%) secure when in their home at home. In low capital communities, only 44% felt very secure while in communities with reputations for high social capital, only 58% felt very safe. More than half of the respondents of Cinco Pinos, El Rosario and Villanueva felt "very safe." Only 40% of residents of Pantasma and Waslala felt very safe; while less than 25% of respondents of Rivas felt "very safe" in their homes.

Not surprisingly, respondents generally felt safer in their homes than walking around the community. Only 37% respondents said they felt very secure or more or less (26%) secure with regard to walking alone in the community. In communities with perceived higher levels of social capital, 44% of respondents said they felt very safe when walking in the community as opposed to only 32% of respondents of low social capital areas who expressed feeling that way. Across communities, more than 40% of the residents of Cinco Pinos, El Rosario and Villanueva said that they felt "very safe" walking around the community at night. Less than one third of residents of Pantasma (29%), Rivas (17%) and Waslala (32%) said that they felt safe walking around the community at night.

One reason for the low levels of security when walking the community may have to do with the fact that almost 45% felt that violence in the community had increased over the last five years while only 8% felt it had decreased. The perception of violence did not seem to significantly vary across communities with different levels of social capital. Respondents in Rivas and Waslala felt that the level of violence had increased in their communities more than the average (60% and 52%, respectively).

Conflict and Violence and Health Care Behaviors

Table 11 presents the results of our analysis of the relationships between norms of conflict and violence in relation to health outcome variables. We would expect that feelings of personal and community safety and perceptions of little conflict and violence would be associated with more positive health behaviors (i.e. use of modern facilities and medicine, medical control of children's growth and development). However, our analysis did not find a consistent or significant relationship pattern between perceptions of conflict and violence and health behaviors. Respondents who felt very safe in their homes were more likely to use modern medicine to treat the most recent cases of respiratory illnesses. So, too were those who said that they felt "neither safe nor unsafe" in their homes.

Respondents who felt very safe when walking in their community at night were more likely to use modern medicine to treat respiratory illnesses, but so too were respondents who felt "neither safe nor unsafe" as well as "somewhat unsafe." So, the relationship is mixed at best. There was no apparent statistically significant relationship between norms of violence and the use of modern health care facilities for prior deliveries, the use of modern medicine for the treatment of diarrhea or the medical control of children.

Table 11. Conflict and Violence and Health Behaviors

Independent variable	Dependent Variable	Dependent Variable	Dependent Variable	Dependent Variable
	Used health facility for last delivery	Used modern medicine for treatment of diarrhea	Used modern medicine for treatment of respiratory illness	Maintain medical control of child
How safe from crime and violence do you feel when you are alone at home?[a]				
Very Safe	n.s.	n.s.	4.35 (p=.029)	n.s.
Pretty Safe	n.s.	n.s.	n.s.	n.s.
Neither safe nor unsafe	n.s.	n.s.	4.37 (p=.061)	n.s.
Somewhat unsafe	n.s.	n.s.	n.s.	n.s.
How safe do you feel when walking down your street alone after dark?[b]				
Very Safe	n.s.	n.s.	4.00 (p=.008)	n.s.
Pretty Safe			n.s.	n.s.
Neither safe nor unsafe	n.s.	n.s.	21.2 (p=.008)	n.s.
Somewhat unsafe	n.s.	n.s.	6.89 (p=0.007)	n.s.
Compared to 5 years ago, how is level of violence in the community?[b]				
Increased a lot	n.s.	n.s.	n.s.	n.s.
Increased a little	n.s.	n.s.	n.s.	n.s.
Same	n.s.	n.s.	n.s.	n.s.
Decreased a little	n.s.	n.s.	n.s.	n.s.
	N=267	N=53	N=180	N=267

1. Dependent variable is dummy variable (1= used modern health care facility for last birth, used modern medicine to treat previous cases of diarrhea/respiratory illness, maintained control of child; 0=no).
2. All logistic regressions control for area (urban v. rural), extreme poverty level and education level of respondent.
3. Odds ratios are reported.
4. All regressions control for area (urban v. rural), extreme poverty level and education level of respondent.
a. Independent Variable Baseline response is "Very unsafe."
b. Independent Variable Baseline response is "Decreased a lot."

Participation and Conflict and Violence
We also considered the relationship between participation and norms of violence and safety in the community. The results presented in Table 12 suggest a positive, albeit limited, relationship between participation and norms of violence and safety in the community. First, higher membership loads were associated with perceptions of a more "peaceful" community and a greater feeling of safety and security in the community. Group participation was also associated with a greater feeling of security and safety I

the community. Participation in more heterogeneous groups was associated with feelings of a more "peaceful" community. Arguably, exposure to more diverse groups of people within organizations might reduce tensions and fear of those who are different or 'unknown' outside of the group.

Table 12. Social Capital Indicators and Violence

Independent variable	**Dependent Variable** Perception of Increase in Violence over the last 5 years [a] (5= big increase)	**Dependent Variable** Feeling of Safety/ Security in the House [b] (very safe)	**Dependent Variable** Feeling of Safety/ Security in the Community [b]
Group Participation	n.s.	n.s.	.554 (p=.027)
Membership Load (Density)	-.253 (p=.037)	n.s.	.499 (p=.003)
Meeting Load (Average # of Meetings per month)	n.s.	n.s.	n.s.
Heterogeneity Index	.015 (p=.059)	n.s.	n.s.
Democratic Participation Index	n.s.	n.s.	n.s.
Social Interaction	n.s.	n.s.	n.s.
Community Confidence	n.s.	n.s.	n.s.
Work & Cash Contribution	n.s.	n.s.	n.s.
Community Orientation	n.s.	n.s.	n.s.
	N=480	N=250	N=300

1. Coefficients (expected values) are reported.
2. All regressions control for area (urban v. rural), extreme poverty level and education level of respondent.
a. In column 1, dependent variable is categorical variable where: 1= decreased a lot; 2 = slight reduction in violence 3= stayed the same 4=has increased a little 5= increased a lot. Baseline is "violence has decreased a lot." Higher values mean greater perception of violence.
b. In columns 2&3, dependent variable is categorical variable in which higher values are associated with greater feelings of safety. Baseline is "very unsafe."

5. Civic and Political Engagement

Only 26% of respondents said that they had worked with others in the community to do something that benefited the community as a whole. The responses varied across communities. For instance, 44% of respondents in Cinco Pinos said that they had worked with others in the last year, while only 17% of respondents in Villanueva and 14% of respondents in Waslala reported working with others.

Across all respondents, 25% said that everyone contributed to community activities, while 30% felt that only 50% did. The responses varied significantly across communities. Specifically, 44% of respondents in Cinco Pinos felt that everyone contributed. Only 20% of residents of El Rosario and Waslala felt that everyone contributed. Less than 10% of residents of Rivas reported that everyone contributed to community activities.

