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# To What Extent Do Latin Americans Trust, Reciprocate, and Cooperate?

*Evidence from Experiments in Six Latin American Countries*

In this paper we study the microfoundations and mechanisms that may affect trust, reciprocity, and cooperation for different social groups. We use a field approach, based on surveys and experimental methods, conducted simultaneously in six Latin American cities. This approach focuses on the behavioral aspects of the collective action problem, enriched by the social and economic contexts in which microeconomic interactions take place, and involves the direct observation of individuals. The experimental design of this project captures some of the key dimensions of the problem of collective action, making it possible to extract lessons about group-oriented behavior in Latin America.

The puzzle of cooperation among humans remains a central and relevant question. In 2005 the magazine *Science* listed the evolution of cooperative behavior as one of the top twenty-five most relevant scientific puzzles to be solved in the next quarter century.<sup>1</sup> Regardless of place, time, or income group, cooperation and collective action have constituted a major part of humans' daily life. From the organization of hunters and gatherers to global

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1. Elizabeth Pennisi, "How Did Cooperative Behavior Evolve?" *Science*, 1 July 2005, p. 93.

warming and traffic, the tragedy of the commons and the dilemma of cooperation continue to affect societies' well-being. Humans have devised multiple forms of correcting losses from problems of collective action by harnessing the conflict between individual and social outcomes through incentives, in the form of norms and laws. A significant number of social interactions involve potential losses of efficiency stemming from externalities or problems with the provision of public goods. As a result, one inevitable outcome is that some individuals free ride on others. The lack of trust exacerbates free riding, thus reducing opportunities to produce socially efficient outcomes.

Free riding and lack of coordination are problems that communities face in their daily lives. Households contribute labor to starting or maintaining local projects that benefit their neighborhood, and neighborhoods contribute to local funds to pay for security or playground maintenance. Child care, recreation parks, water provision, and street cleaning are all examples of projects in which groups ensure access to a public good through private provision. Groups also organize to face other kinds of problems different from collective action. That is the case of facing risk through risk pooling, joining efforts, or pooling payoffs under uncertainty. Risks involve credit, natural disasters, political violence, and crime, among others. In such cases, the formation of groups to face risk involves a collective action problem in itself, and the outcome can spread the payoffs throughout the group.

Cooperating or forming groups to produce an outcome that is beneficial to the group is usually costly. Sometimes it involves a coordination game in which each individual would benefit more if everyone else behaves accordingly, and the payoffs drive individuals toward the best outcome without conflicts between individual and group interests. Other times it is a collective action game in which the individual strategy would be not to cooperate, although everyone in the group would benefit if everyone cooperated. In either case the group needs to find the conditions under which individuals can make these costly decisions in ways that yield benefits from group-oriented activity. These conditions include several behavioral aspects of the problem. For instance, individuals may make decisions based on their sense of group affiliation, social distance, or sympathy toward others in the group. Their personal evaluation of the benefits and costs of forming a group or cooperating in a collective action dilemma may be mediated by their expectations of what they believe the others will do and by their valuation of the distributional and efficiency consequences of their actions.

Solving the prisoner's dilemma, the tragedy of the commons, or any collective action dilemma requires individuals to trust their interacting partners.

Trusting others under incomplete contracts, however, involves the possibility that the trusting action will yield no benefits from the trustees, creating net losses for the trusting person. If the trustees reciprocate, the group increases the net social welfare. If the game is repeated, players can engage in a virtuous cycle of trust and reciprocity, building a reputation for being trusting and trustworthy and collecting information about the trust and trustworthiness of the others in the group.<sup>2</sup> If the game is played only once, players may still be willing to cooperate if the institutions and personal characteristics provide sufficient positive information for the person to engage in group-oriented behavior.

The uncertainty of the intentions and actions of the other players is a crucial part of the problem. Individuals may have information about the past actions of specific individuals, about more general patterns of past behavior by groups, and about the social norms that usually guide the behavior of those interacting with them. Nevertheless, uncertainty remains. Therefore, understanding the willingness to trust, cooperate, or engage in costly group-oriented behavior involves understanding individuals' risk preferences, as well. As a matter of fact, an apparent prosocial behavior may simply reflect riskier behavior by the individuals. It is thus necessary to control for individuals' attitudes toward risk.<sup>3</sup>

To study issues related to trust, cooperation, and reciprocity, economists have applied experimental approaches involving highly controlled interventions with a relatively small group of individuals, whose members are typically given a particular sum of money and are allowed to either invest in a group exchange or keep the money.<sup>4</sup> If the money is invested, the returns will depend on how the group as a whole invests it. The experiment is designed so that the private return from keeping the money exceeds the private return from the group exchange. However, the social return of the group exchange is higher than the private return of keeping the money. This game yields a dominant strategy of contributing zero to the group exchange and hoping that others invest in the group exchange even though that is not a socially efficient allocation. In other words, the experiments try to approximate cooperation and related dilemmas faced by individuals as predicted by economic theory.

In general, these experiments yield two sets of key results. First, economic theory apparently underestimates the prevalence of cooperation. Although

2. Ostrom (1998).

3. Bohnet and Zeckhauser (2004); Ashraf, Bohnet, and Piankov (2006).

4. Andreoni (1988); Marwell and Ames (1979).

the outcomes are closer to the free-riding result than the Pareto-efficient outcome, the experiments show that individuals still contribute more than would be implied by pure self-interest.<sup>5</sup> This is particularly true in one-shot, unrepeated games, which lends relatively little support to a rather strong version of the free-riding hypothesis.<sup>6</sup> Second, violations of dominant strategies diminish with repetition and with game experience.<sup>7</sup> The findings above have led researchers to search for a number of possible explanations, typically in the form of so-called kindness, reputation, and confusion by individuals.<sup>8</sup>

While the literature on trust, cooperation, and reciprocity has advanced significantly, most experimental studies on these issues use particular segments of the population (students being the most common case), and there are no systematic studies on these issues for Latin America. In this paper, we explore the extent to which individuals trust, reciprocate, cooperate and pool risk in six capital cities in Latin America, using a battery of field experiments containing the trust game, the voluntary contribution mechanism, and the risk-pooling game. A crucial feature of the paper is that our data are representative of the population from each of the six cities studied, namely, Bogotá, Buenos Aires, Caracas, Montevideo, Lima, and San José (although there may be some representativeness issues, as our samples may more-than-proportionally include individuals with more prosocial or cooperative norms and values). Our findings suggest that on average, the propensity to trust and cooperate among Latin Americans is remarkably similar to that found in other regions of the world.<sup>9</sup> Expectations about the behavior of other players are the main driver of trust, reciprocity, and cooperation, and the behaviors associated with socialization, trust, and cooperation are strongly linked. Additionally, although not reported in this paper, the data indicate that there are some discrepancies between what people say about prosocial behavior and what they do. We also find that beneficiaries of social programs for poverty alleviation tend to be less prosocial than the rest of the population.

The next section presents the experimental setup and describes the experiments in detail. The paper then provides basic sociodemographic informa-

5. Rabin (1993); Andreoni (1995).

6. Dawes and Thaler (1998).

7. Andreoni (1988); Isaac and Walker (1988); Kim and Walker (1984).

8. Palfrey and Prisbrey (1997).

9. Levitt and List (2007).

tion and basic results related to preferences and beliefs. A subsequent section discusses our findings, and the final section concludes.

## Experimental Setup

We study the interaction between social exclusion and collective action in Latin America using a field experimental approach. To do this, we collected a sample of more than 3,000 individuals in six cities in the region who were willing to participate in a set of experiments that involved economic incentives. In this section, we describe the experimental setup. The appendix provides technical details on the implementation of the sampling and experimental designs, including detailed sessions scripts that all fieldwork teams followed.<sup>10</sup>

Our full sample covers individuals from all backgrounds, socioeconomic levels, age cohorts, and genders from Bogotá, Buenos Aires, Caracas, Lima, Montevideo, and San José. For each city, we selected a team of researchers with experience in survey and field methods. To guarantee homogeneity in the application of our experimental protocols, the researchers in charge of each city participated in a training workshop at the launching of this project (in Bogotá in January 2007). The workshop established and clarified all the implementation and related fieldwork details, such as the sampling procedures, the timing of the actions (invitations, preproject surveys, experiments, postproject surveys), the elements within the experimental sessions, and the construction of the questionnaires. Each survey team agreed to sample more than 500 participants and to conduct around twenty-five experimental sessions. With the sampling quotas defined, the first step in the fieldwork consisted of inviting individuals to the experimental sessions. The invitation letter had the same format in all cities, with information about the university or think tank running the experiments, a brief statement indicating that the subjects would participate in economic experiments, an estimate of the time they would need to allocate for the exercises, and a statement indicating that they would receive monetary compensation for their participation. The invitations were designed so that at least three sessions per city included only individuals from high-income strata; at least three other sessions covered

10. The field reports from the six cities are available on request; they illustrate the representativeness challenges and limitations of the data set.

only individuals from low-income strata; and the rest combined individuals from all strata. Around thirty individuals were invited to each session under the assumption that around two-thirds would show up, resulting in around twenty participants per session.

The individuals participating in the experiments were invited some days before the experimental sessions, and at the time of the invitation they were asked a set of basic demographic questions needed to fulfill the sampling quotas described above. The invited participants were promised a show-up fee and received information about the expected gains from their participation in the experiments (on average, they received US\$10 dollars for their participation). The day before each experimental session, the invited participants were reminded of the invitation with a phone call or home visit, and transportation was arranged or discussed. On the day of the sessions, the participants were welcomed by the experimental teams in each city, and the sessions started at the established time. After the experiments were conducted, the participants were asked to fill out a survey collecting additional socio-demographic information and inquiring about their attitudes, beliefs, and preferences regarding the issues of social exclusion, discrimination, minorities, and prosocial norms. To reduce the possibilities of idiosyncratic measurement error stemming from individuals' reading abilities, the surveys were administered by the monitors of the experiments and supported by a group of pollsters specially trained for this purposes. After the surveys were completed, the pay-offs from the experiments were computed and the participants received their payments.

Since one of the main goals of the study is to observe the effect of social heterogeneity on individuals' decisions, the information on the socioeconomic composition of the groups in each particular session was made as salient and clear as possible. The participants met throughout the session in one room where they were able to see each other, although they were not allowed to communicate during the session. The participants received additional information about their peers as the sessions evolved, conditional on the particular activity being developed.

More than 3,100 people participated in 148 sessions in six cities, providing a unique data set that combines detailed socioeconomic and demographic data with behavioral data from their decisions during the experiments discussed below. Each city team conducted more than seventeen sessions with groups ranging from ten to thirty-nine people, and each of these sessions followed the same protocol, with the same sequence of activities. This is the most comprehensive experimental data set gathered to date for Latin America, given the

**TABLE 1. Demographic Characteristics of the Participants in the Experiments**

<i>Descriptive statistic</i>	<i>Bogotá</i>	<i>Buenos Aires</i>	<i>Caracas</i>	<i>Lima</i>	<i>Montevideo</i>	<i>San José</i>
Average age	37	40	35	37	41	37
Percentage of women in the sample	55	53	51	52	55	54
Percentage with public education	72	82	73	83	90	89
Percentage working in the public sector	10	14	25	11	17	21
Percentage with social security	89	66	40	26	78	59
Position in family (percentage)						
Household head	44	43	25	38	45	38
Wife/husband	22	25	26	24	20	23
Son/daughter	25	27	32	30	25	24
Other	9	4	17	8	10	14
Marital status (percentage)						
Single	34	34	44	36	30	40
Formal or informal union	48	52	50	51	47	45
Divorced, widow	18	14	7	13	23	14
Educational level (percentage)						
Incomplete secondary or less	43	52	55	31	60	59
Complete secondary	27	20	24	36	15	16
Complete or incomplete tertiary	30	28	20	33	25	25
Socioeconomic level (percentage)						
Low	47	52	34	59	22	27
Middle	38	27	52	25	55	50
High	15	20	14	17	23	23
<i>Session statistic</i>						
Number of participants	567	498	488	541	580	415
Number of sessions	28	25	25	25	28	17
Size of the group for the smallest session	12	14	14	14	14	10
Size of the group for the largest session	29	30	28	32	30	39
Average size per session	21	20	20	23	22	27

number of countries included and the homogeneity of the design in each city. Table 1 provides basic demographics statistics of the sample by city.

