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SOCIAL DEVELOPMENT PAPERS

COMMUNITY DRIVEN DEVELOPMENT

Paper No. 103/ March 2007

Inequality and Relative Wealth: Do They Matter for Trust? Evidence from Poor Communities in the Philippines

Julien Labonne, Dan Biller and Rob Chase

*Printed in collaboration with the
Sustainable Development Department of the East Asia and Pacific Region*

Summary Findings

Development practitioners are increasingly implementing projects that treat communities as development partners rather than as aid recipients. For example, in a typical Community-Driven Development (CDD) project, the communities control, up to a point, the resources as well as the design and the implementation of subprojects. For this approach to be successful and to provide durable benefits, communities need to sustain collective action, jointly managing project plans, budgets, implementation as well as operation and maintenance. The literature suggests that trust is an instrumental factor in encouraging collective action. Indeed, most individuals will not contribute to collective action without sufficient trust that others will also contribute their fair share. Thus, it is important to understand what factors correlate with lower/higher levels of trust.

We analyze the impact of inequality and relative wealth on individual trust levels based on data collected from 2,400 households in the Philippines. The Philippines presents an interesting example since trust levels tend to be very low. Our findings suggest that one's trust level rises with one's relative standing in her community. We also find that in communities with higher inequality in assets people tend to trust less.

This paper provides evidence that in more unequal communities, people tend to trust less and that in a given community poorer individuals are less likely to trust. We also find that less trusting communities are less likely to receive funding from community-driven development projects. Linking this with previous findings in the literature, our results can prove useful to development practitioners. First, more unequal communities are less likely to receive funding from community driven development projects and when they do, the investments are less likely to be adequately maintained. It is important that those projects be designed with those considerations in mind. Second, we show that in a given community poorer individuals are less likely to trust which reinforces the need to ensure that the process be as inclusive as possible.

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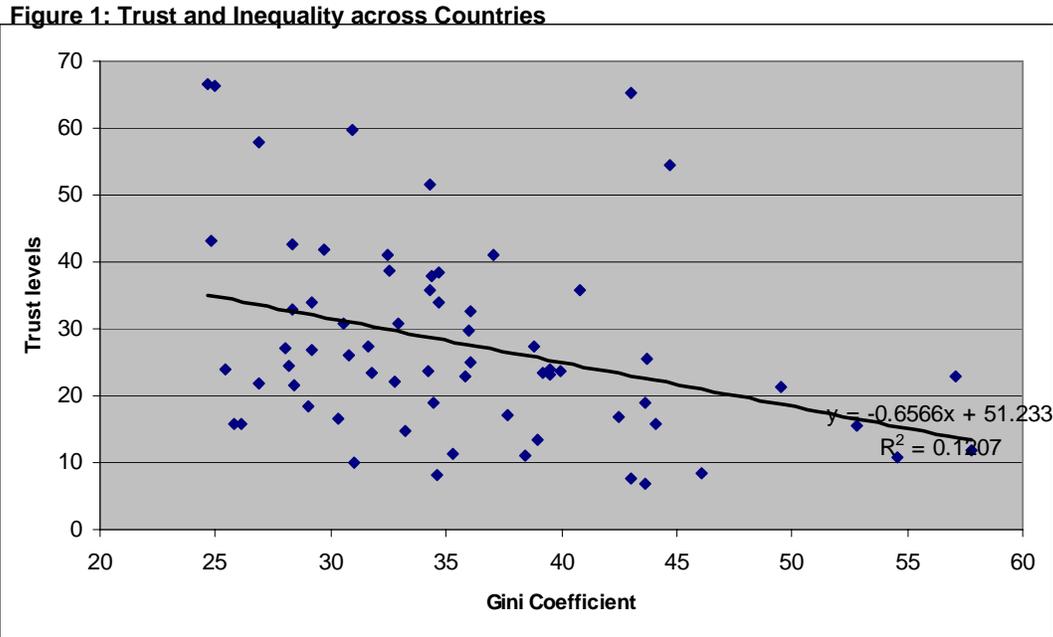
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1. Introduction

Recent years have seen an increasing interest in the study of trust (Rothstein and Uslaner, 2005). It was defined as being ‘the essential “glue” for society’ by Uphoff (2000) and has been shown to impact a country’s economic performance, the efficiency of large organizations, as well as local collective action. Knack and Keefer (1997), using a sample of 29 market economies, demonstrate that ‘trust and civic cooperation are associated with stronger economic performance.’¹ La Porta et al. (1997) show that after controlling for GNP, a one standard deviation increase in the trust index raises judicial efficiency by 0.7 of a standard deviation. Trust has also been highlighted as an important factor in communities’ capacity to solve social dilemmas such as the provision of public goods or the management of common resources (Ostrom, 2000 and Varughese and Ostrom, 2001).

Development practitioners are increasingly implementing projects that treat communities as development partners rather than as aid recipients. For example, in a typical Community-Driven Development (CDD) project, the communities control, up to a point, the resources as well as the design and the implementation of subprojects. For this approach to be successful and to provide durable benefits, communities need to sustain collective action, jointly managing project plans, budgets, implementation as well as operation and maintenance. The literature suggests that trust is an instrument factor in encouraging collective action. Indeed, most individuals will not contribute to collective action without sufficient trust that others will also contribute their fair share. Thus, it is important to understand what factors correlate with lower/higher levels of trust.

Political scientists, sociologists and social psychologists argue that in a given society, one’s trust levels are greatly influenced by one’s social status (Uslaner, 2006). By contrast, economists tend to argue that trust is negatively correlated with inequality and diversity (Alesina and La Ferrara, 2002). For example, as shown in Figure 1,² countries with higher levels of inequality tend to have lower levels of trust. However,



¹ Similar results have been obtained by Zak and Knack (2001) as well as by Beugelsdijk, de Groot and van Shaik (2004).

those two lines of research are not necessarily contradictory. Indeed, it could be that the measures of inequality used by economists are capturing differences in social status, since in societies with higher levels of inequality, social status is more salient. We will explore this in the paper.