When asked about the differences in the community, 29% said that the differences were great. One third of respondents in communities with reputations for low social capital said that these differences were great while only 23% of respondents in high social capital communities said that these differences were great. Almost half (43%) of residents of Cinco Pinos said that the differences dividing their community were great. Only one third of residents of Pantasma and Waslala felt that the differences were great. Less than one quarter of residents of El Rosario, Rivas and Villanueva felt that the differences dividing the community were great.

Almost half (44%) of all respondents said that *political* differences were responsible for problems in the community while 15% attributed problems in the community to differences in social (socio-economic) conditions. Less than ten percent (8%) said that community problems were due to differences in landowning rights. Another 15% responded that they did not think there were significant differences in the community causing problems.

Almost half (46%) said that they felt they had control over all of the most important decisions in their daily lives and 41% said that they had enough rights to change their daily life. Only 38% of residents of Rivas and 41% of Waslala felt they had control over most of the important decisions in their daily lives.

Half of all respondents felt they could have a big impact on improving their community. The pervasiveness of this feeling was higher in Cinco Pinos (58%) but lower in Rivas (40%) and Villanueva (43%).

Respondents seem to have had little trust in political leaders. A large majority of respondents had not attended a meeting, protest, electoral campaign, had media contact about local problems or reported a problem to police or judicial system in the last year. Only 28% of respondents in communities with reputations for high social capital had attended a public meeting, while 36% of respondents in low social capital areas had attended. More than half (52%) in high social capital areas had participated in an election or issue campaign; the number was lower (42%) for low social capital areas. Only 20% of respondents of high social capital area had contacted MINSA officials about public health problems while almost 30% of respondents of low social capital areas had done so. Very few (less than half) had actually signed a petition in the last year and very few felt as though their efforts would be successful. But, a significantly high percentage (85%) of respondents reported having voted in last local elections; that rate was even higher for national elections (88%).

Just over half (53%) felt that political leaders take no account of them or people like them in making political decisions. In high social capital communities, 14% of respondents of felt that political leaders consider their opinions; only 7% of respondents in low social capital communities felt this way.

Only around 18% felt that representatives at the national level were very or somewhat honest. Between 30-36% of respondents felt that local representatives, policeman and judges were somewhat and/or very honest. By contrast, respondents felt that community leaders (52%) and NGO personnel (58%) were somewhat and/or very honest. Almost three fourths (74%) felt that teachers and professors were somewhat or very honest, while almost two-thirds (63%) believed medical personnel (doctors and nurses) to be

honest most of the time. A small (12%) group reported having to pay functionaries for administrative affairs or access to public services.

In general it was felt that honesty of government officials and representatives had declined (47%) in the last five years. One quarter of respondents in high social capital areas felt that the level of honesty of government officials had improved; while only 11% of respondents in low social capital areas felt that the level of honesty had improved.

Participation and Civic Engagement
We explored the relationship between various elements of social capital and civic and political engagement. Specifically, we explored the relationship between participation, trust and networks on civic engagement. We would expect that higher levels of the various elements of social capital would be positively associated with higher incidence of civic engagement. Our findings presented in Table 13 support our hypotheses.

Generally, higher levels of participation are positively associated with a greater likelihood of civic engagement. Specifically, participation in groups is associated with greater likelihood of participating in neighborhood and political meetings and voluntary activities. Moreover, participation in a greater number of groups is also associated with these activities, in addition to a greater likelihood of contacting health department (MINSA) officials about community health problems. Respondents who participated in more monthly meetings (on average), were more likely to contact MINSA officials about community health problems. Respondents who gave more to their organization in terms of time and cash resources were more likely to participate in neighborhood meetings and voluntary service organizations and/or activities.

Not surprisingly, there was a positive association between democratically organized (horizontally structured) groups and civic engagement. In particular, respondents that participated in associations that encouraged members to participate in the decision-making process and selection of leaders were more likely to vote in local elections, participate in political meetings and voluntary service organizations/activities.

Our analysis indicates a robust and positive relationship between networks and trust and civic engagement. First, respondents who felt they had networks of support were more likely to participate in neighborhood and political meetings and in voluntary service organizations. Respondents who interacted with their neighbors, discussed issues and participated in community recreational activities were more likely to vote in national and local elections, participate in neighborhood and political meetings and voluntary service activities, and contact MINSA about community health problems.

Table 13. Social Capital Indicators and Civic/Political Engagement

Independent variable	Dependent Variable Voted in Local Elections	Dependent Variable Voted in National Elections	Dependent Variable Participated in neighborhood meeting	Dependent Variable Participated in Political Meeting	Dependent Variable Contacted MINSA about community health problem	Dependent Variable Participated in voluntary service organization
Group Participation	n.s.	n.s.	1.68 (p=.028)	1.85 (p=.017)		1.56 (p=.010)
Membership Load (Density)	n.s.	n.s.	1.67 (p=.001)	1.60 (p=.003)	1.04 (p=.044)	1.45 (p=.010)
Meeting Load (Average # of Meetings per month)	n.s.	n.s.	n.s.	n.s.	1.07 (p=.007)	n.s.
Heterogeneity Index	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Democratic Participation Index	1.74 (p=.018)	n.s.	n.s.	1.40 (p=.062)	n.s.	1.34 (p=.094)
Social Interaction	1.53 (p=.002)	1.80 (p=.000)	1.63 (p=.000)	1.92 (p=.000)	1.39 (p=.004)	1.53 (p=.000)
Community Confidence	n.s.	n.s.	1.29 (p=.014)	1.30 (p=.025)	n.s.	1.48 (p=.000)
Work & Cash Contribution	n.s.	n.s.	1.04 (p=.028)	n.s.	n.s.	1.08 (p=.024)
Community Orientation	n.s.	n.s.	n.s.	n.s.	n.s.	
	N=503	N=503	N=503	503	503	408

1. Dependent variable is dummy variable (1= voted in local election, participated in neighborhood or political meeting; participated in NGO; 0=no).
2. All regressions control for area (urban v. rural), extreme poverty level and education level of respondent.
3. Logistic regression; Odds ratios are reported.

VII. Conclusions

This report has explored the relationship between four different elements of social capital - participation, networks, trust, and norms of conflict and violence - and health care behaviors and civic participation.

Overall, there seems to be a strong association between participation, trust and networks and the use of modern medicine to treat diarrhea and respiratory infections in children. Table 14a shows that the following social capital independent variables are related to the use of modern medicine to treat child diarrhea: group participation, higher membership loads, contributions of time and cash resources to groups, and trust in people of a similar race, the police, medical personnel. Respondents who felt that violence had decreased over the last five years were more likely to use modern medicine to treat diarrhea.