The interactions among the recruited individuals took place within a controlled setting where it was possible to observe how incentives, institutions, and norms affect behavior. The setup also allowed us to measure how the degree of group heterogeneity affects individual decisions and group outcomes. The experiments are adaptations of previous work developed in the experimental literature.<sup>11</sup> They provide key information on individual behavior and group outcomes regarding the possibilities and limitations for collective

11. Berg, Dickhaut, and McCabe (1995); Binswanger (1980, 1981); Holt and Laury (2002); Barr (2003), Marwell and Ames (1979); Isaac and Walker (1988); Carpenter, Harrison, and List (2005); Harrison and List (2004); Cárdenas (2003).

action in groups. They also provide clues on the motivations and cognitive limitations of decisionmaking.

The experimental design was based on four activities in which participants made individual decisions that had economic outcomes for themselves and for the others in the group. These activities were organized within a session involving ten to thirty-nine participants and lasting two to three hours. In brief, the sequence of activities was as follows.<sup>12</sup>

The first experiment was a trust game. All participants in each session were randomly assigned to pairs, with half of the participants assuming the role of player 1 and the other half that of player 2. The two types of players were located in different rooms. Identities were never revealed, but each player was given information about the demographic characteristics of his or her partner: age, gender, education, and an indication of the socioeconomic level of the neighborhood in which the player lives (high, medium, or low).<sup>13</sup> Both players received an endowment, and then player 1 was asked to decide how much of this endowment to send to player 2. The amount sent was tripled on its way from player 1 to player 2. In the other room, player 2 was asked to decide how much to return to player 1 for each possible offer from player 1. Right before making their decisions, individuals were asked to predict the other player's decisions.

This experimental game allows us to measure the extent to which an individual trusts another person of similar or different socioeconomic characteristics and whether the first individual's characteristics and actions affect the response of the partner in the game; that is, it measures trust and reciprocity. Higher offers by the first individual are interpreted as signals of trust, while higher returns from the second player are signals of reciprocity. The theoretical prediction of this game is that player 1 will send zero offers, as there is no guarantee that player 2 will return anything. Replications of this game around the world (see footnote 11) show that on average people send half of the initial endowment to player 2 and that the response of player 2 generates a net positive return for player 1 of about 10–20 percent of what was originally sent.

The second experiment was a voluntary contribution mechanism (VCM) or public goods game. All participants were gathered in a single room, and

12. A more detailed description, including the monetary amounts (in local currencies and dollars) involved in each game, is provided in the appendix.

13. The socioeconomic characterization of the neighborhoods (that is, the districts or territorial units in which the cities are divided) was based on the average family income reported in the presampling stage.



each player was given a token that could be kept or invested in a group project. Players who kept the token earned a designated amount of, say, US\$10 (the actual amounts used in each city are listed in the appendix). If players invested their tokens in the group project, all the tokens in the group account yielded a return of one dollar for every participant in the group. Players who kept the token also received one dollar for each token in the group account, in addition to the designated amount for keeping their tokens. Before participants made their individual and private decision on whether to contribute to the group, the monitor announced the composition of the group: gender, age, education, and socioeconomic composition of the group (that is, the number of individuals from high, medium, and low socioeconomic neighborhoods). The monitor also requested that the participants write down their predictions of the proportion of cooperators.

The public goods or VCM experiment captures a dimension of trust similar to that in the trust game, but in this case the trust is toward a group instead of an individual. It measures the willingness to contribute a token to a public good and provide benefits to all group members. Contributing to the group increases the benefits for all, but not contributing will always yield greater individual payoffs and thus creates incentives to free ride. Full cooperation yields greater payoffs for everyone than free riding, and the gains from cooperation increase with the number of cooperating players. In the design, one player will be indifferent between keeping the token or investing it in the group if nine other players contribute. A key element in the game is that no player knows in advance how many will contribute. The players only know general socioeconomic characteristics of the other players right before making the decision. The players were also requested to predict how many people would contribute to the group account in order to capture players' expectations.

In the third experiment, each player individually made decisions over the course of three games measuring individual attitudes toward risk, ambiguity, and losses. The first stage, measuring risk aversion, offered the participants known probabilities and known outcomes for six fifty-fifty lotteries that went from a sure low payoff to an all-or-nothing higher payoff. The lotteries in between gradually increased in expected value and in the spread of the low and high payoffs, but all of them were fifty-fifty. The second stage, measuring ambiguity aversion, offered the same payoffs for the six lotteries, but the participants did not know the exact probabilities, as they did in the first stage. They only knew that at least 30 percent of the chances were for the low payoff and at least 30 percent were for the high payoff. The third stage, measur-

ing loss aversion, used the same six lotteries with fifty-fifty probabilities, but including the possibility of negative payoffs in some cases.<sup>14</sup>

The individual risk games were based on three components of risk behavior. They thus allow us to distinguish risk attitudes in terms of risk aversion, ambiguity aversion, and loss aversion. The first stage measures risk aversion, based on known probabilities and known outcomes for six fifty-fifty lotteries. Choosing lotteries with lower payoffs can be interpreted as greater risk aversion. The second stage measures risk ambiguity, and the third stage centers on loss aversion. The purpose of this activity is to generate measures of risk behavior in order to link them with trust and cooperative behavior.

The fourth and final activity is a risk-pooling game that measures individuals' willingness to join a group and accept an equal distribution of payoffs. To start, each player chooses whether to form a group that will equally share the gains from another risk aversion game, or to play the risk aversion game individually. Once the individual decisions are made, the total number of people forming the group is announced. The individuals in the group simultaneously choose the risk they will take in the form of a lottery like those available in the first stage of the individual risk games.

As in the VCM game, the purpose of this game is to explore whether participants will base their decision to join the group on the socioeconomic composition of the group in the session. Again, players were not allowed to communicate and were given only basic information about the composition of the group (age, education, gender, and socioeconomic composition). In this game, the most profitable group outcome would be for all players to join the group and choose higher-risk lotteries (at a 50 percent chance of the high payment, the expected value should yield greater payoffs to everyone in the group). This high degree of risk sharing requires an important degree of trust and cooperation.

At the end of the last activity, the monitor randomly selected one of the activities to be paid, as previously announced to the participants. The payoffs in the four activities were calibrated such that the expected gains were similar. While one monitor calculated individual earnings and privately called each of the participants, the rest of the monitors interviewed each participant, filling out an individual survey with detailed information on socioeconomic characteristics and on attitudes, beliefs, and preferences toward various dimensions of social exclusion.

14. To avoid negative payments for subjects, the players were endowed with a fixed amount in this game regardless of the gains or losses.

Based on the previous experience of the local teams in conducting household surveys, we were aware of the potential problems of recruited subjects not showing up. We therefore recruited more people than we needed, in most cases inviting thirty to forty people in the hope of attracting twenty actual participants. Show-up rates differed notoriously across countries. The field teams in Bogotá and Montevideo reported show-up rates of 63 percent and 79 percent, respectively, whereas only 20 percent of recruited participants showed up in San José. As expected, show-up rates were lower among more educated individuals. This did not impede our ability to achieve a sufficiently wide variation in terms of demographic characteristics, as can be seen in the final sample used. The nonrandom selection of more prosocial individuals into the sessions could bias prosociality and cooperation upward. As discussed below in the results section, however, our results are comparable to those of similar experiments carried out in different parts of the world.

### **Sociodemographics, Beliefs, and Preferences of Individuals**

Before turning to the experimental results, we explore the responses of the individuals surveyed to a battery of questions on attitudes, beliefs, and preferences involving trust, collective action, and exclusion. Less than half of the individuals in the six cities in the project declared participation in organized interest groups. The organizations with the highest participation rates were cultural or athletic groups, in which one out of six participated, and religious groups, in which one out of seven participated.

Participants were asked to agree or disagree with a battery of statements on the scope and scale of the welfare state. Table 3 shows the results, separating the positive statements from the negative ones. In general, the positive statements that garnered the highest agreement had to do with equality of opportunities, lack of discrimination, and collective welfare; the positive statement that encountered the least agreement involved a tax increase to fund assistance to a specific vulnerable group. The least accepted negative statements are related to the exclusion of women, Afro-descendants, and the indigenous population.

Table 4 shows self-reported events of exclusion from social and economic activities. Approximately one out of every three individuals wanted to buy a house but could not do so; this was the leading area of frustration. The next most important sources of frustration were obtaining a bank loan, studying, and working. One out of four participants fell within those categories. The

**TABLE 2. Participation in Groups and Organizations<sup>a</sup>**

Percent

<i>Group</i>	<i>Bogotá</i>	<i>Buenos Aires</i>	<i>Caracas</i>	<i>Lima</i>	<i>Montevideo</i>	<i>San José</i>
Religious	20.6	14.8	8.9	14.5	8.9	23.1
Sport or cultural	13.6	16.6	20.3	9.4	14.9	9.0
Charity (not as beneficiary)	3.4	11.4	8.3	2.0	4.2	3.6
Educational	8.2	4.6	2.5	6.2	3.3	3.3
Building association	5.0	7.8	2.7	1.1	8.1	0.7
Community organization	7.7	2.5	7.1	4.2	5.4	8.4
Political or movement party	0.8	3.5	1.6	1.3	4.9	2.8
Labor union	1.8	2.2	2.0	1.1	5.6	2.4
Environmental management	3.6	1.2	1.7	0.5	1.0	3.3
Surveillance association	2.5	1.2	0.2	1.3	1.0	2.8
State-sponsored activities	0.6	2.1	0.4	0.1	1.3	1.5
Other	0.7	0.2	0.4	0.5	0.7	1.8
Ethnic organization	0.1	0.5	0.5	0.2	0.4	0.2

a. The table reports the percentage of respondents who participate in certain groups or organizations. Respondents can report participation in more than one of the organizations listed.

most constrained individuals live in Bogotá and Lima, where retiring, having a savings account, and being covered by the social security system are additional restrictions. Political activities, such as voting, running for office, or belonging to a political organization, are the least restricted activities in the six cities in the experiments.

When participants were asked whether there were circumstances under which they felt their rights were not respected (table 5), the top three rights mentioned from a list of twenty were the opportunity to have a decent job, freedom of opinion, and justice and equal treatment under the law. The rights that the surveyed individuals felt were less violated had to do with voting (either the right to vote or the right to run for office), torture, and freedom of association. Montevideo and Lima had the smallest share of respondents who believed that at least one of their political rights had been violated: almost three out of four individuals reported having voted in the last presidential elections, and two out of five reported having voted in the last local elections. Having a decent job is the most violated social right in the six project cities, closely followed by living in a safe environment and having some sort of health insurance. In Caracas, participants reported that the most violated social right is to social security.