In this paper we analyze the determinants of trust in some of the poorest communities of the Philippines. It is especially interesting to focus on the Philippines since trust levels tend to be very low. According to the World Values Survey (2005), only 8.6% percent of Filipinos declare that most people can be trusted (generalized trust). In neighboring Indonesia, the corresponding figure is 51.6%. Controlling for both inequality and relative wealth (a proxy for social status) the paper offers interesting insights into the determinants of trust in a developing country context.³ In addition, since we are interested the links between trust and local collective action we use a measure of bonding trust rather than a measure of generalized trust. Indeed this is the kind of trust that matters for local collective action.

The data was collected in some of the poorest rural communities of the Philippines. Using data from 2,400 households collected in 132 villages, we demonstrate that both inequality and one's relative wealth in the community impact trust levels. Specifically, one's trust levels rise with one's relative standing in the community. In addition, in communities with higher inequality in assets people tend to trust less. Moving from the barangay⁴ with the lowest level of inequality to the barangay with the highest level of inequality will result in a drop of 22.0 percentage points in the probability of trusting others (37.75 percent of the mean).

An individual's level of education is correlated negatively with the degree to which they trust their neighbors. Specifically, people with more education tend to trust less. In addition, people living in communities that are more unequal in terms of education achievements tend to trust less.

We also analyze the impact of diversity in ethnicity, religious beliefs and, occupation. The larger the share of villagers working as farmers or as fishermen, the lower the trust levels in the community. We argue that when people have the same occupation they compete over the same resources which might generate conflict and in turn lower trust levels.

The remainder of this paper is organized as follows. Section 2 presents some hypotheses along with some empirical evidence on the determinants of trust. Section 3 discusses the Philippines context. Section 4 describes the dataset and presents some descriptive statistics. Section 5 discusses our estimation strategy, and the econometric evidence is presented in Section 6. The last section concludes and discusses some policy implications from our work.

² Data on inequality (gini coefficient) was obtained through the World Development Indicators Database (2006). Data on trust was obtained through The World Value Survey Database (2005). Last year available for the 66 countries included.

³ On the same topic, see: Barr 2003; Carpenter, Daniere and Takahashi 2004; Haddad and Maluccio 2003; Karlan 2005; Olken 2006.

⁴ A barangay is the lowest administrative unit in the Philippines.

2. Who Trusts Others? A Review of Theory and Evidence

2.1 SOME THEORETICAL ARGUMENTS

One approach to trust presents it as an individual characteristic, while another describes it as a societal characteristics. Because they focus on different units of analysis, these theories are complementary rather than mutually exclusive (Delhey and Newton, 2003). An individual's trust towards members of her community will be influenced by characteristics of the community in which she lives and by some of her own characteristics.

Heterogeneity within a community is expected to negatively impact trust. Economists tend to support this assumption by arguing that individuals have a preference for homogeneity. Thus, they trust more easily people who are similar to themselves (Alesina and La Ferrara, 2002). So, *ceteris paribus*, there are lower levels of trust in more heterogeneous societies. Heterogeneity can be measured along different lines: wealth (i.e., inequality), ethnicity, religion, occupation and education achievements.

According to social psychologists, trust is closely linked with one's status within the reference group (Cook, 2005). Before engaging in an exchange, without prior information, one needs to make an assessment of the other's trustworthiness (i.e., of whether to trust him or not). Status characteristics have been shown to be the basis of such assessment. We argue that one's trust levels will increase with one's social status.

Second, being part of a group which has been discriminated against in the past or which is currently discriminated against likely has a negative impact on trust levels. Indeed, discriminated individuals tend to have lower social status and, in line with our discussion above, are expected to trust less. Individuals who have not been treated fairly in the past do not expect to be treated fairly in the future, so are less likely to trust.

Third, individuals living in bigger communities are expected to trust less. In larger communities people have fewer interactions with one another and as such there are fewer opportunities to build trust. In addition, being part of a bigger community makes it easier to free-ride and as such reduces the willingness to trust.

Fourth, community wealth might be correlated with trust levels. We have no *a priori* belief on the sign of this correlation. One can postulate that more well-off communities have more resources to devote to the provision of public goods. Providing these public goods requires prolonged contacts with community members, which offers an opportunity to build trust. On the other hand, in less well-off communities, dependence on one another for basic routines such as food security might foster increased trust.

Fifth, general characteristics such as individual wealth, education achievements, age and sex are expected to affect trust levels. We do not have any specific hypotheses for those characteristics but, in light of previous research (e.g., Alesina and La Ferrara, 2002 and Leigh, 2006), we believe that it is important to include them in the analysis.

2.2 SOME EMPIRICAL FINDINGS

Despite the apparent importance of trust in the development process, there is little empirical evidence on the community characteristics that lead an individual to trust her neighbors. Indeed, in regressions using

trust measured through trust games⁵ (which is most of the evidence), it is almost impossible to control for community characteristics due to limitations in sample size. Alesina and la Ferrara (2002), Leigh (2006) and Olken (2006) are able to do so using measures of trust obtained through surveys.

Alesina and la Ferrara (2002) assess the impact of individual and community characteristics on the trusting behavior using individual level data from US localities. Trust levels are affected by education levels, income and recent experiences. In addition, females and blacks, two groups who have historically received unequal treatment in the US, tend to trust less than others. Community characteristics also matter: living in community that is poorer, more racially heterogeneous and more unequal in income reduces trust levels. Alesina and La Ferrara (2002) suggest that people trust those who are similar to themselves.