We find that people who participated in groups that were founded by the community, who trusted local administrators, merchants, teachers, and medical personnel were more

likely to use modern medicine to treat respiratory illnesses. Similarly, those respondents who felt safe in their homes and communities had a greater propensity to use modern medicine for treatment of respiratory illnesses.

Respondents with higher levels of trust in service personnel – namely teachers and medical personnel – were more likely to maintain medical control of their child.

Table 14a. Summary Table for Social Capital and Positive Health Care Outcomes

Independent Social Capital Variables	Positive Health Care Outcomes
- No indicators	Used modern health care facility for last birth
- Group participation - Membership Load (Higher number of group memberships) - Higher levels of cash and time contributions to groups - Trust people of a similar race (always/often) - Trust police (always/often) - Trust teachers (always/often) - Trust nurses (a little) - Compared to 5 years ago level of violence has increased a little	Used modern medicine to treat last case of child diarrhea
- Higher numbers of groups founded by community residents - Trust local administrators (always/often) - Trust merchants (a little) - Trust teachers (a little) - Trust nurses (always/often) -Feel very safe from crime and violence when alone at home -Feel very safe when walking down street alone after dark	Used modern medicine to treat last case of respiratory illness
-Trust teachers (always/often) -Trust nurses (always/often)	Maintain medical control of child

Our analysis, presented in Table 14b, indicates that very few elements of social capital are negatively related to better health behaviors. Interestingly, higher levels of interactions with neighbors are associated with a lower propensity to maintain medical control of a child. The nine social capital indicators were associated with many more positive outcome indicators (Table 14a) than negative outcome indicators (Table 14b).

Table 14b. Summary Table for Social Capital and Negative Health Care Outcomes

	Negative Health Care Outcomes
- General Trust in People - Trust local administrators (always/often)	Less likely to use modern health care facility for last birth
- No indicators	Less likely to use modern medicines to treat last case of child diarrhea
- No indicators	Less likely to use modern medicine to treat last case of respiratory illness
- Higher levels of social interaction and discussion with neighbors	Less likely to maintain medical control of child

Table 15a summarizes the relationships between different elements of social capital and civic engagement outcomes. Active participation in groups is related to higher trust of

people in general, in people from both the same and different race/linguistic group, in central government representatives and in teachers. Higher participation rates are positively associated with a greater propensity to participate in neighborhood and political meetings and voluntary activities/projects. In certain instances, group participation is associated with feeling safer or more secure in one's neighborhood.

Higher membership loads (i.e. belonging to a greater number of groups and associations has a strong positive relationship with higher levels of trust in others (i.e. people in general, people of both same and different racial/linguistic groups, central government representatives). Participation in many groups was related to positive understandings of the community with respect to violence and conflict; in other words, people with higher membership loads feel safer in their communities and perceive their community to be less violent (when compared to five years ago). Higher membership loads also had a positive impact on civic engagement. Respondents with more memberships were likely to participate in neighborhood and political meetings and in voluntary service activities, and were likely to contact MINSA about community health problems. Respondents who attended more meetings per month were more likely to contact MINSA officials about community health problems.

Not surprisingly, respondents who contributed more to their associations in terms of cash resources and time were more likely to participate in neighborhood meetings and voluntary service organizations and activities.

We found that the more decentralized the decision making process, the more likely respondents were to trust people, vote in local elections, and participate in political meetings.

Our analysis suggests that networks play a significant role in facilitating deeper relations of trust in others and in encouraging civic participation. Respondents who believed that they can count on others (outside of the immediate family/household) in times of need had a greater propensity to trust others, including government representatives, and to participate in meetings and voluntary activities.

Table 15a. Social Capital and Positive Outcome Indicators

Social Capital Independent Variables	Positive Outcomes
- Group participation	- Higher trust in people in general - Higher trust in people of the same race - Higher trust in people of a different race - Higher trust in teachers - Higher trust in Central Government Representatives - Higher feeling of safety/security in the community - Higher participation in neighborhood meetings - Higher participation in political meetings - Higher participation in voluntary service organizations/activities
- Membership Density	- Higher trust in people in general - Higher trust in people of the same race - Higher trust in people of a different race -Higher trust in Central Government Representatives - Perception that violence as decreased over the last

	five years
	- Higher feeling of safety/security in the community
	- Higher participation in neighborhood and political meetings
	- Higher participation in voluntary service activities/organizations
	- More likely to contact MINSA about community health problem
- Meeting Load (Average number of meetings per membership per month)	- More likely to contact MINSA about community health problem
- Heterogeneity Index	- Higher trust in people of a different race
- Total work and cash contribution	- Higher participation in neighborhood meetings
	-Higher participation in voluntary service organizations/activities
- Democratic Participation Index	- Higher trust in people in general
	- Higher participation in local elections
	- Higher participation in political meetings
- Social Interaction	- Higher trust in people of same race
	- Higher trust in central government representatives
	- Higher trust in local government representatives
	- Higher trust in police
	- More likely to vote in local and national elections
	- Higher participation in neighborhood and political meetings
	- Higher participation in voluntary service organizations/activities
	- More likely to contact MINSA about community health problems
- Community Confidence (confidence that neighbors will help out in an emergency)	- Higher trust in people in general
	- Higher trust in people of same race
	- Higher trust in local government representatives
	- Higher participation in neighborhood and political meetings
	- Higher participation in voluntary service organizations/activities
- Community Orientation	- No indicators

Finally, we found that social interaction played a significantly positive role in facilitating deeper feelings of trust and civic engagement. In particular, visiting one's neighbors and discussing issues with them, and participating in recreational activities was positively related to higher levels of trust in people in general, in government representatives and in the police. Furthermore, respondents who had more interaction with their neighbors were more likely to vote in local and national elections, participate in neighborhood and political meetings, volunteer their time, and contact MINSA about community health care problems.

This suggests the importance of sponsoring and encouraging activities designed just to promote social interaction among neighbors. There may be greater benefit in organizing social activities (coffee hours or sports teams) than a particular project or technical assistance training.

Table 15b shows that there was a weakly negative relationship between participation and feelings of trust on civic engagement. In particular, groups that were more heterogeneous seem to undermine feelings of safety and security in one's community.

Our finding fails to support Putnam's hypothesis that heterogeneous groups may assist in the formation of social capital.

Table 15b. Social Capital and Negative Outcome Indicators

Social Capital Independent Variables	Negative Outcomes
- Group participation	- No Indicators
- Membership Load/Membership Density	- No Indicators
- Meeting Load (Average number of meetings per membership per month)	- No Indicators
- Heterogeneity Index	- Lower feeling of safety/security in the house - Perception of more violence in the last 5 years
- Total work and cash contribution	- No Indicators
- Democratic Participation Index	- No Indicators
- Social Interaction	- No Indicators
- Community Confidence	- No Indicators
- Community Orientation	- Lower trust in people in general

We also found a few other interesting results. Specifically, we found that group organization can affect feelings of trust and participation. Those that generally trusted other people usually came from groups where members discussed and arrived at decisions together, where leaders were selected by a small group or by a decision/vote taken by all group members, where technical assistance was from within the group, and where barriers that divide the community were small.