When participants were asked why they believed their rights had been violated at least once during the last five years (table 6), they mentioned lack of connections, lack of money, and age as the top three reasons. These results

**TABLE 3. Opinions about the Welfare State<sup>a</sup>**

Percent

<i>Statement</i>	<i>Bogotá</i>	<i>Buenos Aires</i>	<i>Caracas</i>	<i>Lima</i>	<i>Montevideo</i>	<i>San José</i>
<i>Positive statements</i>						
Everyone should have the same opportunities to think about any subject	95.8	86.3	93.8	96.5	91.3	92.7
Reducing discrimination is as important as reducing poverty	86.7	93.8	87.8	91.6	92.1	84.3
People should worry about other people's well-being	90.7	90.0	86.0	91.6	91.6	92.2
Certain classes or social groups are responsible for the existence of poverty	86.6	88.1	60.9	84.8	78.1	72.9
The existence of a public social protection program helps to prevent hunger and malnutrition	92.9	77.6	81.1	80.5	76.5	77.7
In a good society, people feel responsible for others	79.6	84.1	74.6	77.0	84.0	78.7
Anyone who works hard can go as far as he or she wants	84.3	66.6	89.4	90.8	71.1	88.3
Rich countries have the moral obligation to share part of their wealth with poor countries	72.3	67.2	69.4	77.2	58.3	69.7
People have the moral obligation to share part of their resources with poor people	75.3	65.3	58.2	78.8	57.0	75.5
Taxes should be raised to support rehabilitation programs for alcoholics and drug addicts	49.5	52.1	72.8	68.2	50.5	60.7
Taxes should be raised to support programs for the social insertion of young criminals	47.6	41.5	73.2	69.3	44.9	62.8
Taxes should be raised to give subsidies to the poor	52.1	38.2	64.9	62.2	36.5	60.9
Taxes should be raised to give subsidies to indigenous populations	36.6	37.8	50.9	51.6	31.3	67.0
Taxes should be raised to give subsidies to Afro-descendants	34.2	27.1	35.9	36.5	21.5	34.7
<i>Negative statements</i>						
The social protection system of the state makes people work less than otherwise	35.0	63.8	42.2	44.3	59.6	47.4
Certain opinions should be restricted	51.1	43.8	41.0	56.5	50.1	57.1
In general, poor people do not pay their debts	30.5	48.6	36.0	39.4	48.5	47.3
Poor people do not make efforts to get out of poverty	38.1	33.3	36.0	27.7	41.1	45.2
Indigenous people who want to work should perform tasks according to their race	20.0	13.9	39.1	14.7	13.4	22.3

(continued)

**TABLE 3. Opinions about the Welfare State<sup>a</sup> (Continued)**

Percent

<i>Statement</i>	<i>Bogotá</i>	<i>Buenos Aires</i>	<i>Caracas</i>	<i>Lima</i>	<i>Montevideo</i>	<i>San José</i>
Indigenous people are less capable than white people of holding important positions at work	14.2	21.3	12.4	9.4	19.1	20.8
Afro-descendants who want to work should perform tasks according to their race	16.7	14.6	26.1	9.6	10.3	17.5
Women who want to work should perform tasks according to their gender	15.5	11.6	20.3	11.9	12.2	17.9
Afro-descendants are less capable than white people of holding important positions at work	11.2	16.5	10.9	6.2	16.2	11.4
Women are less capable than men of holding important positions at work	6.3	10.5	11.8	10.6	11.4	11.9
Space reserved for disabled people is a waste	7.4	3.4	7.8	8.1	5.6	8.3

a. The table reports the percentage of respondents who agree with the statement listed.

**TABLE 4. Exclusion from Social and Economic Activities<sup>a</sup>**

Percent

<i>Activity</i>	<i>Bogotá</i>	<i>Buenos Aires</i>	<i>Caracas</i>	<i>Lima</i>	<i>Montevideo</i>	<i>San José</i>
Owning one's own house	43.4	30.0	30.5	45.0	24.1	36.6
Studying	38.9	14.0	17.9	47.0	13.2	26.1
Getting a bank loan	35.5	15.1	40.3	28.4	10.2	23.2
Working	25.5	14.5	16.2	41.3	16.2	21.3
Having a checking account	26.5	13.0	22.0	38.7	15.4	25.5
Having health insurance	12.2	11.4	24.4	34.7	10.6	17.2
Participating in a social security system	22.2	6.2	15.4	21.9	3.6	13.6
Having a savings or other type of bank account	10.1	4.7	13.4	17.8	7.0	15.3
Participating in a pension plan	19.2	3.5	8.8	7.3	4.1	14.0
Voting	8.0	2.3	3.0	0.8	1.4	8.7
Participating in a political campaign	5.3	1.3	2.4	5.5	2.2	5.8
Belonging to a political organization	4.9	1.7	4.3	4.6	1.1	3.6

a. The table reports the percentage of respondents who wanted to participate in the activity listed in the preceding five years, but could not do so.

**TABLE 5. Rights Reported as Not Respected<sup>a</sup>**  
 Percent

<i>Right</i>	<i>Bogotá</i>	<i>Buenos Aires</i>	<i>Caracas</i>	<i>Lima</i>	<i>Montevideo</i>	<i>San José</i>
<i>Political and civil</i>						
Freedom of opinion	31.7	29.5	38.2	28.2	26.5	35.2
Justice and equal treatment under the law	26.4	27.5	25.8	37.8	23.9	26.2
Freedom of transit	15.5	24.3	22.1	13.4	8.1	12.9
Freedom of religious beliefs	11.5	8.9	6.0	4.6	5.7	15.5
Physical freedom	8.2	9.4	8.4	1.6	3.0	7.8
Freedom to own land	8.6	6.1	10.4	4.6	4.7	14.0
Freedom of political beliefs	6.4	3.9	21.8	3.0	4.6	10.7
Voting	5.2	2.0	8.1	0.9	1.7	6.3
Freedom of association	3.3	1.1	6.2	1.7	2.8	10.6
Not to be tortured	2.0	0.7	3.3	2.3	4.4	n.a.
To run for public office	0.8	0.2	3.0	2.2	0.6	3.7
<i>Social</i>						
To have a decent and socially useful job	36.0	34.5	23.0	30.8	33.1	30.7
An appropriate environment	31.6	34.2	14.1	13.2	24.0	21.4
Health protection	26.8	30.7	16.6	14.5	26.5	21.2
Not to be bothered in one's house	26.4	27.3	16.0	17.0	27.0	19.7
An appropriate education	27.3	18.4	16.2	22.8	12.5	20.2
Social security	17.7	22.7	32.4	18.7	20.2	21.7
Decent housing	21.1	21.0	16.7	18.3	19.3	31.1
Free exercise of a job or occupation	16.4	11.3	7.4	5.4	13.0	13.0
To decide when and how many children to have	3.1	2.8	3.7	2.5	6.1	9.6

a. The table reports the percentage of respondents whose listed right was not respected in the last five years.

are consistent with those found in other opinion surveys of the region (for example, Latinobarómetro) and are not different among the cities in the sample. In Caracas, political ideas are an important perceived cause of having one's rights violated.

The participants' perceptions about the most unprotected groups are shown in table 7. The social group that surveyed individuals perceived as being the most vulnerable was, by far, the elderly, who were mentioned by almost two-thirds of the individuals surveyed. Around one-third of the respondents listed children as the most vulnerable group.

To explore the notion of social distances, the survey asked participants to identify causes of social conflict (table 8). The leading answer was political differences, cited by almost 40 percent of respondents, followed by income and education differences, cited by around one-third. In line with previous results in this paper, political differences are extremely relevant in Caracas,

**TABLE 6. Explanation of Why Rights Were Limited or Not Respected<sup>a</sup>**

Percent

<i>Reason</i>	<i>Bogotá</i>	<i>Buenos Aires</i>	<i>Caracas</i>	<i>Lima</i>	<i>Montevideo</i>	<i>San José</i>
Not having money	35.2	15.5	16.8	22.1	17.3	18.9
Age	32.7	18.5	21.9	13.3	15.5	17.5
Not having contacts or connections	27.8	21.2	18.0	11.1	16.1	16.5
Education	29.7	5.6	13.3	18.2	6.9	18.5
Physical appearance	7.5	9.7	5.3	11.0	7.3	8.2
The way you speak	10.7	7.3	3.6	5.3	7.3	8.0
Political ideas	6.0	6.1	18.2	2.1	7.3	7.0
The way you dress	9.5	3.9	7.1	3.2	5.1	8.0
Gender	6.2	4.2	2.8	6.8	5.8	7.5
Religion	5.9	3.1	1.1	2.9	1.2	8.0
Skin color	0.9	2.7	2.0	4.1	2.2	2.9
Being from a region or province of the country	2.1	0.8	0.0	2.5	1.5	1.8
Disability condition	1.8	2.1	1.1	0.2	1.7	0.9
Ethnic origin	0.7	0.0	0.4	1.5	0.5	0.4
Sexual preference	0.6	0.5	0.2	0.1	0.5	0.7
Being foreign	0.0	0.6	1.5	0.0	0.5	2.3

a. The table reports the percentage of respondents who felt that their rights have been limited or not respected for the reason listed.

**TABLE 7. Perception of Most Unprotected Groups<sup>a</sup>**

Percent

<i>Most vulnerable groups</i>	<i>Bogotá</i>	<i>Buenos Aires</i>	<i>Caracas</i>	<i>Lima</i>	<i>Montevideo</i>	<i>San José</i>
Elderly	54.0	76.1	64.8	71.2	70.6	70.7
Children	30.6	29.9	37.3	37.1	40.6	24.5
Disabled	19.4	37.7	29.2	29.6	34.8	24.4
Poor	28.4	28.2	35.6	26.3	24.9	26.7
People with HIV	21.8	17.1	22.0	22.6	24.2	19.7
Unemployed people	28.6	15.4	21.7	17.0	17.9	16.2
Members of indigenous groups	16.5	20.3	20.9	15.2	4.1	41.5
Single mothers	23.6	5.7	9.4	25.7	14.2	12.0
Less educated people	12.4	17.7	13.1	9.2	21.5	9.4
People who have been displaced by political violence	33.0	0.8	4.7	2.1	0.0	7.0
Women	6.5	7.1	13.9	11.9	8.2	16.7
Young people	6.4	8.7	13.1	5.2	12.8	10.4
Homosexuals	7.3	2.3	5.7	10.4	8.1	9.6
Ex-combatants	2.7	9.3	0.1	0.6	0.0	0.0
People from other regions or provinces	3.2	2.0	1.4	8.4	6.9	2.5
Afro-descendants	3.4	1.4	1.3	3.9	4.4	2.7
Those without contacts or connections	1.8	2.0	0.9	2.8	5.0	1.4
Foreigners	0.3	3.7	4.6	0.8	1.1	4.4
Non-Catholics	0.1	1.1	0.4	0.0	0.6	0.4

a. The table reports the percentage of respondents citing the listed group as the most unprotected in their city. Respondents could choose up to three groups.



**TABLE 8. Perceptions of Differences among People That Generate the Most Conflict<sup>a</sup>**

Difference	Bogotá	Buenos Aires	Caracas	Lima	Montevideo	San José
Political difference	33.4	42.4	70.0	40.5	52.0	34.8
Income difference	37.9	37.2	22.9	30.5	33.9	26.0
Difference in the level of education	33.8	31.2	27.8	31.0	41.1	25.9
Difference in employment status	32.9	32.3	28.0	22.9	33.2	19.6
Ethnic or racial difference	18.5	30.8	24.4	39.4	25.0	26.9
Religious difference	26.4	34.5	13.4	20.2	18.3	35.1
Age difference	22.1	17.9	27.3	26.5	27.9	27.4
Difference between countries	12.1	20.2	20.0	22.1	18.2	21.6
Homosexuals and heterosexuals	15.7	10.8	19.8	15.8	11.3	20.6
Difference in gender	13.3	9.2	15.4	19.2	10.5	30.8
People with and without disabilities	7.8	18.3	14.8	10.5	15.9	13.0
People who have been displaced versus not displaced by political violence	32.0	0.0	6.2	5.6	0.0	0.0
People having versus not having contacts	8.9	8.9	7.5	9.2	8.7	9.9
Difference in region of origin	5.2	6.4	2.5	6.7	4.2	8.4

a. The table reports the percentage of respondents citing the listed difference as creating the most conflict. Respondents could choose up to three differences.

where they are seen as more than twice as important as the next most relevant reason for conflict.