Leigh (2006) performs the same kind of analysis using data on Australian communities. He analyzes the determinants of trust at a local level and at a national level. Similarly, income and education levels affect trust. Ethnically and linguistically heterogeneous communities exhibit lower levels of trust. However, in Australia income inequality does not negatively impact trust levels. Olken (2006) analyzes the impact of TV reception in Indonesian villages on trust levels. He finds that a better television reception is associated with lower levels of trust and that in communities with higher average education levels people tend to trust less.

Using individual-level data from the International Social Survey Programme in 25 countries (mostly OECD countries), Fischer and Torgler (2006) analyze the impact of envy on social capital. They provide support for the idea that one's trust levels rise with relative income. However, since they do not control for inequality, we do not know if it is one's relative income that matters or inequality in the reference group.

Anderson, Mellor and Milyo (2005) use a trust game to assess the effects of inequality on trusting behavior. Rather than inequality it is an individual's relative position in a group that influences her trusting behavior.

Glaeser et al. (2000) show that in their sample answers to questions on trust toward the generalized other do not predict trusting behavior in a trust game but rather trustworthy behavior. A plausible explanation is that while their survey question measures trust toward the generalized other, the trust game is played un-anonymously between players who already know each other.⁶ As such, the social distance between the two players is much smaller than between the respondent and the generalized other. Holm and Danielson (2005) perform the same kind of experiment in Sweden and Tanzania⁷ but, as the game is played anonymously, the social distance between the players is bigger than in the previous experiment. Nonetheless, it is still smaller than between the respondent and generalized other. Under this setting, higher trust levels⁸ measured in a survey leads to more trusting behavior in the trust game (Holm and Danielson, 2005). This result is obtained with their Swedish sample but not with their Tanzanian sample. We overcome this problem by measuring trust toward people living in the same barangay.

⁵ This game was first introduced by Berg, Dickhaut and McCabe (1995). For other applications, see for example: Glaeser et al. 2000; Holm and Danielson 2005; Croson and Buchan 1999.

⁶ The subjects were all undergraduates taking the Harvard Introductory Economics course. The game was played face-to-face and players had on average 12 friends in common.

⁷ In both countries the subjects are undergraduates taking the Introductory Economics course but the game was not played face-to-face.

⁸ The index is based on trust questions related to the generalized other (Holm and Danielson, 2005).

As a contribution to this literature, we will expand knowledge on the impact of inequality, diversity and relative wealth on trust within communities. We use relative wealth as a proxy for one's social status. We will analyze the determinants of bonding trust in poor communities of the Philippines and will control for both relative wealth and inequality levels.

3. The Philippines Context

The data used in the analysis has been collected in four provinces of the Philippines: Albay, Capiz, Zamboanga del Sur and Agusan del Sur. According to poverty maps from the National Statistical Coordination Board (2005), those four provinces are among the poorest in the Philippines and poverty incidence in the sampled municipalities is consistently higher than the provincial average.

Where the data have been collected, trust is closely related to the notion of networks of support. People generally believe that they can request help from family and neighbors for everyday needs. When their needs are larger, people go to church and/or village leaders. Those leaders and the institutions they represent are seen as bridges to resources.

According to our previous discussion, being part of a group which is/has been discriminated against will tend to lower trust levels. Indeed members of such groups are likely to be of lower social status. As such, it is important to try to understand local dynamics to be able to control for relevant factors. In the areas under consideration, there is a common sense that people feel that they belong to a community and that full inclusion occurs (World Bank, 2005b).

According to the US Department of State (2004), relations between religious groups in the Philippines are generally amicable and peaceful. However, after independence the central government put policies in place to encourage Christians to settle in Mindanao. This has led to a long conflict in the southwestern part of the country, as some Muslims seek to obtain some autonomy from the central government. However, the conflict has its roots in competition over land and other natural resources (Schiavo-Campo and Judd, 2005). A peace agreement was reached in 1996 but the armed conflict continued until peace was restored in 2003. Two of the provinces surveyed, Zamboanga del Sur and Agusan del Sur, are located in Mindanao.

Given the Philippines context from which the data comes, it is necessary to control for inequality as well as for heterogeneity in terms of ethnicity, religious beliefs and of occupation.

4. Data and Descriptive Statistics

4.1 DATA

The data used in this paper come from a survey conducted by the World Bank in the Philippines in 2003. The survey sampled 2,400 households in 132 barangays in 4 provinces in the Philippines. The survey instruments focused on poverty, social capital, empowerment and local governance.

The sample is not nationally representative. Indeed, the data was collected to provide baseline information for a project which will be implemented in 4,270 villages and 177 municipalities in the 42 poorest provinces of the Philippines (World Bank, 2005a). In addition, only the poorest one-fourth of all municipalities within a targeted province is selected to participate in the project. Thus, while interpreting our results one should keep in mind that our data cover some of the poorest communities in the Philippines.

A potential problem when using our data could arise if, for example, some poor communities are part of the project because they are poor but some richer communities are also part of the project because they have better social connections. This could lead to some spurious correlation between wealth and social capital. This is not an issue with our data. Indeed, the municipalities were selected to participate in the KALAHATI through some objective measures of poverty. First, the project is implemented in the 42 poorest provinces based on poverty data from the National Statistics and Coordination Board. Second, using municipal poverty mapping methods, the poorest one-fourth of all municipalities within a target province were selected to participate in the project. This rigorous targeting ensures that correlations between social capital and poverty are not a result of the way the program was implemented.

In the analysis, our measure of trust is the answer to the question “In general do you agree or disagree with the following statement? Most people in this barangay can be trusted.” Individuals answering “agree somewhat” or “agree strongly” are considered trusting and others are considered non-trusting. Our measure of trust is a measure of neighborhood trust (bonding trust) as opposed to the generalized trust (bridging trust) commonly used in the literature. As discussed before, focusing on trust at the community level is especially important to explain cooperation levels in the provision and maintenance of local public goods as well as in the management of common resources.