Additionally, an analysis of the interviews with leaders and group members of organizations indicates that higher levels of community wide participation and general levels of trust were associated with communities where there was *less* change in the ranks of leadership (of groups). In other words, high turnover of leaders seems to undermine general levels of trust and participation in groups. We also found that higher levels of trust were associated with leaders that come from various groups rather than just one or a few groups.

Surprisingly, we found that communities with reputed *lower* levels of social capital were more likely to believe that they had networks they could rely on and that relations between community members had improved. Communities of reputed *higher* social capital felt that violence was less pervasive but that relations of trust between neighbors had not improved over the last five years. These 'contradictions' indicate that it is important to analyze both structural and cognitive social capital with a sensitive eye to the context and history of each community. For instance, Waslala is a relatively "new" community that was created after the end of the civil war in Nicaragua as a settlement for both recompas (Sandinistas) y contras (rebel forces) were settled. The institutions created in the aftermath may reinforce some of the prior norms but may serve to shape new norms.

Social capital theorists have drawn a distinction between cognitive and structural elements of social capital. Cognitive elements include values, attitudes and beliefs. Trust is an example of 'cognitive' social capital. Structural elements refer to networks, roles, rules and precedents. Participation, networks and norms are all part of "structural" social capital. As noted by other social capital theorists, cognitive elements predispose people toward acting together in ways that benefit the whole while structural social capital facilitates those actions and intentions (Uphoff 2000, Krishma, 2000). In conclusion, the findings of this study suggest that the levels of the cognitive and

structural elements of social capital may vary community to community which requires that our understanding (and subsequent intervention) need to take into account the specific history and context of the community.

VIII. Intervention Strategies and Monitoring

As part of our program, we are to work with existing NGOs, public sector organizations (such as the mayor's office), and formal and informal community leaders in Nicaragua to develop a program of interventions in two of the six communities currently participating in the social capital study. The objective of the intervention component of the project is to design a set of intervention strategies that may facilitate increased group participation and deeper feelings of trust among community members in specific communities with *perceived* low levels of social capital.

Towards this end, we will be monitoring NGO interventions in these two selected communities over the next year to determine what activities may more directly increase social capital. We are to work with communities to develop a plan of action based on their own articulation of their needs and issues of concern. One of the goals of the intervention is to promote greater interaction and increased trust between public and non-profit organizations and institutions that extends beyond the delivery of services and goods. While we are not limiting our interventions to issues of health, our expectation is that improved health behaviors will be a byproduct of promoting greater trust and participation and increasing social capital.

Organizational Leadership and Structure
An analysis of focus groups and interviews with leaders and members of groups provides insight into the leadership and organizational challenges and needs of the various communities.

An analysis of the focus groups suggests that turnover of leadership may have a significantly negative association with general levels of trust. Here we suggest that a regular change in leadership may reflect an unstable leadership structure. More than half of leaders and members in Cinco Pinos, Rivas, Villanueva, and Waslala reported a regular change in leadership. That said, most respondents, with the exception of those from Pantasma, believed that the leadership tenure was sufficient for individuals to develop strong leadership skills.

Although not statistically significant, respondents from Pantasma, Rivas and Villanueva did not feel that group *members* acquired sufficient training and leadership development skills to be effective leaders.

Women seem to comprise less than 50% of leadership ranks of various groups in Cinco Pinos and El Rosario. Evidence suggests that organizations have been active in the community.

Table 16a. Organizational Leadership

Communities	% reporting regular change in leadership	% reporting that most members receive adequate training to be effective leaders	% reporting that more than 50% of leadership is female	% reporting that membership has formally presented demands/ sponsored petitions in last 3 years	% that believe that leadership remains long enough to learn about leadership
Cinco Pinos	64%	55%	37%	100%	100%
El Rosario	9%	55%	37%	90%	100%
Pantasma	29%	33%	56%	46%	50%
Rivas	50%	13%	88%	50%	88%
Villanueva	58%	25%	58%	91%	90%
Waslala	73%	45%	67%	73%	82%
F test of means b/t communities with (perceived) different levels of social capital	F=1.67 p>F=.051	n.s.	n.s.	n.s.	n.s.
F test of means b/t communities with different levels of participation	F=2.71 p>F=.030	n.s.	F=2.69 p>F=.031	n.s.	F=2.39 p>F = .0512
Correlation with Participation	.231	n.s.	n.s.	n.s.	n.s.
Correlation with Trust	-.229	n.s.	n.s.	n.s.	n.s.
Number (n)	60	60	62	62	54

Two sample t test with equal variances; significant at .10 confidence level.

Less than half of respondents in Cinco Pinos and Pantasma believed that the education and training of their organizational leaders was good/excellent. Although not significant, most felt that level of professionalism among leadership ranks was low; Pantasma (11%) and Villanueva (25%) were especially pessimistic. In contrast, respondents generally believed that the level of honesty among leadership was high. (Pantasma (67%) and Villanueva (58%) were again more pessimistic than respondents from the other communities, but the absolute levels were high).

Evidence suggests that organizations have been active in the community. With the exception of Pantasma and Rivas, two communities with perceived low levels of social capital, members have sponsored petitions and/or formally presented their needs.

Table 16b. Organizational Leadership

Communities	% reporting that that believes that education/ training of leadership is good/excellent	% reporting that leadership has good/excellent vision	% reporting that leadership is professional	% reporting that leadership is very honest
Cinco Pinos	36%	100%	36%	100%
El Rosario	52%	91%	45%	82%
Pantasma	44%	67%	11%	67%
Rivas	88%	75%	63%	88%
Villanueva	50%	92%	25%	58%
Waslala	84%	92%	33%	83%
F test of means b/t communities with (perceived) different levels of social capital	n.s.	n.s.	n.s.	F=1.77 p>F=.0410
F test of means b/t communities with different levels of participation	F=2.54 p>F=.0385	n.s.	n.s.	n.s.
Correlation with Participation	.207	n.s.	n.s.	n.s.
Correlation with Trust	-.223	n.s.	n.s.	n.s.
Number (n)	62	61	61	61

Generally, respondents seemed content with the frequency with which groups convened Congresses. More than half of respondents of respondents in El Rosario, Rivas and Villanueva said they would like groups to hold more frequent meetings of the Assemblies. With the exception of respondents from Villanueva, most thought that group committees should meet more frequently. Generally, leaders and group members from all communities (except El Rosario) expressed desire in having organizational directors hold more meetings.