### Findings from the Experiments

The results that follow describe the most relevant and robust findings that emerged from the group-level and individual data in the six cities of the experiment.

#### *Latin Americans Are Willing to Trust and Cooperate*

Consistent with previously observed experimental behavior, the theoretical prediction that people in the trust game should not send any amount as either player 1 or player 2 is rejected. Only one out of every six of the individuals who participated as player 1 decided to send nothing. The average offer was 43 percent of the initial endowment, and the median offer was 50 percent of the initial endowment (in 32 percent of the decisions). Social efficiency is maximized when player 1 sends the entire endowment, letting player 2 decide over the allocation of the tripled amount. This happened in 9.6 percent of the cases, while an additional 13.6 percent sent 75 percent of the

**TABLE 9. Trust Game: Basic Results<sup>a</sup>**

Percent

<i>Offer or return</i>	<i>Bogotá</i>	<i>Buenos Aires</i>	<i>Caracas</i>	<i>Lima</i>	<i>Montevideo</i>	<i>San José</i>	<i>All</i>
<i>Player 1</i>							
No. players	276	244	236	268	284	209	1,517
Offered 0%	32.1	11.6	6.0	9.9	6.9	7.9	16.6
Offered 25%	25.2	31.4	37.4	24.5	36.8	34.4	28.7
Offered 50%	24.3	34.0	34.1	35.9	32.0	35.1	31.5
Offered 75%	12.8	11.3	16.5	17.0	18.9	9.8	13.6
Offered 100%	5.6	11.7	6.0	12.7	5.4	12.8	9.6
Total	100	100	100	100	100	100	100
Average offer	33.6	45.0	44.8	49.5	44.8	46.2	42.7
Median offer	25.0	50.0	50.0	50.0	50.0	50.0	50.0
<i>Player 2</i>							
No. players	286	252	243	273	295	216	1,565
No. observations	1,430	1,260	1,215	1,365	1,475	1,080	7,825
<i>Average return if player 1 offered:</i>							
Offered 0%	15.7	16.9	32.2	29.0	23.7	27.5	20.4
Offered 25%	18.7	25.0	34.6	34.5	30.6	26.7	25.9
Offered 50%	19.8	28.3	36.1	33.9	29.7	26.3	27.4
Offered 75%	18.8	29.6	34.5	32.4	29.7	24.6	27.1
Offered 100%	19.3	32.2	37.8	34.0	29.4	25.4	28.8
Returned nothing	33.68	14.86	7.89	9.25	13.27	16.58	18.96
Returned everything	0.73	0.99	4.19	2.21	0.95	3.65	1.38
Average return	18.4	26.4	35.1	32.8	28.6	26.1	25.9
Median return	14.0	25.0	28.0	28.0	25.0	20.0	25.0

a. For players 1, the table reports the number of players per city, the percentage of players who sent the listed offer, and the average and median offer per city. For players 2, the table reports the average return depending on the five possible initial offers from player 1, the percentage of observations that returned nothing and that returned everything, and the average and median return per city. The number of observations in players' 2 information corresponds to the five observations that report every player 2, each one for an intended return amount that depends on the five possible initial offers of player 1.

initial endowment. With respect to player 2, the results also reject the prediction of selfish behavior. Furthermore, the results confirm that reciprocity is a major driver of the participants' behavior. Only one out of five players decided to keep the entire amount after player 1's decision, and half of those who offered a zero return had initially been offered a zero amount (table 9).

Our results can be compared to the existing evidence in various ways. We replicate the general finding that a significant fraction of people are willing to trust others, that trust is reciprocated with trustworthiness, and that only a small fraction of people would confirm the prediction of a *Homo economicus* that free rides on the provision of public goods by others. Levitt and List sug-

gest a model of experimental behavior that may largely explain why we observe prosocial behavior in the laboratory and caution us on the extrapolation from the laboratory to the world outside.<sup>15</sup> The model includes moral behavior in general, as well as the particular laboratory context in which the experimenter has a moral power over the experimental subjects. Our study is no exception. We are well aware that our experimental teams may be triggering the prosocial behavior, but we also believe that the more interesting result lies in the variation that can be explained from the experimental design and the sociodemographics at the session and city levels.

Camerer and Fehr report that, on average, player 1 sends about 50 percent of the initial endowment and that, as in our findings, the amount the trustees return increases with the amount they received.<sup>16</sup> Most of their evidence, however, is based on laboratory experiments with college students. Levitt and List essentially report the same numbers as Camerer and Fehr.<sup>17</sup> Cárdenas and Carpenter survey a series of studies in developing countries and report the individual data points for the studies collected, providing a better point of comparison for our data.<sup>18</sup> They find twenty-two studies using the trust game in several countries around the world, including student and nonstudent samples. Overall, player 1 in their survey sent around 52 percent of the initial endowment, and player 2 returned about 38 percent. These shares vary widely across samples, however. Their data also suggest that the student sample sent a slightly higher fraction of the initial endowment but returned similar fractions.

Our data are thus comparable with the above results. In our design, however, the participants were recruited from random samples of the general population, whereas most of the other studies were conducted within the population of a single village or university, where the level of social distance is probably smaller than in our case. The likelihood that two subjects from one session in our study would have met each other in the past or would see each other in the future is rather slim, given our recruitment strategy and the large sizes of the cities where we conducted our experiments.

Approximately one out of five participants in the VCM game opted to contribute to the public good. Caracas displayed the highest participation rate (47.3 percent) and Bogotá the lowest (12.3 percent). The other four cities

15. Levitt and List (2007).

16. Camerer and Fehr (2004).

17. Levitt and List (2007, table 1); Camerer and Fehr (2004).

18. Cárdenas and Carpenter (2008).

showed similar patterns of contribution, as approximately one out of four participants contributed to the public good in these cities (table 10). This rejects the zero-contribution hypothesis in this game, as well. As found elsewhere in the literature, individuals do, in fact, cooperate.

In this regard, the evidence reported by the studies outlined above also varies in terms of geography and sampled subjects. Camerer and Fehr report that the average player contributes about 50 percent of the endowment in one-shot cases.<sup>19</sup> Levitt and List report similar findings.<sup>20</sup> Our design allows only for a dichotomous choice (contribute all or nothing of the endowment) and in that sense is less comparable with the previous studies. With respect to developing countries, Cárdenas and Carpenter also survey public goods games in developing countries and find a series of studies in which the cooperation rate ranges from 30 percent to 70 percent, for student and nonstudent samples.<sup>21</sup> However, our design has a low marginal return from the public versus the private good.<sup>22</sup> The design is very similar to those studies using the voluntary contribution mechanism with a low marginal per capita return (MPCR) of around 0.10 or 0.25. In our case, we use an MPCR of 0.10—that is, the ratio of returns between the token invested in the private account and the token invested in the group account is ten to one, which is quite low.

The patterns of contribution in the risk-pooling game were somewhat higher than in the VCM game. In this case, there are clearly two types of cities in terms of risk-sharing. Bogotá and Lima show the lowest willingness to pool risk, with only 38 percent of players doing so. The remaining cities display similar patterns of pooling, with more than half of participants opting to pool risk. There are no clear differences in the lotteries chosen by those who decided to pool risk and those who did not.

With regard to risk attitudes, participants in Caracas had the lowest risk aversion, while residents of Montevideo had the highest (although Buenos Aires and San José were not far from Montevideo). The presence of ambiguity increases risk aversion with respect to the original setup, especially in Bogotá and Buenos Aires. Caracas also had the lowest loss aversion, while Buenos Aires displayed the greatest loss aversion.

Although players in the six Latin American cities indeed trusted and cooperated in the games, they did not do so to the maximum possible extent. Had

19. Camerer and Fehr (2004), based on Ledyard (1995).

20. Levitt and List (2007).

21. Cárdenas and Carpenter (2008).

22. See Ledyard (1995).

**TABLE 10. VCM, Risk Pooling, and Risk Preferences: Basic Results<sup>a</sup>**

<i>Measure</i>	<i>Bogotá</i>	<i>Buenos Aires</i>	<i>Caracas</i>	<i>Lima</i>	<i>Montevideo</i>	<i>San José</i>	<i>All</i>
<i>VCM</i>							
% of players who contributed to group account	12.3	23.1	47.3	24.2	25.1	24.3	21.6
Average % of contributors per session	11.8	22.0	42.3	21.9	24.4	25.5	24.2
% of sessions with no contribution	21.4	4	4	0	0	0	5.1
Median % of contributors per session	9.3	21.7	44.4	20.0	24.1	23.8	21.7
Maximum % of contributors per session	45.0	61.9	73.7	38.9	42.9	80.0	80.0
<i>Risk pooling</i>							
% of players who pooled risk	38.4	53.7	53.0	38.7	52.1	50.2	45.7
Average % of risk poolers per session	40.3	50.6	55.6	37.9	53.0	56.0	48.5
Minimum % of risk poolers per session	13.6	21.4	25	13.3	11.8	11.1	11.1
Median % of risk poolers per session	42.0	50.0	52.4	35.7	53.3	57.1	49.1
Maximum % of risk poolers per session	60.0	70.0	94.7	55.6	78.6	100	100
<i>Risk preferences (% of players)</i>							
Low risk aversion	15.3	14.7	32.6	19.4	12.9	21.4	17.0
Mid risk aversion	35.7	31.2	24.6	31.2	30.2	24.9	32.1
High risk aversion	49.0	54.1	42.8	49.4	56.9	53.7	51.0
Total	100	100	100	100	100	100	100
Low risk aversion in presence of ambiguity	12.7	10.5	26.6	16.5	10.3	19.0	13.5
Mid risk aversion in presence of ambiguity	27.1	28.1	30.1	30.6	29.8	26.3	28.5
High risk aversion in presence of ambiguity	60.1	61.4	43.3	52.9	59.9	54.6	58.0
Total	100	100	100	100	100	100	100
Low loss aversion	28.9	20.1	40.3	35.6	30.3	30.1	27.8
Mid loss aversion	25.6	29.0	28.7	24.6	35.7	26.6	27.2
High loss aversion	45.5	50.9	31.0	39.9	34.0	43.4	45.0
Total	100	100	100	100	100	100	100

a. The table reports the basic results for the VCM game, the risk-pooling game, and the risk preferences of participants. The six lotteries of the third experiment were grouped by pairs (low, mid, and high); figures represent the percentage of players who chose the corresponding group of lotteries.

the participants of the games performed at the optimal social levels, the total gains of the players would have been 28 percent higher than what was actually observed in the trust game, 42 percent higher in the voluntary contribution game, and 26 percent higher (in expected value) in the risk-pooling game. These percentages provide an idea of the magnitude of the social welfare that our societies fail to generate as a result of limitations on trust and willingness to cooperate.