Regardless of the trust being measured, using replies to ‘trust questions’ as a dependent variable poses some challenges. First, we are using subjective data. When a respondent states she trusts others, she may feel good about herself even if this does not reflect actual behavior (Bertrand and Mullainathan, 2001). A direct consequence of this concern is that the number of trusting people could be upward biased. In order to control for this possibility, we follow Alesina and La Ferrara (2002) and classify individuals answering “neither agree nor disagree” as being non-trusting. After doing so, 42% of the respondents say that they do not trust people living in their village. In addition, there is no reason to believe that the bias is correlated with our explanatory variables. Our measure of trust is linked to real-life outcomes. Sixty-six of the 132 barangays sampled took part, after the data was collected, in a project in which communities compete over resources. In the barangays which received a sub-project, the average bonding trust is 60% while it is only 52% in the barangays which did not receive a sub-project. The difference is statistically significant. This reinforces findings from Karlan (2005) showing that, in a Peruvian group lending microfinance program, individuals giving positive responses to General Social Survey questions (on trust, fairness and helping) save more and are more likely to repay their loans, thus linking subjective data with real-life financial decisions.

To measure trust one needs to recruit cooperative people willing to respond to a survey. This can lead to self-selection of people with high levels of trust (Holm and Danielson, 2005) and thus to biased estimates (Heckman, 1979). Given the overall high response rate and the reasons for replacement of the respondents, we believe that concerns about self-selection can be ruled out. Only 12% of the respondents are not the original individual targeted by the sample. Among those, only 7.8% (0.9% of the total) did not respond to the survey because they were not cooperative.

An additional concern while using subjective data is that, some people are simply negative. We could be capturing this negativity rather than trust. We will therefore control for this potential “mood effect” by including a variable measuring whether or not the respondent trusts strangers. We will treat this as individual fixed-effect.

There are two benefits of using trust data collected through questionnaires rather than through experiments. First, collecting this information through a survey allows for more data since it is cheaper than organizing trust games. Second, it is easier to collect data in a large number of communities. This makes it possible to understand the impact of community characteristics on trust levels.

The trust variable described above will be our dependent variable. We also have a rich set of explanatory variables that we describe below. As discussed in Section 3, trust levels are likely to depend on both individual and community characteristics. We will first describe the individual level variables. We have detailed information available on the respondent’s ethnic group, religion, education levels, occupation, consumption, assets, age, sex, etc.

As stated above, both consumption and asset data are available. However, we will only use information on assets to build a measure of wealth. First, long-run economic status in poor rural communities is usually thought to be better captured by asset ownership than by consumption expenditures (Filmer and Pritchett, 2001). Second, measurement error is likely to be stronger for consumption data than for asset data and, as such, information collected on assets is usually believed to be more accurate than information collected on consumption. For example, it is much easier to obtain a reliable answer to a question such as “Do you own a telephone?” than to a question such as “How much did you spend on food during the past week?”

We build our asset variable using a principal component analysis (PCA). PCA is a statistical method that reduces dimensionality of a dataset which we use to derive weights. Specifically, we compute our index using the first component of our PCA as the weights, also commonly assumed to be a satisfactory measure of welfare (Filmer and Pritchett, 2001). With this method, the more an asset varies across households the more weight it has in computing the index (McKenzie, 2005). This index reflects access to services,⁹ tenure status and quality of housing¹⁰ as well as the ownership of various durable consumption goods.¹¹

In addition, we compute the median asset index for each barangay in our sample. We then estimate a household’s relative position in its barangay by taking the difference between its asset index and the

⁹ We have information on the main source of water for the family, the type of toilet facility available and the availability of electricity in the house.

¹⁰ We have information on the number of rooms, the size of the house, on whether the individual own her house, on whether the individual owns the plot and on whether the individual owns another house somewhere else. In addition, the materials used for the roof and the walls are recorded.

¹¹ Durable consumption goods for which information is available are: telephone, radio, TV set, VHS, Refrigerator, Gas stove, washing machine, sala set, dining set, beds, electric fan, rice cooker, toaster, sewing machine, flat iron, motorcycle, car and generator.

median asset index in the barangay, normalizing it by the median. We will use this household variable as a proxy for social status.

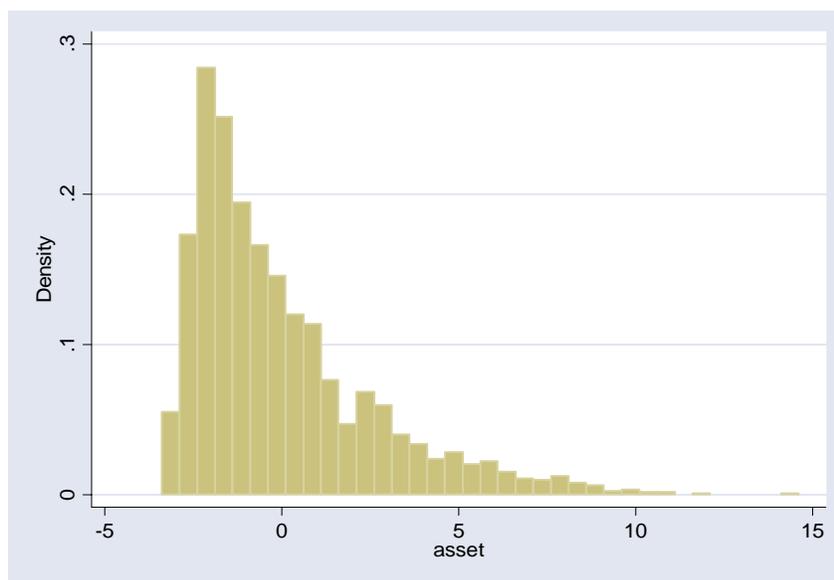
The other individual-level variables included in the regressions are: Age (age of the respondent in years), Female (a dummy variable), Education (the respondent's number of years of education), and household size (number of persons).