Table 17. Organizational Structure

Communities	% reporting that Congresses of groups should meet more frequently	% reporting that Assemblies of groups should meet more frequently	% reporting that Committees of groups should meet more frequently	% reporting that Directors of groups should meet more frequently
Cinco Pinos	37%	18%	50%	58%
El Rosario	9%	55%	78%	38%
Pantasma	11%	22%	83%	63%
Rivas	25%	88%	75%	67%
Villanueva	0%	50%	38%	78%
Waslala	33%	25%	64%	100%
F test of difference of means b/t communities with (perceived) different levels of social capital	F=2.90 p>F=.003	n.s.	n.s.	n.s.
F test of difference of means b/t communities with different levels of participation	F=1.99 p>F=.103	F=2.90 p>F=.021	F=4.08 p>Ft=.005	F=2.21 p>F=.072
Correlation with Participation	n.s.	.25	n.s.	n.s.
Correlation with Trust	n.s.	n.s.	n.s.	n.s.
Number (n)	41	61	42	46

Organizational Development, Capacity and Mission

An analysis of interviews of group leaders and members indicates that organizations (and their personnel) may lack the technical capacity to carry out the activities within the purview of their mission. Generally, more than half of respondents felt that their organization had good/excellent organizational capacity to carry out specialized projects. The only exceptions were participants from Cinco Pinos (55% felt that organizations had the capacity) and Rivas (67%). Less than half of the respondents felt that their organizations had the capacity to prepare financial forms (for banks or to solicit funds) or to contract and supervise consultants (specialized personnel). The only exception were respondents from Rivas.

In contrast, more than half believed that their organization had necessary (good/excellent) capacity to respond to organizational changes and crises and to develop strategic plans. The only exception was Pantasma where only 33% of respondents believed that the organizations were well-equipped to develop strategic plans. Generally, respondents noted that their organizations had good/excellent ability to resolve problems with other community stakeholders (including public institutions and other agencies). Only respondents and Pantasma (44%) and Rivas (38%) were less likely to believe that this was the case

Table 18a. Organizational Development

Communities	% reporting that organization has good/excellent capacity to implement specialized projects	% reporting that organization has good /excellent capacity to supervise consultants	% reporting that organization has good/ excellent capacity to prepare financial forms	% reporting that organization has excellent ability to respond to organizational changes	% reporting that organization has good/ excellent capacity to develop strategic plans	% reporting that organization has excellent ability to resolve problems with other community actors/ agencies
Cinco Pinos	55%	0%	45%	100%	100%	64%
El Rosario	27%	27%	40%	64%	82%	82%
Pantasma	33%	11%	33%	50%	33%	44%
Rivas	67%	50%	71%	75%	88%	38%
Villanueva	33%	8%	17%	75%	67%	55%
Waslala	33%	33%	33%	92%	100%	83%
F test of difference of means b/t communities with (perceived) different levels of social capital	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
F test of difference of means b/t communities with different levels of participation	n.s.	F=2.00 p>F=.093	n.s.	F=1.98 p>F=.096	F=4.99 p>F=.001	n.s.
Correlation with Participation	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Correlation with Trust	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Number (n)	62	61	61	62	54	61

In Table 18b, we observe that more than two-thirds of respondents were well informed of their organization's structure and by laws. In contrast, less than half of leaders and members from El Rosario reported knowing their organization's laws and rules. More than half of all respondents reported believing that their organization was adequately prepared to address internal problems with its members.

Evidence indicates that the organizational ties and collaboration with other organizations may be weak. Only half of group leaders and members in three of the six communities (Cinco Pinos, Pantasma, Waslala) reported good relations with other organizations in the communities. In Villanueva, only 25% of respondents reported having good relations with other organizations. Given weak organizational networks, it is not surprising that respondents expressed little knowledge of other organizations' programs. Only half of respondents in Rivas reported feeling very informed of other organizations' programs. In contrast, less than 20% of respondents in Cinco Pinos, Pantasma, Villanueva and Waslala reported being very well informed of other organizations.

Despite weak organizational networks and minimal organizational (technical) capacity in particular areas, respondents tended to believe that a significant share of the population benefited from the organization and its activities. More than 60% of respondents in Cinco Pinos, El Rosario, Villanueva and Waslala felt that more than half of the general population benefited from the organization.

Table 18b. Organizational Development

Communities	% reporting that most members know organizational bylaws/rules	% reporting that organization is ready to confront problems with members	% reporting that relations with other organizations is good	% reporting that they feel very informed about other organizations' programs	% reporting that more than 50% of population benefits from organization
Cinco Pinos	80%	90%	70%	0%	64%
El Rosario	45%	73%	45%	36%	82%
Pantasma	67%	67%	60%	0%	22%
Rivas	88%	100%	43%	50%	38%
Villanueva	100%	58%	25%	17%	75%
Waslala	92%	92%	73%	17%	92%
F test of difference of means b/t communities with (perceived) different levels of social capital	n.s.	$F=2.02$ $p>F=.024$	$F=2.36$ $p>F=.011$	n.s.	n.s.
F test of difference of means b/t communities with different levels of participation	n.s.	$F=2.02$ $p>F=.089$	$F=2.70$ $p>F=.031$	$F=2.66$ $p>F=.032$	$F=3.74$ $p>F=.005$
Correlation with Participation	n.s.	n.s.	n.s.	n.s.	n.s.
Correlation with Trust	n.s.	n.s.	n.s.	n.s.	n.s.
Number (n)	62	61	55	62	62

Based on the findings of our analysis of both household surveys and focus group interviews, we develop a set of strategies and recommendations for designing interventions in two communities currently participating in the study.

Group Organization

Based on an analysis of the relationships between the two components of social capital – group participation and trust - and health behaviors and civic participation and focus groups with organizational leaders and members, we articulate possible intervention strategies.

- We recommend that interventions encourage community members to participate in groups.
- We encourage membership to increase activities and projects that facilitate interaction with group members and with general community residents.
- We encourage leaders to invite all group members to participate in the process of making the decisions that affect the group. Second, we suggest that leaders encourage the entire membership to participate in the selection of future leaders.
- Given the impact of *social interaction* on facilitating trust and civic engagement, we would encourage community and organizational leadership to sponsor community wide projects and social/recreational activities.
- Similarly, we would encourage leaders and community members to build organizational networks and as such, explore ways to collaborate with other organizations.

Leadership Development and Training

An analysis of focus groups and interviews with leaders and members of groups leads us to advocate for intervention strategies that focus on leadership development and training. In the interviews and focus groups, respondents expressed concern that communities lacked sustainable leadership. Most leadership tends to be focused around specific, short-term projects. Based on our research, we suggest the following interventions.

- We recommend helping the community to identify and train a cadre of "sustainable" community leaders that extend across a broad range of sectors and various projects.[22]
- We recommend training organizational leaders and community residents in conflict resolution skills both within their organizations and within the community.
- We recommend providing organizational and community leaders with methodological tools and resources to help them train others (train-the-trainers programs).
- Interventions should focus on helping community and organizational leaders identify external (local, national, international) sources of funding, technical support and program management support and basic project management skills, including basic accounting, grant/proposal writing, strategic planning and leadership development.