### *Retaliation and Expectations Are Important Drivers of Trust and Cooperation*

Players 1 expecting to be reciprocated made greater offers to players 2, and players 2 who expected greater offers were also willing to return greater amounts to players 1. In fact, players 2 were willing to return 2.5 times to players 1 who had offered 100 percent of the initial endowment, a rate of return that decreased with the amount sent by players 1. Also, only 12.16 percent of participants in the role of player 2 predicted that players 1 were going to send 0 percent of the initial endowment. Slightly more than one-third of the players predicted being sent 50 percent, and 14.06 percent of players 2 predicted that player 1 would send them 100 percent of the initial endowment. Bogotá and Caracas had the highest shares of players 2 that expected a 0 percent offer from players 1.

Tables 11 and 12 report the results of regressions aimed at explaining the behavior of individuals assuming the role of player 1 and player 2 in the trust game, in terms of their socioeconomic characteristics, those of their pairs, their risk attitudes, and their expectations about the behavior of their pairs. The most salient feature is that the expected behavior of their pairs seems to be the most relevant variable explaining the individuals' behavior. These expectations are not only statistically significant, but also behaviorally relevant explanatory variables for the amount sent by player 1 in most cities and for the amount sent by player 2 in all cities.

In the VCM game, the participants predicted that, on average, 44.46 percent of players in each session would contribute to the group account. Only 6.77 percent predicted that nobody would cooperate in this game. Participants played with a reciprocal strategy: when players expected more people to cooperate in the game, they were more likely to cooperate themselves. Overall, the predicted fraction of cooperators maps the actual fraction of people contributing to the public good (although not one to one), as shown in figure 1. The mapping holds independently of the participation or expectation level of the city (figure 2).

**TABLE 11. Trust Game Results: Player 1<sup>a</sup>**

<i>Explanatory variable</i>	<i>Bogotá</i>	<i>Buenos Aires</i>	<i>Caracas</i>	<i>Lima</i>	<i>Montevideo</i>	<i>San José</i>	<i>All</i>
<i>Participant's characteristics</i>							
Player's age	0.0018 (0.002)	-0.0021 (0.002)	-0.0019 (0.003)	0.0009 (0.003)	0.0000 (0.001)	0.0042** (0.002)	0.0002 (0.001)
1 if player is a woman	0.0567 (0.055)	-0.0402 (0.070)	-0.1538** (0.071)	-0.1283** (0.060)	0.0035 (0.042)	-0.0830 (0.062)	-0.0300 (0.036)
1 if player has complete secondary education	0.1558** (0.055)	0.0447 (0.067)	-0.0132 (0.063)	-0.0761 (0.069)	0.0498 (0.054)	0.0821 (0.073)	0.0515* (0.031)
1 if player has more than complete secondary education	0.1673** (0.068)	-0.0028 (0.090)	0.0150 (0.066)	-0.0154 (0.087)	0.0481 (0.051)	-0.0176 (0.060)	0.0745* (0.038)
1 if player belongs to middle socioeconomic level	-0.0338 (0.053)	-0.0002 (0.048)	0.1666** (0.080)	-0.0037 (0.066)	0.0626 (0.042)	0.0091 (0.049)	-0.0084 (0.029)
1 if player belongs to high socioeconomic level	0.0268 (0.067)	0.0593 (0.060)	0.0995 (0.080)	0.0429 (0.077)	0.0425 (0.042)	0.0768 (0.068)	0.0408 (0.035)
<i>Matched players' characteristics</i>							
1 if matched player is a woman	0.0816 (0.055)	0.0151 (0.053)	-0.1290 (0.083)	0.0498 (0.072)	0.0387 (0.045)	0.0059 (0.068)	0.0356 (0.032)
1 if player and match are women	-0.0297 (0.075)	0.0755 (0.091)	0.2015* (0.102)	-0.0387 (0.083)	-0.0623 (0.059)	0.0462 (0.087)	0.0157 (0.048)
Difference in age between player and match	0.0000 (0.001)	0.0027 (0.002)	0.0002 (0.002)	0.0004 (0.002)	0.0000 (0.001)	0.0001 (0.001)	0.0007 (0.001)
1 if player has more education than match	-0.1097** (0.054)	-0.0046 (0.050)	-0.0465 (0.050)	-0.0244 (0.055)	0.0111 (0.050)	0.0792 (0.068)	-0.0452 (0.028)
1 if player has less education than match	-0.0685 (0.057)	-0.0340 (0.085)	0.0059 (0.059)	-0.0143 (0.081)	0.0407 (0.036)	0.0274 (0.055)	0.0072 (0.038)
1 if player's socioeconomic level is higher than match	0.1008* (0.057)	0.0809* (0.048)	-0.1613* (0.089)	0.0185 (0.053)	-0.0609 (0.046)	-0.1056* (0.057)	0.0512* (0.028)
1 if player's socioeconomic level is lower than match	-0.0056 (0.056)	-0.0258 (0.061)	0.0360 (0.059)	0.0581 (0.072)	-0.0293 (0.039)	-0.0767 (0.047)	-0.0009 (0.033)

(continued)

**TABLE 11. Trust Game Results: Player 1<sup>a</sup> (Continued)**

<i>Explanatory variable</i>	<i>Bogotá</i>	<i>Buenos Aires</i>	<i>Caracas</i>	<i>Lima</i>	<i>Montevideo</i>	<i>San José</i>	<i>All</i>
<i>Experimental variables</i>							
% expected by player 1	0.1703** (0.083)	0.6455*** (0.111)	0.2393** (0.110)	0.1042 (0.102)	0.4391*** (0.098)	0.2269 (0.138)	0.2918*** (0.056)
Player has mid risk aversion	0.1599*** (0.060)	0.1158 (0.071)	-0.0795 (0.083)	0.0338 (0.058)	0.0330 (0.055)	0.0246 (0.066)	0.0718** (0.034)
Player has high risk aversion	0.0484 (0.054)	0.0609 (0.060)	-0.0257 (0.087)	-0.0022 (0.061)	-0.0653 (0.051)	0.0887 (0.059)	0.0068 (0.031)
Constant	-0.0069 (0.118)	0.2139* (0.127)	0.5145*** (0.106)	0.4548*** (0.145)	0.2939*** (0.074)	0.1855 (0.118)	0.1499*** (0.065)
<i>Summary statistic</i>							
No. observations	270	240	228	262	280	185	1,465
R squared	0.143	0.235	0.179	0.117	0.212	0.173	0.134

\*Statistically significant at the 10 percent level.

\*\*Statistically significant at the 5 percent level.

\*\*\*Statistically significant at the 1 percent level.

a. The dependent variable is the initial offer from player 1 (as a percent of the initial endowment). The estimation method is OLS. The regression under the column "All" includes country dummies (fixed effects). Base categories are less than complete secondary education, low socioeconomic level, player and match have the same education level, and low risk aversion. Education level is classified as less than complete secondary education, complete secondary education, or more than complete secondary education. Robust standard errors are in parentheses.



**TABLE 12. Trust Game Results: Player 2<sup>a</sup>**

<i>Explanatory variable</i>	<i>Bogotá</i>	<i>Buenos Aires</i>	<i>Caracas</i>	<i>Lima</i>	<i>Montevideo</i>	<i>San José</i>	<i>All</i>
<i>Participant's characteristics</i>							
Player's age	-0.0001 (0.001)	0.0028** (0.001)	0.0030 (0.002)	0.0020 (0.002)	0.0023*** (0.001)	0.0003 (0.001)	0.0015** (0.001)
1 if player is a woman	-0.0403 (0.026)	-0.0048 (0.030)	-0.0570 (0.046)	0.0036 (0.035)	-0.0164 (0.028)	0.0203 (0.044)	-0.0067 (0.017)
1 if player has complete secondary education	0.0149 (0.026)	-0.0059 (0.029)	-0.0514 (0.049)	0.0451 (0.040)	-0.0465 (0.028)	0.0101 (0.077)	0.0159 (0.016)
1 if player has more than complete secondary education	0.0114 (0.031)	-0.0467 (0.044)	-0.1101* (0.066)	0.0301 (0.049)	0.0257 (0.028)	0.0491 (0.064)	-0.0046 (0.019)
1 if player belongs to middle socioeconomic level	-0.0037 (0.025)	0.0595*** (0.020)	0.1134** (0.052)	-0.0282 (0.029)	0.0024 (0.026)	0.175*** (0.048)	0.0123 (0.014)
1 if player belongs to high socioeconomic level	0.0209 (0.033)	0.0819*** (0.029)	0.0322 (0.062)	-0.0069 (0.041)	-0.0045 (0.029)	0.0321 (0.062)	0.0275 (0.018)
<i>Matched players' characteristics</i>							
1 if matched player is a woman	0.0095 (0.027)	0.0556* (0.032)	0.0389 (0.069)	0.0675* (0.036)	-0.0621** (0.026)	0.0238 (0.045)	0.0468** (0.019)
1 if player and match are women	-0.0008 (0.037)	-0.0447 (0.043)	0.0413 (0.084)	-0.0868* (0.049)	0.0019 (0.037)	-0.0390 (0.062)	0.0432* (0.024)
Difference in age between player and match	-0.0011 (0.001)	-0.0004 (0.001)	-0.0005 (0.002)	0.0006 (0.001)	-0.0008 (0.001)	0.0002 (0.001)	-0.0001 (0.000)
1 if player has more education than match	0.0069 (0.030)	0.0053 (0.024)	0.1117*** (0.043)	0.0033 (0.026)	-0.0021 (0.025)	0.0210 (0.065)	0.0062 (0.014)
1 if player has less education than match	0.0377 (0.027)	0.0118 (0.041)	-0.0090 (0.055)	0.0289 (0.042)	0.0071 (0.025)	-0.0723** (0.030)	0.0212 (0.018)
1 if player's socioeconomic level is higher than match	0.0080 (0.028)	-0.0019 (0.025)	0.0424 (0.063)	-0.0224 (0.029)	-0.0004 (0.027)	0.0264 (0.045)	0.0042 (0.016)
1 if player's socioeconomic level is lower than match	-0.0316 (0.024)	-0.0221 (0.023)	0.1223** (0.053)	-0.0252 (0.036)	0.0362 (0.026)	0.0564 (0.048)	-0.0101 (0.014)

(continued)

**TABLE 12. Trust Game Results: Player 2<sup>a</sup> (Continued)**

<i>Explanatory variable</i>	<i>Bogotá</i>	<i>Buenos Aires</i>	<i>Caracas</i>	<i>Lima</i>	<i>Montevideo</i>	<i>San José</i>	<i>All</i>
<i>Experimental variables</i>							
% expected by player 2	0.2023*** (0.036)	0.1785*** (0.042)	0.3049*** (0.073)	0.2520*** (0.054)	0.1872*** (0.036)	0.1986*** (0.058)	0.2146*** (0.024)
% sent by player 1	0.0652*** (0.031)	0.0456 (0.032)	0.1765*** (0.070)	-0.0175 (0.040)	-0.0226 (0.041)	0.0022 (0.050)	0.0371*** (0.019)
Constant	0.0790* (0.046)	0.0181 (0.060)	-0.0284 (0.079)	0.1028 (0.077)	0.1439*** (0.044)	0.0654 (0.060)	-0.0030 (0.030)
<i>Summary statistic</i>							
No. observations	1,410	1,260	1,172	1,365	1,464	940	7,611
No. players	282	252	234	273	293	188	1,522
R squared	0.155	0.16	0.305	0.167	0.114	0.144	0.192

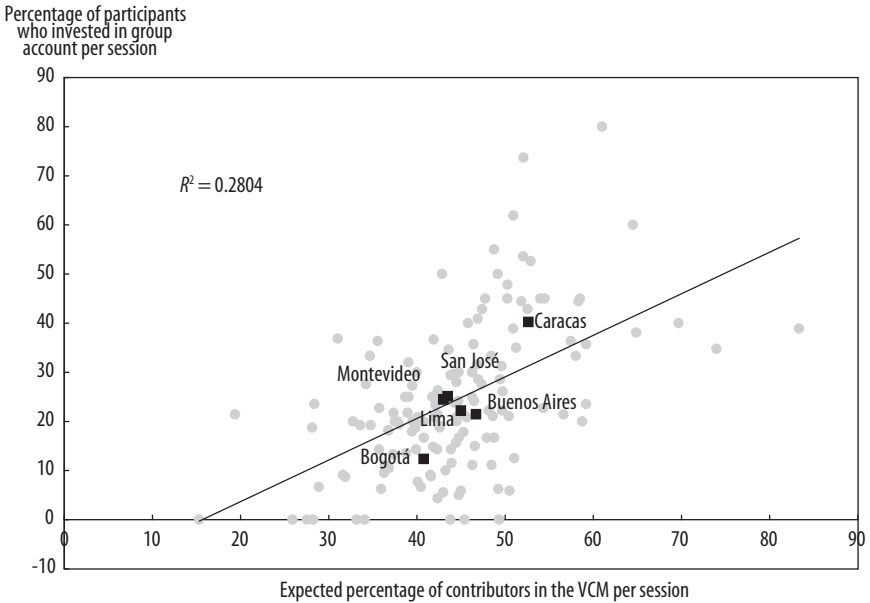
\*Statistically significant at the 10 percent level.