We now turn our attention to barangay-level variables. As noted by Costa and Kahn (2003), a usual empirical problem when trying to estimate the impact of one's community composition on a given variable of interest is to determine what is one's community. An advantage of working with data from rural areas in a developing country is that the villages tend to be small. As such they are good proxies for one's community.

As discussed before, we proxy levels of wealth with an asset index built from a principal component analysis. As noted by McKenzie (2005), the fact that by construction this index has zero mean and can take negative value make it impossible to compute many standard measures of inequality (e.g., the gini coefficient and the Atkinson and entropy indices). To remedy to this problem, McKenzie (2005) proposes a measure of relative inequality that is computed using the asset index. For a given community, this index is equal to the standard deviation of the asset index across households in the community divided by the standard deviation of the asset index across households in the sample as a whole. (For a complete description of the index and its potential use see McKenzie (2005).) We built this relative inequality index for each barangay in the sample. This index can thus be used for comparing inequalities across barangays. The index ranges from 0.24 to 1.83 (i.e. even in those poor communities there are significant differences in inequality).

A potential problem when using an asset index to measure inequality is that if the number of asset indicators used to compute the index is too small we might not be able to differentiate living standards across households (McKenzie, 2005). In order to avoid clumping (i.e., a small number of groups) and truncation (i.e., impossibility to differentiate between the poor and the very poor and between the rich and the very rich) one should use a sufficient number of asset indicators. A look at the histogram of the asset index (cf. Figure 2) suggests that truncation and clumping are not an issue with our index.

Figure 2: Histogram Asset Index



We are also interested in the impact of education inequality. Our measure of inequality in education achievements is the standard deviation of the number of years of education obtained by the household heads in the barangay.

At the barangay-level we are interested in variables reflecting heterogeneity. From the data, we obtain measures of ethnic, religious and occupation fragmentation. For each barangay we measure ethnic, religious and occupation diversity using fractionalization indices.¹² The index measures the probability that two randomly selected individuals from the population are from distinct groups. This can be written formally as:

$$F_k = 1 - \sum_1^{I_k} s_{ik}^2 \quad (1)$$

Where s_{ik} is the share of individuals from group i in village k . There are I_k different groups in village k . For the ethnic index, the groups selected are: (i) Bikol; (ii) Cebuano; (iii) Hiligaynon; (iv) Manobo; (v) Bisaya; (vi) Boholano; (vii) Subanen; (viii) Capizeno and; (ix) Other. For the religious index, the groups selected are: (i) Catholic; (ii) Protestant; (iii) Islam; (iv) None; and (v) Other. For the occupation index, the groups selected are: (i) Farmers and fishermen; (ii) Traders; (iii) Community and social services; (iv) Not working; and (v) Other.

We also have information on barangay size. In addition, taking advantage of our data on assets we calculate the median asset index for each barangay. This will allow us to control for any barangay wealth effect.

4.2 SOME DESCRIPTIVE STATISTICS

Table 1 summarizes descriptive statistics for these variables.

Individuals are more inclined to trust those who they have frequent interactions with or who are similar to themselves. While 58% of the respondents declare trusting people living in their barangay, only 9% trust strangers. Those figures are low compared with other East Asian countries. Corresponding figures are 86.6% and 41.7% in Indonesia and 78.1% and 38.9% in Thailand (Paldam and Svendsen, forthcoming). Similarly, 41% of respondents trust people from their ethnic group and only 12% trust people from other ethnic groups.

As suggested by Uslaner (2006), population distribution matters for trust. People declaring that they trust people from other ethnic groups tend to live in more ethnically diverse barangays. While the average ethnic fractionalization index for people trusting people from other ethnic groups is .45, it is only .37 for people who do not trust people from other ethnic groups, a statistically significant difference. A similar result is obtained for people declaring that they trust strangers.

People trust members of their community because they believe that they are willing to help them, but not by lending them money. Indeed, while 76% of the respondents declare that most people in their barangay are willing to help if needed, only 53% declare that people generally trust each other in matters of lending and borrowing money. Sixty-one percent declare that, in their barangay, one has to be alert or someone is

¹² This index is now commonly used in the literature. See for example Alesina, Baqir and Easterly. (1999); Alesina and La Ferrara (2002); Miguel and Gugerty (2005);

likely to take advantage of you. As a comparison, in Indonesia, the corresponding figures are 84.4%, 77.7% and 63.1%; in Thailand they are 72.4%, 69.9% and 57.4% (Paldam and Svendsen, forthcoming).

Another interesting result is that people tend to trust local government officials more than national government officials. The figures are 55% and 43%, respectively. In Indonesia, 56.1% of individuals have confidence in the national government; the corresponding figure is 71.7% in Thailand (Paldam and Svendsen, forthcoming). Our Philippines result may reflect two things. First, local government officials are more easily accessible than national government officials and thus it is easier to build a trusting relationship with them than with officials further away from their communities. Second, in those communities people turn to local officials for help in case of emergencies (World Bank, 2005b). This might increase trust in local officials.

5. Econometric Results

Trust levels are expected to be dependent upon individual and barangay characteristics. By construction, our dependent variable is binary and as such we estimate our different equations using logit and probit models. We now discuss the results of our estimations presented in Table 2. All regressions include province dummies.

One's trust levels toward members of her community depend on one's relative wealth in the community. From the conditional logit results, going from a relative wealth of 0.5 to a relative wealth of 1.5 increases the likelihood of trust by 8 percentage points. Surprisingly, absolute wealth has no impact on trust levels.

Consistent with previous findings, living in a more unequal community tends to lower trust levels. This result holds even when we control for one's relative standing in the community. An increase of one standard deviation in our inequality index from the mean will reduce the likelihood of trust by 4.7 percentage points. Moving from the barangay with the lowest level of inequality to the barangay with the highest level of inequality will result in a drop of 22.0 percentage points in the probability of trusting others (37.75 percent of the mean).