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[22] By 'sustainable' we mean long-term. Analysis of the focus group interviews with leaders indicates that group leaders were concerned with turnover of leadership and an absence of having permanent leaders with projects. Most of the NGO and government efforts are project based which undermines long term stability of leadership. Preliminary analysis suggests that communities with both higher levels of participation and trust have lower turnover of leadership.

References

Grootaert, Christiaan. 2001. "Does Social Capital Help the Poor?: A Synthesis of Findings from the Local Level Institutions Studies in Bolivia, Burkina Faso and Indonesia." World Bank Group. Washington, DC: World Bank.

_____ and Deepa Narayan, Veronica Nyhan-Jones, and Michael Woolcock. 2002. Integrated Questionnaire for the Measurement of Social Capital. The World Bank Group. Washington DC: World Bank.

_____and Gi_Taik Oh and Anand Swany. 1999. "Social Capital and Development Outcomes in Burkina Faso." World Bank Group. Washington DC: World Bank.

Hardin, Russell. 2001. *Trust and Trustworiness*. New York: Russell Sage Foundation.

Harphan, Trudy and Emma Grant and Elizabeth Thomas. 2002. "Measuring Social Capital within Health Surveys : Key Issues," *Health Policy and Planning* (14,1) 106-11.

Isreal, Barbara et al. 1995. "Evaluation of Health Programs: Current Assessment and Future Directions," *Health Education Quarterly* (22,3) 364-389.

James, Sherman A. and Amyh J. Schultz and Juliana van Olphen. 2001. "Social Capital, Poverty, and Community Health: An Exploration of Linkages." In Saegert, Susan and J. Phillip Thompson, Mark R. Warren, editors. *Social Capital and Poor Communities.* New York: Russell Sage Foundation.

Kawachi, Ichiro and Lisa Berkman. 2000. "Social Cohesion, Social Networks, Social Support, and Health," in Lisa Berkman and Ichiro Kawachi, eds. *Social Epidemiolog.* Oxford: Oxford University Press.

Michler, William and Richard Rose. "Trust, Distrust and Skepticism about Institutions of Civil Society," *Studies in Public Policy Number 252*, University of Strathclyde, Scotland.

Narayan, Deepa and Lant Pritchett. 1999. "Cents and Sociability: Household Income and Social Capital in Rural Tanzania." *Economic Development and Cultural Change*, vol. 47 (4).

Putnam, Robert D. 2000. *Bowling Alone: The Collapse and Revival of American Community.* New York: Simon and Schuster.

_____. 1993. *Making Democracy Work: Civic Traditions in Modern Italy.* Princeton: Princeton University Press.

Uphoff, N. 1999. Understanding Social Capital: Learning from the Analysis and Experiences of Participation, in Dasgupta and Seregeldin, Social Capital: A Multifaceted Perspective, World Bank, Washington DC, USA

Warren, Mark R. and J. Phillip Thompson and Susan Saegert. 2001. "The Role of Social Capital in Combating Poverty," in Saegert, Susan and J. Phillip Thompson, Mark R. Warren, editors. *Social Capital and Poor Communities.* New York: Russell Sage Foundation.

Appendices
Appendix 1: Questions for Social Capital Indicators

	Question	Responses	Frequency	Frequency
Participation	Are you a member of a group or association?	1= Yes 2= No	61.6 38.4	
Number of Memberships/ Membership Load/ Membership Density	How many groups are you a member of (per household)?	0 1 2 3	41.3 45.6 11.5 1.6	
Answers to questions below recorded for up to two groups for each individual			**Group 1**	**Group 2**
Meeting Load	In the last month, how often did you attend meetings?	1 = Daily 2= Once a week 3= Once every 15 days 4= Once a month 5=More than once a month	23.8 30.3 10.5 22.5 12.9	25.9 16.9 6.5 41.6 9.1
Heterogeneity Index	Who are [the group's] members? Are they of the same neighborhood?	1=Yes 2=No	67.0 33.0	52.0 48.0
	Are they of the same kin or same clan?	1=Yes 2=No	4.4 95.6	7.8 92.2
	Are they of the same religion?	1=Yes 2=No	65.4 34.6	27.6 72.4
	Are they of the same gender?	1=Yes 2=No	17.9 82.1	13.2 86.8
	Are they of the same age?	1=Yes 2=No	3.7 96.3	1.3 98.7
	Are they of the same race?	1=Yes 2=No	60.5 39.5	64.9 35.1
	The majority of members have the same occupation?	1=Yes 2=No	20.9 79.1	32.5 67.5
	The majority of members have the same educational background or level?	1=Yes 2=No	10.9 89.1	9.1 90.1
	Are members mostly of the same political viewpoint or belong to the same political party?	1=Yes 2=No	26.0 74.0	29.6 70.4
Cash & Work Contribution	Have you contributed money or labor to these groups?	1=Yes 2=No	77.8 22.2	75.7 24.3
Democratic participation index	When the group has to make a decision, how is it made?	1=Decision is imposed from outside the group 2= Leader decides and then informs the members 3= A subset of group members make the decision 4=Discussion is held among all group members	11.6 35.5 11.3 39.6	10.7 26.7 24 34.6
	How active are you in making decisions in the group?	1= Leader 2= Very active 3=Somewhat active 4=Not active	12.5 53.2 33.3 1.0	7.4 54.1 37.2 1.3
% Community Initiated Memberships	Who were the original founders of this group?	1=Health care ministry 2= Community Members 3=Alcaldia/Mayor/Township 4=Local leader 5=Central Government	2.1 83.1 4.7 7.2 2.9	3.2 74.2 3.2 12.9 6.5
Community Confidence	If you suddenly needed a small amount of money, how many people beyond your immediate household could you turn to?	1 No one 2 One or two people 3 Three or four people 4 Five or more people	28.2 42 19.1 10.7	

	Suppose you suffered a serious economic setback, such as job loss. How many people do you think you could turn to for help in this situation beyond your immediate family?	1 No one 2 One or two people 3 Three or four people 4 Five or more people	33.8 38.4 20.7 7.2
	If you had to go away for a day or two, could you count on your neighbors to take care of your children?	1 Definitely 2 Probably 3 Probably not 4 Definitely not	20.2 18.0 6.7 55.1
Community Interaction	In the last month, have you met with people in a public place either to talk or to have food or drinks?	1=Yes 2=No	32.3 67.2
	In the last month, have people visited you in your home?	1=Yes 2=No	70.8 29.2
	In the last month, have you visited people in their home?	1=Yes 2=No	68.4 31.6
	In the last three months, have you gotten together with people to play games, sports, or other recreational activities?	1=Yes 2=No	31.9 68.1
Number of Activities	How many times in the past year did you participate in a family/village/ neighborhood festival or ceremony?		3.1 (average)