\*\*Statistically significant at the 5 percent level.

\*\*\*Statistically significant at the 1 percent level.

a. The dependent variable is the return amount from player 2 (the percent of the possible amount). The estimation method is OLS. The regression under the column "All" includes country dummies (fixed effects). Base categories are less than complete secondary education, low socioeconomic level, player and match have the same education level, and player and match have the same socioeconomic level. Education level is classified as less than complete secondary education, complete secondary education, or more than complete secondary education. Robust standard errors, clustered by individual, are in parentheses.

**FIGURE 1. Expectations versus Actual Cooperation in the Voluntary Contributions Mechanism**

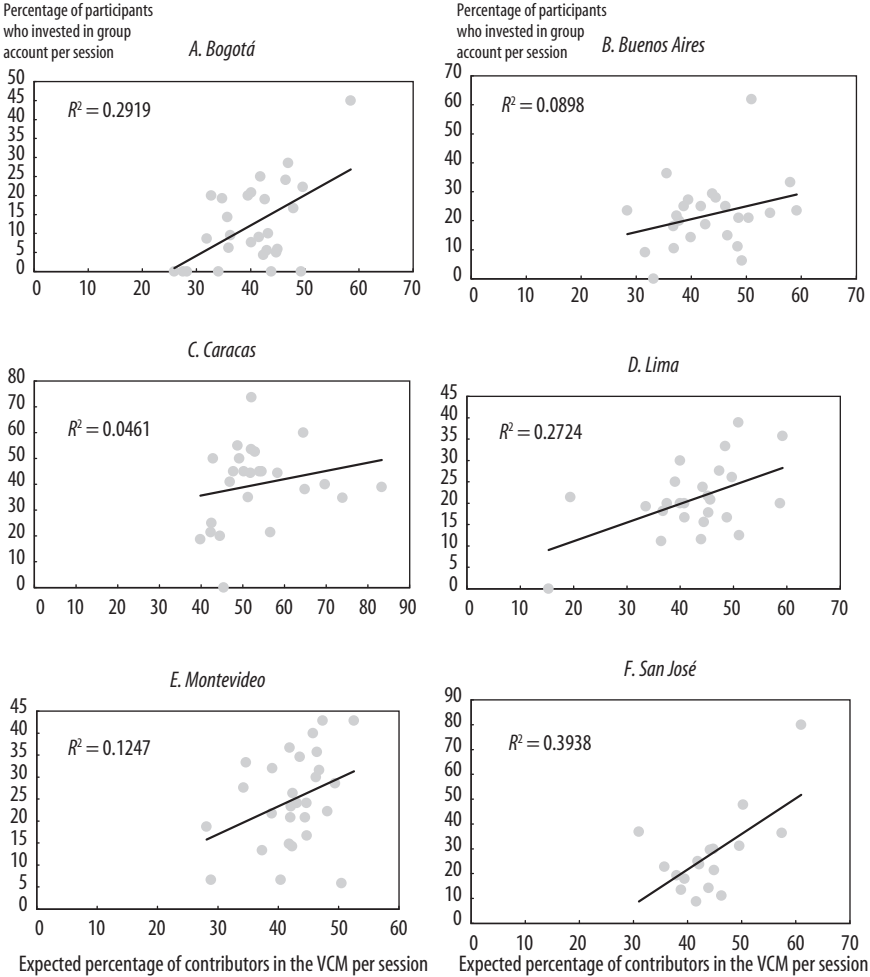


The regressions explaining individual behavior also show that in the VCM case, expectations of other members’ contributions are the main driving force of behavior in all cities. Interestingly, individuals’ attitudes toward risk play no major role in predicting their behavior (table 13).

*Socialization, Trust, and Cooperation Are Linked*

During the last activity, the risk-pooling game, 45.4 percent of players, on average, decided to join the risk-pooling group for all sessions, ranging from 11.1 percent to 100 percent of players per session. Bogotá and Lima report less than 40 percent average participation in risk pooling per session. The fraction of those willing to join a group was highly correlated with the fraction of contributors to the group account in the VCM game (the second activity), as shown in figures 3 and 4. Although these games measure different dimensions of group-oriented behavior, they might be driven by similar motivations, such as in-group or sense-of-belonging effects. On average, groups that showed greater contribution levels also showed greater levels of group formation.

**FIGURE 2. Expectations and Actual Cooperation in the Voluntary Contributions Mechanism, by City**



In all cities, the regressions exploring the characteristics that explain players' behavior show strong linkages between the decisions made in the VCM game and the risk-pooling game (table 14). In the trust game, players 1 who contributed in the public goods (VCM) game sent 52.8 percent of their endowment, on average, while those who did not contribute sent 39.4 percent. This difference is smaller in Lima (2.0 percent), Montevideo (9.0 percent), and

**TABLE 13. Group Formation Results: VCM Game<sup>a</sup>**

<i>Explanatory variable</i>	<i>Bogotá</i>	<i>Buenos Aires</i>	<i>Caracas</i>	<i>Lima</i>	<i>Montevideo</i>	<i>San José</i>	<i>All</i>
<i>Participant's characteristics</i>							
Player's age	-0.0004 (0.001)	0.0024 (0.002)	0.0051* (0.003)	0.0027** (0.001)	0.0034*** (0.001)	-0.0005 (0.001)	0.0016* (0.001)
1 if player is a woman	0.0227 (0.017)	0.0210 (0.062)	0.1385*** (0.068)	-0.0203 (0.056)	-0.0285 (0.049)	-0.0171 (0.045)	0.0220 (0.026)
1 if player has complete secondary education	-0.0331 (0.023)	-0.0559 (0.044)	-0.2492** (0.120)	-0.0957 (0.075)	-0.0611 (0.076)	0.0677 (0.089)	-0.0577*** (0.026)
1 if player has more than complete secondary education	0.0159 (0.034)	-0.0901** (0.044)	-0.3289*** (0.090)	-0.0324 (0.076)	0.0935* (0.049)	-0.0066 (0.052)	-0.0512* (0.027)
1 if player belongs to middle socioeconomic level	0.0284 (0.034)	-0.0026 (0.059)	0.0603 (0.116)	-0.0621 (0.063)	0.0196 (0.054)	-0.0328 (0.054)	0.0085 (0.030)
1 if player belongs to high socioeconomic level	0.0151 (0.059)	0.1330* (0.079)	0.0638 (0.119)	-0.1157* (0.059)	-0.0961* (0.058)	0.0435 (0.069)	0.0527 (0.045)
<i>Session's characteristics</i>							
% of women in session	0.0014 (0.001)	-0.0002 (0.003)	0.0005 (0.003)	-0.0037** (0.002)	-0.0015 (0.001)	0.0035* (0.002)	0.0000 (0.001)
% with less than complete secondary in session	-0.0001 (0.001)	0.0020 (0.005)	-0.0095* (0.005)	0.0023 (0.002)	-0.0005 (0.001)	-0.0002 (0.001)	-0.0007 (0.001)
% that belong to low socioeconomic level in session	0.0003 (0.001)	-0.0018 (0.002)	-0.0020 (0.003)	-0.0001 (0.001)	-0.0007 (0.001)	-0.0022** (0.001)	-0.0002 (0.001)
No. players in session	0.0015 (0.003)	0.0135*** (0.005)	0.0066 (0.013)	-0.0029 (0.005)	0.0073 (0.005)	0.0030 (0.002)	0.0044* (0.002)
Std. dev. of years of education within session	-0.0082 (0.012)	-0.0712 (0.074)	-0.0032 (0.113)	-0.0496* (0.028)	-0.0343 (0.040)	0.0159 (0.024)	0.0043*** (0.001)

(continued)

**TABLE 13. Group Formation Results: VCM Game<sup>a</sup> (Continued)**

<i>Explanatory variable</i>	<i>Bogotá</i>	<i>Buenos Aires</i>	<i>Caracas</i>	<i>Lima</i>	<i>Montevideo</i>	<i>San José</i>	<i>All</i>
<i>Experimental variables</i>							
1 if participant pooled risk	0.1610*** (0.029)	0.1829*** (0.055)	0.2960*** (0.069)	0.1748*** (0.049)	0.1228*** (0.036)	0.1901*** (0.038)	0.1850*** (0.024)
% of expected contributors to VCM in session	0.0024*** (0.001)	0.0047*** (0.001)	0.0117*** (0.003)	0.0032*** (0.001)	0.0069*** (0.001)	0.0055*** (0.001)	-0.0162 (0.013)
Player has mid risk aversion	0.0173 (0.039)	0.1357* (0.080)	0.0464 (0.108)	0.1066 (0.124)	0.0548 (0.069)	-0.0799* (0.046)	0.0702 (0.046)
Player has high risk aversion	0.0255 (0.029)	0.1092 (0.075)	0.3512*** (0.119)	0.1025 (0.074)	0.0426 (0.061)	-0.0256 (0.056)	0.0755** (0.034)
<i>Summary statistic</i>							
No. observations	565	490	482	541	574	417	3,069
No. clusters	28	25	25	25	28	19	150
Pseudo R squared	0.295	0.192	0.318	0.136	0.209	0.25	0.206

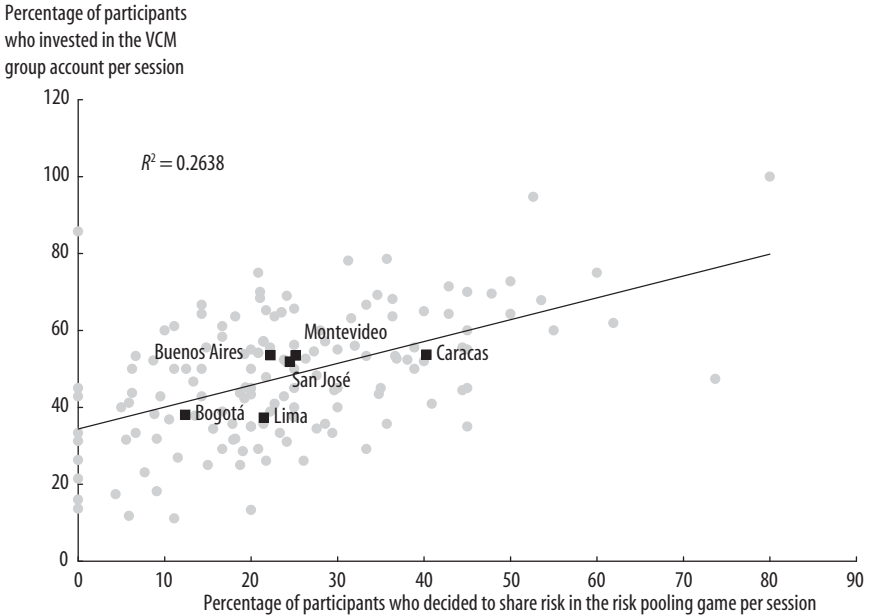
\*Statistically significant at the 10 percent level.