According to the results discussed so far, both relative standing and inequality have an impact on an individual's trust levels. As such, one's beliefs are different whether one belongs to an advantaged or a disadvantaged group. Specifically, the more disadvantaged one is, the less likely she is to trust. In turn, she is less likely to participate in politics as discussed by Rothstein and Uslaner (2005).¹³ This might prevent the implementation of inequality-reducing policies and thus explain the existence of inequality traps.¹⁴

Education is negatively correlated with trust. This result is highly significant (even at the 0.1% level). From the sample mean, an extra year of education decreases the likelihood of trust by 1.7 percentage points. One should remember that we only have data on some of the poorest provinces in the Philippines, which could drive the result. Having invested in education and still being poor can bring resentment. Additional evidence points in this direction. The negative impact of an additional year of education on trust levels is stronger for poorer individuals. An extra year of education decreases the likelihood of trust by 2.3 percentage points for people at the bottom half of the asset distribution and by 1.0 percentage points for people at the top half of the asset distribution (results not reported).

Alesina and La Ferrara (2002) and Leigh (2006) found a positive and significant relation between trust levels and education achievements. A possible explanation for this difference may lie in the differences in sample (they have access to a nationally representative sample). In a setting more similar to ours (rural villages in Indonesia), Olken (2006) finds that people living in villages with higher average levels of education tend to trust less.

Interestingly, living in a more unequal community in terms of education achievements reduces the likelihood of trusting others in the community. Starting from the sample mean, increasing our measure of inequality in education by one standard deviation will result in a drop of 2.6 percentage points of the likelihood of trusting others.

¹³ This result also holds with our data. Indeed, individuals declaring that they trust others living in their community are more likely to attend Barangay Assemblies.

¹⁴ For a brief introduction to the notion of inequality trap, please see: Rao (2006).

Surprisingly, our measures of ethnic, religious and occupation diversity are not correlated with trust levels. In our rural setting, our measure of occupation diversity might not be appropriate. As such, we substitute the measure of occupation fragmentation with an index equal to one minus the proportion of farmers and fishermen. Thus, we analyze the impact concentration in farming and fishing activities can have on trust. The smaller the proportion of villagers working as farmers or as fishermen, the higher the trust levels are. Specifically, a decrease of one standard deviation from the mean in the proportion of farmers and fishermen in the barangay will increase the likelihood of trust by 3.4 percentage points.

It could be that in a community in which people engage in similar activities, villagers will compete over the same resources and in the same market. This might create tensions and conflicts between villagers, which could in turn lower trust levels. In addition, people engaging in similar activities face similar risks (e.g., lack of rain for farmers, declining fish stocks for fishermen, etc.). Thus they might not be able to help each other if need be. Since, as we described before, trust in our setting is related to neighbors being willing to help, homogeneity in occupation will be detrimental to trust.

This result is driven by farmers and fishermen. In the regression with the sub-sample of farmers and fishermen, diversity in occupation has a positive and significant impact on trust levels. This result does not hold in the regression with the sub-sample of individuals engaged in all other activities. This result provides some further evidence for the hypothesis that homogeneity in occupation is detrimental to trust because it generates conflicts over resources. Indeed, farmers and fishermen are the groups for which competition over resources (land, fish stocks) is the most acute and they are the only ones affected by a change in the proportion of farmers and fishermen in their community.

Even if one would expect people living in bigger communities to trust less, this is not the case empirically. The coefficient for size of the barangay is not significant.

6. Conclusions

One's trust levels toward members of a community depend on one's relative standing in the community. Specifically, individuals at the bottom of the community wealth distribution tend to trust less. In addition, trust expressed towards members of one's community is lower when one lives in a community with more wealth inequality.

This paper provides evidence that in more unequal communities, people tend to trust less and that in a given community poorer individuals are less likely to trust. We also find that less trusting communities are less likely to receive funding from community-driven development projects. Linking this with previous findings in the literature, our results can prove useful to development practitioners. First, more unequal communities are less likely to receive funding from community driven development projects and when they do, the investments are less likely to be adequately maintained. It is important that those projects be designed with those considerations in mind. Second, we show that in a given community poorer individuals are less likely to trust which reinforces the need to ensure that the process be as inclusive as possible.

Our results are only a first step and we see at least three areas where more work would be helpful to policymakers. First, it would be interesting to see if our findings can be replicated in other settings. The increasing number of household surveys including a module on social capital might provide a good opportunity of doing so.

Second, more research is needed to understand who people trust in their communities. Indeed, our measure of trust is generic and disaggregating it by wealth levels could shed some interesting lights. For example, does an increase in inequality lead one to trust individuals with similar social status more and to trust individuals with higher/lower social status less?

Third, more work need to be done to understand whether the way the various wealth groups are distributed geographically in the communities influence how inequality matters for trust. For example, does residential clustering by wealth levels increase the impact inequality has on trust?

This paper discusses the relationship between trust and inequality in poor communities in the Philippines. We show that in communities with higher levels of inequality, trust levels tend to be lower which in turn makes it less likely that those communities will sustain collective action. This is extremely important to teams preparing community-driven development projects. Indeed, as currently designed, those projects might leave out the more unequal communities. However, more research is needed to understand why inequality has a negative impact on trust levels.