Appendix 2. Demographic variables and Social Capital

	% Participation in a group	Heterogeneity Index	Average Number of Active memberships/ Density of Membership	Average Number of Meetings per Month (Meeting Load)
Community				
Cinco Pinos	56% (87)	65.6 (49)	.71	5.1
El Rosario	74% (106)	59.6 (78)	1	7.9
Pantasma	48% (54)	53.1 (26)	.57	4.3
Rivas	61% (72)	63.3 (44)	.81	4.9
Villanueva	64% (107)	61.7 (68)	.83	5.8
Waslala	57% (56)	62.5 (32)	.66	5.5
Test or equal variances	F=2.36 (p>0.125) (481)	F=1.04 (p>0.413) (296)	F=1.07 (p>0.361) (481)	F=1.44 (p>0.118) (293)
Age				
18-24	54% (57)	65.2 (31)	.79	7.8
25-29	65% (57)	58.5 (37)	.81	4.5
30-34	67% (55)	60.0 (37)	.76	5.2
35-39	64% (64)	61.4 (41)	.84	5.9
40-44	53% (53)	62.1 (28)	.66	6.0
45+	63% (193)	61.3 (122)	.84	6.1
	F=0.280 (p>0.600) (481)	F=1.27 (p>0.216) (296)	F=0.600 (p>0.617) (481)	F=0.72 (p>0.779) (293)
Area				
Urban	69% (178)	60.9 (122)	.93	6.6
Semi-Rural	60% (250)	63.2 (149)	.75	4.7
Rural	48% (54)	53.1 (26)	.57	2.3
Ftest	**F=8.22 (p<0.004) (481)**	F=1.38 (p<0.149) (296)	**F=3.96 (p<0.008) (481)**	F=1.31 (p<0.187.) (503)
Sex				
Male	67% (153)	62.4 (103)	.92	6.1
Female	59% (329)	60.8 (194)	.74	5.9
Ttest	T=3.09 (p>0.078) (481)	T=1.03 (p>0.310) (296)	**T=6.10 (p>0.014) (481)**	T=0.08 (p>0.775) (503)
Education				
Illiterate	57% (68)	64.2 (39)	.74	6.4
Literate, self-taught	77% (17)	57.3 (13)	.88	6.1
Kindergarten	50% (4)	57.5 (2)	.75	14.5
Primary Schooling	60% (186)	58.8 (112)	.77	6.2
Secondary	65% (141)	61.7 (92)	.87	5.4
Technical Degree	48% (33)	67.2 (16)	.70	6.7
University	69% (32)	65.5 (22)	.84	4.8
	T=1.06 (p>0.386) (480)	**T=2.10 (p>0.053) (295)**	T=0.46 (p>0.841) (480)	T=1.00 (p>0.429) (502)

Appendix 3: Results from Interviews of Leaders and Members of Organizations

	Low	Low	Low	Low	High	High
	Cinco Pinos (N=11)	**Rivas** (N=8)	Pantasma (N=9)	Waslala (N=12)	El Rosario (N=11)	Villanueva (N=12)
Does the organization's leadership change regularly?						
- Leaders						
Yes	67% (2)	50% (1)	---	**100% (3)**	---	33% (1)
No	33% (1)	50% (1)	100% (3)	---	**100% (3)**	67% (2)
-Members						
Yes	63% (5)	50% (3)	50% (2)	63% (5)	12% (1)	67% (6)
No	37% (3)	50% (3)	50% (2)	37% (3)	88% (7)	33% (3)
How many people in the organization have acquired capability and qualities to be effective leaders?						
- Leaders						
No one	---	---	---	---	---	---
Few	---	---	50% (1)	---	---	---
Some	33% (1)	100% (2)	---	67% (2)	33% (1)	67% (2)
Many	67% (2)	---	50% (1)	33% (1)	67% (2)	33% (1)
- Members						
No one	---	---	---	---	---	---
Few	---	16% (1)	50% (2)	---	25% (2)	44% (4)
Some	50% (4)	66% (4)	25% (1)	50% (4)	25% (2)	33% (3)
Many	50% (4)	16% (1)	25% (1)	50% (4)	50% (4)	22% (2)
Do leaders come from a few or various groups?						
- Leaders						
A few	---	50% (1)	---	---	---	---
Various	100% (3)	---	100% (2)	66% (2)	66% (2)	100% (3)
All different groups	---	50% (1)	---	33% (1)	33% (1)	---
- Members						
A few	---	---	20% (1)	---	---	---
Various	100% (7)	66% (4)	60% (3)	75% (6)	100% (8)	89% (8)
All different groups	---	33% (2)	20% (1)	25% (2)	---	11% (1)
Percent Women?						
- Leaders						
<10%	---	---	---	33% (1)	---	33% (1)
10%-25%	33% (1)	---	---	---	33% (1)	**---**
24%-50%	33% (1)	---	---	---	33% (1)	33% (1)
>50%	33% (1)	100% (2)	100% (2)	67% (2)	33% (1)	33% (1)
-Members						
<10%	---	---	16% (1)	33% (3)	---	---
10%-25%	25% (2)	16% (1)	16% (1)	---	12% (1)	33% (3)
24%-50%	37% (3)	---	16% (1)	---	50% (4)	---
>50%	37% (3)	83% (5)	50% (3)	67% (6)	38% (3)	67% (6)

Should the frequency with which organization meets with congresses be more, less, or equal?						
- Leaders						
More	---	50% (1)	100% (1)	50% (1)	---	---
Less	---	50% (1)	---	---	100% (2)	---
Equal	100% (1)	---	---	50% (1)	---	100% (2)
- Members						
More	80% (4)	20% (1)	---	38% (3)	33% (1)	---
Less	---	80% (4)	100% (3)	12% (1)	67% (2)	88% (7)
Equal	20% (1)	---	---	50% (4)	---	12% (1)
Should the frequency with which organization meets with assemblies be more, less, or equal?						
- Leaders						
More	---	100% (2)	33% (1)	---	100% (3)	67% (2)
Less	---	---	---	---	---	---
Equal	100% (3)	---	67% (2)	100% (3)	---	33% (1)
- Members						
More	25% (2)	83% (5)	20% (1)	33% (3)	38% (3)	44% (4)
Less	37% (3)	17% (1)	40% (2)	11% (1)	50% (4)	22% (2)
Equal	37% (3)	---	40% (2)	55% (5)	12% (1)	33% (3)
In the last 3 meetings how active was participation of women?						
- Leaders						
Little/None	---	---	---	---	---	---
Moderate	67% (2)	50% (1)	33% (1)	33% (1)	67% (2)	---
Active	33% (1)	50% (1)	67% (2)	67% (2)	33% (1)	100% (3)
- Members						
Little/None	---	---	17% (1)	11% (1)	---	---
Moderate	13% (1)	33% (2)	---	33% (3)	38% (3)	---
Active	87% (7)	67% (4)	83% (7)	55% (5)	62% (5)	100% (9)
In the last 3 meetings how active was participation of poor?						
- Leaders						
Little/None	---	50% (1)	---	---	---	---
Moderate	---	---	---	---	---	---
Active	100% (3)	50% (1)	100% (3)	100% (3)	100% (3)	100% (3)
- Members						
Little/None	---	17% (1)	17% (1)	---	---	22% (2)
Moderate	13% (1)	33% (2)	50% (3)	33% (3)	25% (2)	11% (1)
Active	87% (7)	50% (3)	33% (2)	67% (6)	75% (6)	66% (6)
What % of population feels benefits from organization?						
- Leaders						
<25%	---	---	33% (1)	---	---	---
25%-50%	33% (1)	50% (1)	33% (1)	---	---	33% (1)
51%-75%	67% (2)	---	33% (1)	67% (2)	100% (3)	67% (2)
>75%	---	50% (1)	---	33% (1)	---	---