\*\*Statistically significant at the 5 percent level.

\*\*\*Statistically significant at the 1 percent level.

a. The dependent variable is one if player contributed to group account. The estimation method is probit analysis. Marginal effects are reported. The regression under the column "All" includes country dummies (fixed effects). Base categories are less than complete secondary education, low socioeconomic level, and low risk aversion. Education level is classified as less than complete secondary education, complete secondary education, or more than complete secondary education. Robust standard errors, clustered by session, are in parentheses.

**FIGURE 3. Correlation between the Voluntary Contributions Mechanism and Risk Pooling**



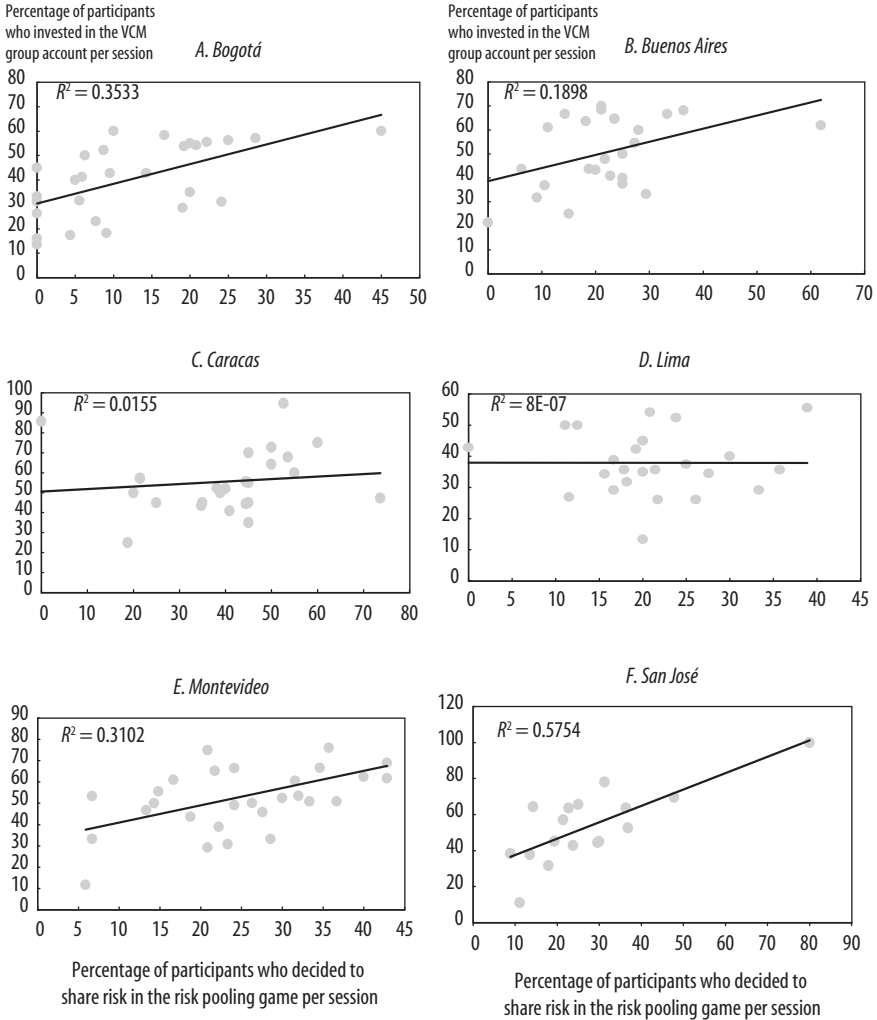
San José (8.0 percent). Likewise, the offers sent by those who later joined the group in the risk-pooling activity were about 10 percentage points higher than the offers by those who did not join the group. Players 2 in the trust game display a similar pattern: those who later contributed in the public goods game returned about 9 percentage points more to player 1 in the trust game, and those who joined the group in the risk-pooling activity returned about 4 percentage points more.

*Other Characteristics That Explain Trust and Cooperation Differ across Cities*

When trying to explain the amounts sent by players 1 and the reciprocal responses of players 2, we find both differences and similarities across cities. For instance, more educated players 1 sent a higher amount to players 2 in Bogotá, female players 1 sent less to players 2 in Caracas and Lima, and older players 2 returned more to players 1 in Buenos Aires and Montevideo.

When explaining the decision to contribute the token to the group account as a function of game conditions and individual and group characteristics, we find results in the same vein. The socioeconomic characteristics of the

**FIGURE 4. Correlation between the Voluntary Contributions Mechanism and Risk Pooling, by City**





**TABLE 14. Group Formation Results: Risk-Pooling Game<sup>a</sup>**

<i>Explanatory variable</i>	<i>Bogotá</i>	<i>Buenos Aires</i>	<i>Caracas</i>	<i>Lima</i>	<i>Montevideo</i>	<i>San José</i>	<i>All</i>
<i>Participant's characteristics</i>							
Player's age	0.0035 (0.002)	0.0034** (0.002)	0.0005 (0.003)	0.0027 (0.002)	0.0041*** (0.001)	0.0060** (0.003)	0.0038*** (0.001)
1 if player is a woman	-0.0061 (0.048)	-0.0978 (0.068)	-0.0267 (0.082)	0.0371 (0.070)	0.0535 (0.046)	-0.0055 (0.058)	-0.0339 (0.034)
1 if player has complete secondary education	-0.0063 (0.092)	0.0388 (0.090)	0.0978 (0.098)	-0.1090 (0.097)	0.0336 (0.075)	-0.1720* (0.104)	-0.0198 (0.049)
1 if player has more than complete secondary education	0.0184 (0.084)	0.0487 (0.097)	0.0452 (0.106)	-0.1801 (0.112)	0.1071* (0.056)	0.0020 (0.099)	0.0007 (0.050)
1 if player belongs to middle socioeconomic level	-0.0427 (0.076)	-0.0658 (0.093)	0.1311 (0.108)	0.1499 (0.099)	0.0775 (0.064)	0.0462 (0.151)	-0.0081 (0.045)
1 if player belongs to high socioeconomic level	-0.0675 (0.059)	-0.0528 (0.101)	0.0233 (0.151)	0.0154 (0.120)	0.0148 (0.081)	0.1006 (0.146)	-0.0412 (0.048)
<i>Session's characteristics</i>							
% of women in session	0.0046* (0.003)	-0.0051 (0.003)	-0.0028 (0.003)	0.0005 (0.002)	0.0044** (0.002)	0.0007 (0.005)	0.0003 (0.002)
% with less than complete secondary in session	-0.0033*** (0.001)	-0.0003 (0.007)	-0.0036 (0.007)	-0.0006 (0.003)	0.0010 (0.002)	-0.0010 (0.002)	-0.0022*** (0.001)
% that belong to low socioeconomic level in session	-0.0013 (0.001)	0.0016 (0.002)	-0.0012 (0.005)	-0.0004 (0.001)	0.0009 (0.002)	0.0003 (0.002)	0.0002 (0.001)
No. players in session	-0.0090 (0.006)	0.0025 (0.012)	-0.0012 (0.015)	-0.0118** (0.006)	-0.0034 (0.006)	-0.0020 (0.007)	-0.0057 (0.004)
Std. dev. of years of education within session	0.0133 (0.031)	0.1374 (0.146)	0.0744 (0.157)	-0.0551 (0.054)	0.0028 (0.052)	0.1033* (0.053)	0.0199 (0.023)

(continued)

**TABLE 14. Group Formation Results: Risk-Pooling Game (Continued)**

<i>Explanatory variable</i>	<i>Bogotá</i>	<i>Buenos Aires</i>	<i>Caracas</i>	<i>Lima</i>	<i>Montevideo</i>	<i>San José</i>	<i>All</i>
<i>Experimental variables</i>							
1 if participant contributed to group account in VCM	0.4952*** (0.048)	0.2844*** (0.073)	0.2878*** (0.085)	0.2658*** (0.062)	0.2029*** (0.046)	0.3476*** (0.056)	0.3191*** (0.037)
Player has mid risk aversion	0.1110 (0.082)	0.0906 (0.111)	0.2081 (0.141)	0.0127 (0.132)	-0.0128 (0.087)	0.1403* (0.075)	0.0771 (0.054)
Player has high risk aversion	0.0868 (0.084)	0.1269 (0.098)	0.0619 (0.170)	0.0343 (0.099)	0.0064 (0.063)	0.0123 (0.093)	0.0673 (0.049)
<i>Summary statistic</i>							
No. observations	567	494	484	541	580	417	3,083
No. clusters	28	25	25	25	28	19	150
Pseudo R squared	0.128	0.0897	0.0999	0.0735	0.0651	0.135	0.0841

\*Statistically significant at the 10 percent level.

\*\*Statistically significant at the 5 percent level.

\*\*\*Statistically significant at the 1 percent level.

a. The dependent variable is one if player pooled risk. The estimation method is probit analysis. Marginal effects are reported. The regression under the column "All" includes country dummies (fixed effects). Base categories are less than complete secondary education, low socioeconomic level, and low risk aversion. Education level is classified as less than complete secondary education, complete secondary education, or more than complete secondary education. Robust standard errors, clustered by session, are in parentheses.

individuals and of the sessions do not seem to play important roles in predicting cooperation. Older people were more likely to cooperate than younger participants in three of the six cities. In Caracas, women were more likely than men to cooperate in the VCM game, but more educated people were less likely to do so. Those who belong to a high socioeconomic level were less likely to cooperate in Lima and Montevideo (but more likely to cooperate in Buenos Aires). Larger sessions motivated people to cooperate in this game in Buenos Aires.

The determinants of the decision to pool risk are very similar to those of the public goods game: older people are more likely to pool in three of the six cities. Sessions with a larger share of women showed more risk pooling in Bogotá and Montevideo, although individual women were no more likely to pool than men.

## Conclusions

This paper presents the results of a project that experimentally measured trust, reciprocity, cooperation, and collective action in Latin America. To our knowledge, the resulting data set from this project is the most comprehensive to date, not only because of the sampling design employed in each city, but also because of the plausibility of comparing six different cities. In that sense, this is a pioneering effort for the experimental literature in the Latin American region.

The results from the series of experiments reported here provide new evidence on how group-oriented behavior can emerge and what factors may promote or constrain choices that benefit individuals and their groups. As in the previous literature, trust, cooperation, and group formation are highly correlated. When the conditions in a group were conducive to trusting others, they were also conducive to contributing to a public good or to forming a group to share the income from an uncertain lottery. Expectations about the behavior of others in each of the games were powerful predictors of actual behavior, far more important than individuals' sociodemographics.

This is of crucial importance for several reasons. If people can predict the behavior of others in the room with some accuracy, based only on a short observation and the availability of very basic data about the group's demographics, it means individuals do pay attention and condition their group-oriented behavior to the immediate context and not only to their own individual traits. Second, those predictions or expectations are key determinants

of economic decisions, more than their own individual traits. Third, when these expectations erroneously point toward less trusting behavior, they can misguide people into behavior that is not beneficial to the group, bringing groups into traps or undesired equilibriums.