Annex: Tables

Table 1: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Trust members of her community	2383	0.58	0.49	0	1
Trust People from your Ethnic group	2395	0.42	0.49	0	1
Trust people from other Ethnic group	2386	0.12	0.32	0	1
Trust Traders	2369	0.22	0.42	0	1
Trust Local government officials	2390	0.55	0.50	0	1
Trust National Government Officials	2400	0.43	0.50	0	1
Trust Police	2400	0.41	0.49	0	1
Trust Teachers	2400	0.72	0.45	0	1
Trust Nurses and Doctors	2400	0.71	0.45	0	1
Trust Strangers	2400	0.09	0.28	0	1
Inequality	2261	0.86	0.34	0.24	1.83
Heterogeneity Religion	2261	0.26	0.19	0	0.68
Heterogeneity Ethnicity	2261	0.39	0.25	0	0.80
Heterogeneity Occupation	2261	0.54	0.15	0	0.78
1 – Proportion of farmers and fishermen	2261	0.49	0.22	0	1
Heterogeneity Education	2261	3.04	0.62	0.98	8.49
Median asset in barangay	2261	3.53	1.24	1.70	7.96
Barangay size	2237	1775	1210	114	7000
Education (years)	2258	6.03	3.21	0	15
Asset	2259	0.00	2.60	-3.39	14.24
Household size	2261	5.09	2.19	1	13
Age	2261	44.76	14.25	18	99
Female	2261	0.61	0.49	0	1

Table 2: Determinants of Bonding Trust

	Conditional Logit		Pooled Probit			
	(1)	(2)	(3)	(4)	(5)	(5)
Education	-0.0158 (0.0038)***	-0.0165 (0.0039)***	-0.0167 (0.0038)***	-0.0169 (0.0038)***	-0.0169 (0.0038)***	-0.0171 (0.0038)***
Individual Assets	0.0111 (0.0066)	-0.0191 (0.0172)	0.0114 (0.0063)*	-0.0179 (0.0159)	-0.0182 (0.0159)	-0.0171 (0.0162)
Individual Assets ^2	-0.0017 (0.0012)	-0.0004 (0.0014)	-0.0010 (0.0012)	0.0003 (0.0013)	0.0003 (0.0013)	0.0003 (0.0013)
Relative wealth		0.0798 (0.0416)**		0.0758 (0.0391)**	0.0759 (0.0391)**	0.0745 (0.0400)*
Household Size	-0.0065 (0.0054)	-0.0073 (0.0056)	-0.0074 (0.0053)	-0.0080 (0.0053)	-0.0078 (0.0054)	-0.0072 (0.0054)
Age	0.0031 (0.0050)	0.0036 (0.0051)	0.0002 (0.0053)	0.0006 (0.0054)	0.0006 (0.0054)	0.0018 (0.0055)
Age ^2	-0.0001 (0.0001)	-0.0001 (0.0001)	0.0000 (0.0001)	0.0000 (0.0001)	0.0000 (0.0001)	0.0000 (0.0001)
Female	0.0094 (0.0240)	0.0093 (0.0245)	0.0151 (0.0221)	0.0146 (0.0221)	0.0087 (0.0229)	0.0067 (0.0230)
Inequality			-0.1391 (0.0596)**	-0.1510 (0.0597)**	-0.1326 (0.0603)**	-0.1422 (0.0588)**
Religious frag.			0.1410 (0.1153)	0.1386 (0.1155)	0.1202 (0.1118)	0.1316 (0.1114)
Ethnic frag.			0.0631 (0.0946)	0.0639 (0.0946)	0.0519 (0.0913)	0.0552 (0.0925)
Occupation frag.			0.1741 (0.1081)	0.1717 (0.1084)		
% Farmers and Fishermen					-0.1546 (0.0773)**	
(1- % Farmers and Fishermen) * D(Farmers and Fishermen)						-0.1587 (0.0769)**
(1- % Farmers and Fishermen)* D(other occupation)						-0.0191 (0.0967)
S.D. education			-0.0423 (0.0245)*	-0.0424 (0.0246)*	-0.0402 (0.0240)*	-0.0403 (0.0240)*
Median Assets in Barangay			-0.0424 (0.0489)	0.0069 (0.0613)	0.0052 (0.0625)	0.0043 (0.0623)
Median Assets in Barangay^2			0.0053 (0.0060)	0.0027 (0.0065)	0.0023 (0.0068)	0.0024 (0.0066)
Barangay Size			0.0000 (0.0000)	0.0000 (0.0000)	0.0000 (0.0000)	0.0000 (0.0000)
N	2207	2207	2207	2207	2207	2207
Province Dummies	N/A	N/A	Yes	Yes	Yes	Yes
Control for Trust towards strangers	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Marginal coefficient calculated at the means. The standard errors (in parentheses) are Hubert-corrected and account for intra-barangay correlation. * denotes significance at the 10% level, ** at the 5% and, *** at the 1%.