- Members	---	---	50% (3)	11% (1)	12% (1)	---
<25%	38% (3)	67% (4)	33% (2)	---	12% (1)	22% (2
25%-50%	62% (5)	16% (1)	17% (1)	67% (6)	75% (6)	44% (4)
51%-75%	---	16% (1)	---	22% (2)	---	33% (3)
>75%						
Level of Education/Training of Leadership						
- Leaders						
Deficient	33% (1)	---	---	---	---	67% (2)
Adequate	---	---	67% (2)	---	33% (1)	---
Good	33% (1)	100% (2)	33% (1)	100% (3)	67% (2)	33% (1)
Excellent	33% (1)	---	---	---	---	---
- Members						
Deficient	---	---	---	---	13% (1)	22% (2)
Adequate	75% (6)	17% (1)	50% (3)	22% (2)	---	22% (2)
Good	25% (2)	50% (3)	33% (2)	56% (5)	50% (4)	22% (2)
Excellent	---	33% (2)	17% (2)	22% (2)	37% (3)	33% (3)
Level of Honesty/Transparency of Leadership						
- Leaders						
Deficient	---	---	---	---	---	---
Adequate	---	---	---	---	---	---
Good	---	---	33% (1)	---	---	33% (1)
Excellent	100% (3)	100% (2)	67% (2)	100% (3)	100% (3)	67% (2)
- Members						
Deficient	---	---	---	---	12% (1)	---
Adequate	---	---	---	---	---	---
Good	---	16% (1)	33% (2)	22% (2)	12% (1)	44% (4)
Excellent	100% (8)	83% (5)	67% (4)	78% (7)	75% (6)	56% (5)
Have clearly defined process for identifying common needs and priorities been established?						
- Leaders						
Yes	100% (3)	100% (2)	100% (3)	100% (3)	100% (3)	100% (3)
No	---	---	---	---	---	---
- Members						
Yes	88% (7)	83% (5)	83% (5)	100% (9)	88% (7)	100% (9)
No	12% (1)	17% (1)	17% (1)	---	12% (1)	---

Appendix A: Indicators in Spanish

Nombre	Definicion	Formulacion
Participación	Se señala que alguien en el hogar es miembro de un grupo/asociacion local.	Participación es una variable dicotómica a nivel de hogares la cual indica si los hogares se participan (1= si se participan).
Densidad de membresía	Se indica el número de asociaciones a las cuales los miembros de los hogares dicen pertenecer.	Densidad de membresía es la suma de todos los grupos a los cuales los hogares pertenecen.
Promedio de reuniones por mes ("cargo de reuniones")	Se señala el cargo de reuniones cada mes.	El valor es el promedio (de los dos grupos) del numero de reuniones cada mes.
Índice de Heterogenidad	Índice que se representa la diversidad interna de los grupos mas importantes.	Índice es una escema (0-90) basado en la repuesta a 9 preguntas relacionado a la composicion de los grupos. Se acumula un punto en cada una de las 9 categories cuando dice que hay diferencias en la membresia. Las categories son las siguientes: barrio, grupo familiar, religión, sexo, edad, raza, ocupación, nivel o formación educacional, y orientación politica. El índice final es el promedio de los dos grupos apuntados por cada hogar multiplicado por cien. 90 significa mas heterogenidad; 0 significa menos heterogenidad.
Contribución de Dinero/Servicio	Índice se señala la contribución de servicio y dinero a los grupos en cuales se pertenecen los hogares	Valor total es el dinero y especies que el hogar contribuye a los 1-2 grupos a los cuales se pertenecen en el ultimo año.
Participación Democratica	Índice se señala el grado de participación democratica en los grupos a los cuales los miembros de los hogares pertenecen.	Es un índice a nivel de los hogares (con valores que van desde un rango de 0 a 2) basado en la respuesta a dos (2) variables dicotómicas: si un hogar señaló que si los miembros del grupo en los cuales ellos frecuentemente participaban tomaban decisiones en conjunto (como oposición a que los líderes tomaban las decisiones); y si los líderes de los grupos son elegidos por los miembros del grupo (como opuesto a ser designado por los líderes de la comunidad).
Índice de interacción social	Índice de interacción social se señala el nivel de interacción entre miembros de la comunidad.	Índice de interacción social es un índice complementario a nivel de los hogares (con valores que van desde un rango de 0 a 4) basado en la respuesta a cuatro variables dicotomicas acerca de la interacción social: si lo hogares señalaron que ellos y sus vecinos regularmente conversaban, se visitaban, practicaban algún tipo de juego, o se invitaban a fiestas o eventos especiales.

Índice de confianza de la comunidad	Índice de confianza se señala el nivel de confianza que uno tiene en sus vecinos y en otros miembros de la comunidad.	Índice de confianza de la comunidad es un índice complementario a nivel de los hogares (con valores que van desde un rango de 0 a 3) basado en la respuesta a tres variables dicotomicas acerca de la confianza en sus vecinos: si los hogares consideraban a sus vecinos como su familia; si ellos dejarían a sus niños pequeños al cuidado de sus vecinos; y si ellos confiarían a sus vecinos el cuidado de sus casas.
Orientación	Orientación de la comunidad se señala si los grupos en cuales se participan los hogares fueron fundados por miembros de la comunidad.	El variable es una variable dicotomica que toma el valor de 1 si su grupo favorito fue formado por miembros de la comunidad (como oposición a impuestos externamente).
Actividades	Número de actividades sociales (festivales, ceremonias) en cual se participan miembros del hogar.	Suma de las actividades sociales en cuales se participan el hogar en el último año.