References

- Alesina, A., R. Baqir, and W. Easterly. 1999. "Public Goods and Ethnic Divisions." *Quarterly Journal of Economics* 114(4): 1243-1284.
- Alesina, A. and E. La Ferrara. 2002. "Who trusts others?" *Journal of Public Economics* 85(2): 207-234.
- Anderson, Lisa, Jennifer Mellor, and Jeffrey Milyo. 2005. "An Experimental Study of the Effects of Inequality and Relative Deprivation on Trusting Behavior." Working Paper, College of William and Mary, Department of Economics.
- Barr, A. 2003. "Trust and expected trustworthiness: Experimental evidence from Zimbabwean villages." *The Economic Journal* 113 (489): 614-630.
- Berg, J., J. Dickhaut and, K. McCabe. 1995. "Trust, Reciprocity, and Social History." *Games and Economic Behavior* 10 (1): 122-142 .
- Bertrand, M. and S. Mullainathan. 2001. "Do People Mean What They Say? Implications for Subjective Survey Data." *The American Economic Review Papers and Proceedings* 91 (2): 67-72.
- Beugelsdijk, Sjoerd, Henri de Groot and Anton van Schaik. 2004. "Trust and Economic Growth: a Robustness Analysis." *Oxford Economic Papers* 56:118-134.
- Carpenter, J., A. Daniere and L. Takahashi. 2004. "Cooperation, trust, and social capital in Southeast Asian urban slums" *Journal of Economic Behavior & Organization* 55 (4): 533-551.
- Cook, Karen, S. 2004. "Networks, Norms and Trust: The Social Psychology of Social Capital." *Social Psychology Quarterly* 68(1): 4-14.
- Costa, D., and M. Kahn. 2003. "Civic Engagement and Community Heterogeneity: An Economist's Perspective" *Perspectives on Politics* 1(1): 103-111
- Croson, R., and N. Buchan. 1999. "Gender and Culture: International Experimental Evidence from Trust Games." *The American Economic Review Papers and Proceedings* 89 (2): 386-391
- Dehley, Jan, and Kenneth Newton. 2003. "Who Trusts?" *European Societies* 5(2): 93-137.
- Filmer, Deon and Lant Pritchett. 2001. "Estimating wealth effects without expenditure data - Or tears: An application to educational enrollments in states of India." *Demography* 38 (1): 115-132.
- Fischer, J., and B. Torgler. 2006. "Does Envy Destroy Social Fundamentals? The Impact of Relative Income Position on Social Capital." *Nota Di Lavoro* 38.2006, Fondazione Eni Enrico Mattei.
- Glaeser E. L.; Laibson D. I.; Scheinkman J. A.; Soutter C. L. 2000. "Measuring Trust." *The Quarterly Journal of Economics* 115 (3): 811-846.
- Haddad, L. and J. Maluccio. 2003. "Trust, Membership in Groups, and Household Welfare: South Africa." *Economic Development and Cultural Change* 51: pp 573-601.
- Heckman, J.J. 1979. "Sample Selection Bias as a Specification Error." *Econometrica* 47 (1): 153-162.

- Helliwell, John F. 2003. "How's Life? Combining Individual and National Variables to Explain Subjective Well-being." *Economic Modelling* 20: 331-360.
- Holm, H.J., and A. Danielson. 2005. "Tropic Trust versus Nordic Trust: Experimental Evidence from Tanzania and Sweden." *The Economic Journal* 115 (3): 505-532.
- Karlan, D. 2005. "Using Experimental Economics to Measure Social Capital and Predict Financial Decisions." *American Economic Review* 95(5): pp.1688-1699.
- Knack, S., and P. Keefer. 1997. "Does Social Capital have an Economic Payoff? A Cross-Country Investigation." *Quarterly Journal of Economics* 112 (4): 1251-1288.
- Leigh, A. 2006. "Trust, Inequality, and Ethnic Heterogeneity." *The Economic Record* 82(258): 268-280.
- McKenzie, D. 2005. "Measuring Inequality with Asset Indicators." *Journal of Population Economics* 18(2): pp 229-260.
- Miguel, E. and M.Gugerty. 2005. "Ethnic diversity, social sanctions, and public goods in Kenya." *Journal of Public Economics* 89 (11-12): 2325-2368.
- National Statistical Coordination Board. 2005. "Estimation of Local Poverty in the Philippines." <http://www.nscb.gov.ph/poverty/sae/default.asp>
- Olken, B. 2006. "Do Television and Radio Destroy Social Capital? Evidence from Indonesian Villages." Unpublished manuscript, Harvard University.
- Ostrom, E. 2000. "Collective Action and the Evolution of Social Norms." *Journal of Economic Perspectives* 14(3): 137-158.
- Paldam, M. and G.T Svendsen "Social Capital Database for a cross-country study." In *Trust, Social Capital and Economic Growth: An International Comparison*, ed Paldam and Svendsen. Edward Elgar. *forthcoming*.
- La Porta, R., F. Lopez-de-Salanes, A. Shleifer, and R. Vishny.1997. "Trust in Large Organizations." *American Economic Review Papers and Proceedings* 87: 333-338.
- Rao, V. 2006. "On Inequality Traps and Development Policy." *Development Outreach* 8(1).
- Rothstein, Bo and Eric Uslaner. 2005. "All for All. Equality, Corruption and Social Trust." *World Politics* 58(October): 41-72
- Schiavo-Campo, S. and M. Judd. 2005. "The Mindanao Conflict in the Philippines: Roots, Costs and Potential Peace Dividend." World Bank, Social Development Papers - Conflict Prevention and Reconstruction - Paper No. 24, World Bank, Washington, DC.
- Uphoff, N. 2000. "Understanding Social Capital: Learning from the Analysis and Experience of Participation" in P. Dasgupta and I. Serageldin (eds), *Social Capital. A Multifaceted Perspective*, The World Bank.

- US Department of State. 2004. "International Religious Freedom Report." <http://www.state.gov/g/drl/rls/irf/2004/35425.htm> (11/21/2005).
- Uslaner, Eric M. 2006. "Does Diversity Drive Down trust?" Nota di Lavoro 69.2006, Fondazione Eni Enrico Mattei.
- Varughese, G. and E. Ostrom. 2001. "The Contested Role of Heterogeneity in Collective Action: Some Evidence from Community Forestry in Nepal." *World Development* 29(5): 747-765.
- Wooldridge, J. 2002. *Econometric Analysis of Cross Section and Panel Data*. Cambridge, MA: The MIT Press.
- World Bank. 2005a "Community Driven Development and Social Capital: Designing a Baseline Survey in the Philippines." Social Development Department Working paper, World Bank, Washington, DC.
- World Bank. 2005b. "Qualitative Baseline Survey for the Impact Evaluation of the KALAHI-CIDSS." Unpublished manuscript, Social Development Department, World Bank, Washington, DC.
- World Bank. 2006. "World Development Indicators." <http://www.worldbank.org/data>
- World Values Survey. 2005. "The Values Surveys Database." <http://www.worldvaluessurvey.org/services/index.html>
- Zak, P. and S. Knack. 2001. "Trust and Growth." *The Economic Journal* 111: 295-321.