These results raise additional questions on many behavioral aspects of trust, reciprocity, and cooperation. Because the data combine behavioral information with sociodemographics and political opinions, they would support further exploration of many interesting public policy questions. Ongoing research projects using these data include the exploration of differences between stated preferences and real behavior regarding prosociality, the extent to which participation in social pro-poor programs may undermine or boost social capital, and the role of gender in the establishment of trust, reciprocity, and group formation.<sup>23</sup>

## **Appendix: Sampling and Experimental Protocols**

This appendix describes the protocols followed for the sampling design, recruitment, and experimental sessions. These protocols evolved from an original experimental design proposed by the core team, which was fine-tuned during a workshop held in Bogotá in January 2007 with the six local teams that were selected to conduct the experiments in each of the cities. The workshop allowed the team to adjust the language, payoffs, and details to develop a common protocol that would convey the same framing, incentives, and interpretations of language in each of the six cities.<sup>24</sup>

### *Sampling*

In each of the cities, we aimed at a representative sample of 500 participants, for a total of 3,000 people in the six cities. In total we were able to recruit more than 3,100 people altogether. The samples were selected in the cities based on a stratified random sampling approach. The strata were chosen on the basis of age, gender, education, and socioeconomic status (deduced from the neigh-

23. Cárdenas, Chong, and Ñopo (2009); Chong, Ñopo, and Ríos (2009); Brañas, Cárdenas, and Rossi (2009). The data and documentation are freely available at [www.iadb.org/res/ipes/Databases.cfm?language=en](http://www.iadb.org/res/ipes/Databases.cfm?language=en).

24. The final protocols were the result of inputs from Jeff Carpenter, María Claudia López, Abigail Barr, Sandra Polanía, Natalia Candelo, and Juan Camilo Cárdenas. The game designs were based on various sources, cited in the bibliography; see Candelo and Polanía (2007).

borhood of residence). After the fieldwork, we computed expansion factors (weights) for all the observations to alleviate minor sampling problems.

With respect to age, we sampled for the following age groups: seventeen to twenty-seven, twenty-eight to thirty-eight, thirty-nine to fifty-nine, and sixty to seventy-two years old. The sample should cover roughly half males and half females. Three levels of education were used: incomplete secondary or less, complete secondary, and incomplete superior (college/technical) or more. With respect to socioeconomic level (sel), each of the cities used the local stratification that seemed to be relevant and familiar to the citizens of the city. Some cities had three categories (for example, Buenos Aires); others had up to six (Bogotá). To estimate the quotas to be filled in each case, each team identified a reliable demographic census or survey, as follows.

In Bogotá, the team used the *Encuesta de Calidad de Vida 2003* from the Departamento Administrativo Nacional de Estadística (DANE). The stratification (*estrato*) was used for the socioeconomic level of the neighborhood, aiming at covering representative samples of the categories 1–2 for low level, 3 for low-medium, 4 for medium-high, and 5–6 for high. In Buenos Aires, the team used the 2001 census carried out by the Instituto Nacional de Estadística y Censos (INDEC). To identify socioeconomic status, the team used data on education level, medical coverage, qualification if employed, and economic activity, creating a classification of three levels (low, medium, and high). In Caracas, the team used data from the 2001 census conducted by the Instituto Nacional de Estadística (INE). The team also applied a socioeconomic stratification used by marketing studies in Venezuela based on five groups, grouping the two highest groups given their low share in the total population to yield four categories (low, medium-low, medium-high, and high). In the case of Lima, the team used a sampling design from the firm Apoyo Opinión y Mercado (AOM), which maps the metropolitan area of the city according to the five socioeconomic levels for the city used in marketing studies. The team identified blocks within each category and visited households surrounding the crossing of those blocks. In Montevideo, the team used the classification specified by the Instituto Nacional de Estadísticas (INE) for four categories of socioeconomic level (low, medium-low, medium-high, and high), which is based on per capita income and unemployment data. Each neighborhood was assigned a classification level based on the INE classification assigned to the households. Finally, the team in San José de Costa Rica used 2000 census data from the Instituto Nacional de Estadística y Censos (INEC), incorporating the socioeconomic classification used in the census.

**TABLE A - 1. Recruitment Strategies, by City**

<i>City</i>	<i>Phone</i>	<i>Door-to-door</i>	<i>Other<sup>a</sup></i>
Bogotá	15.9	78.2	5.9
Buenos Aires	76.7	13.5	9.9
Caracas	84.9	13.4	1.6
Lima	0.0	100.0	0.0
Montevideo	69.3	30.3	0.3
San José	0.0	100.0	0.0
Total	41.5	55.5	3.0

a. Workplace, shopping malls, streets, recreational areas, e-mail.

### *Recruitment and Composition of Sessions*

In each of the cities, the recruitment was conducted with the goal of holding a session with approximately 20 participants in the same room at the same time. Depending on the availability of space, assistants, and schedules, a team would hold one or more sessions in a day, but always one session at a time.

Each team had to recruit subjects so that they could have at least four homogeneous sessions and twenty-one mixed sessions in terms of socio-economic level. Each team had a group of recruiters who used a letter of invitation that had the same content and message, namely, to invite people to voluntarily participate in a study on economic decisionmaking that would last between two and three hours on a given day at the same location (in each case a well-respected university campus). Each of the recruited persons received a cash advance to cover public transportation to the campus on the day of the experiment, which was intended to signal the reliability and commitment of the study and its team. The teams had a goal or quotas to fill for each session and proceeded to recruit subjects according to the planned sessions in the coming days.

Each team used different strategies to recruit subjects. Table A-1 summarizes the strategies used in each city, with phone calls and door-to-door visits as the main mechanisms.

Each recruited person received a unique general number that would be used from then on to identify the participant. At the moment of the recruitment, they were asked a set of basic questions about their home location, education, gender, and age. The rest of the data were collected at the end of the experimental session.

### *On the Day of the Experimental Session*

At the start of the actual session, a group of assistants was available to greet the recruited participants, verify their unique general number, and make sure they were the same people that had been recruited. Once the group was gathered, they were invited to the experimental room, usually a classroom, where they were read the main instructions about the experimental session. During the introduction, the subjects were informed of the usual conditions of privacy and confidentiality of their decisions and outcomes, and the use of the data collected for academic purposes only. Once the activities were explained, an oral consent form was read by the experimenter to the group and approved by all participants before continuing. Each participant received the forms they would use throughout the session for answering the questions and decisions during each of the activities.

This general explanation clarified that only one of the four activities would be paid for all participants in that session. The purpose of this design is to make each activity sufficiently important and independent of a possible portfolio decisionmaking strategy if all activities were to be paid. If only one activity will be paid, we expect each of the tasks to be considered with sufficient care given the significance of the stakes. On average, each participant was paid the equivalent to one and a half to two days of work at the minimum wage in the city.

In the experiment room, they were randomly assigned a player 1 or player 2 position for the first activity (the trust game). Once they received the first set of instructions (see details below), they were divided in two groups, with players 1 being moved to a separate room for the first activity. Once that activity was completed, the whole group was reconvened to the original room for the rest of the remaining activities.

### *Summary of Experimental Activities*

This subsection outlines the design and implementation of each of the four activities.

**ACTIVITY 1: TRUST GAME.** All participants were randomly assigned in pairs (player 1 and player 2) to play a one-shot trust game. Players 1 were moved to a contiguous room and players 2 remained in the initial room. They were not told the player with whom they were matched; they only knew that they would play with one person in the other room.

To start the game, each player received an endowment of approximately US\$5.00. The player assigned to the player 1 role had to decide between sending 0, 25, 50, 75, or 100 percent of the initial endowment. The amount

sent to player 2 was tripled by the experimenter and given to player 2. Any amount kept by player 1 went to his or her own final earnings. Player 2 then had to decide how much from the initial endowment plus the received tripled amount to return back to player 1. The amount returned was not tripled on its way back, just transferred. This information was common knowledge to the players. The initial endowments in each city were calibrated to reflect the same purchasing power and rounded to simplify the mathematical operations of the players. However, in all cases we calculated the percentages in the local currency amounts to facilitate the valuation of the different options.

Players 1 were located in one room and players 2 in another. Identities were never revealed, but all players were informed of their partners' demographic characteristics (age, gender, education, and socioeconomic level) before making their decisions. The game was designed so that player 2 had to decide the amounts to be returned to player 1 for each possible offer from player 1. The results of the game were not revealed to the participants until the end of the session, so we do not expect to see major learning or reciprocity effects carrying on from this game to the next activities.

All players in both rooms listened to a series of examples of different possibilities from the game depending on offers sent by player 1 and amounts returned by player 2.

To make their decision, the players checked one of the possible options (0, 25, 50, 75, or 100 percent of the initial endowment), and the decision was recorded in the booklet that they carried with all their decisions throughout the session. For example, if the initial endowment was Col\$12,000 and player 1 chose to send 50 percent of the endowment, the instructions read as follows:

3. You decide to send \$6,000 to player 2. You then keep \$6,000, and player 2 receives \$18,000. Player 2 will decide how much of the \$18,000 plus \$12,000 to return back to you.

Aside from the actual decision, players 1 were also asked to predict how much they thought they would get back from player 2:

- L6. How much do you think player 2 will send back to you?

In the case of players 2, each of the possible decisions reads as follows:

- L17. If player 1 decided to send you \$3,000, then player 1 kept \$9,000 and you received \$9,000. If this was the decision of player 1, how much would you like to return back to player 1 from the \$21,000 (the \$9,000 plus \$12,000 from your initial endowment)?



1. \$0
2. \$3,000
3. \$6,000
4. \$9,000
5. \$12,000
6. \$15,000
7. \$18,000
8. \$21,000

Players 2 were also asked to elicit their expectations:

- L21. How much do you think player 1 sent you from his or her \$12,000?
1. \$0
  2. \$3,000
  3. \$6,000
  4. \$9,000
  5. \$12,000

**ACTIVITY 2: PUBLIC GOODS GAME (VCM).** In this activity, all participants were gathered back in one room to play a one-shot voluntary contributions mechanism or public goods game, as follows. The monitor announced that this was a new activity that was not related to the previous one, and that this one could also be selected for the final payment. Once again the participants were reminded that their decisions would be kept confidential and private during and after the experiment. They were also asked not to communicate with any other participant in the session. The monitor then explained the incentive structure and rules of the game.

In this game, each participant had one token to be invested in two possible alternatives, P (private account) or G (group account). Depending on the investment decision, the earnings would be determined in the following manner:

—If the player invests the token in the private account (P), his or her earnings are based on two amounts of money: first, the player earns \$20,000 (we continue using the Colombian case in our examples) from the investment in the private account; second, the player also earns \$2,000 for every token that the rest of the participants invest in the group account.

—If the player invests in the group account (G), the player earns \$2,000 for every token invested in the group account by that player and everyone else.

The decision to invest in either account is then marked on a slip of paper. The monitor also asked the participants to predict the number of players in the session who would invest in the group account.

Before the participants made their decisions, the monitor explained the incentives and possible actions and results using four examples that clearly described what would happen if a player decided to contribute to P or in G for both cases of a majority investing in P and a majority investing in G. The monitor also presented on the blackboard the basic demographic composition of the session, in terms of the fraction of players for each gender, education level, and socioeconomic status, based on the neighborhoods in which they live.

Once the players made their private decisions, the monitors collected the slips of paper and put them in an envelope for the session. Again, the participants were not told of the results of their decisions until the end of all activities.

**ACTIVITY 3: THREE RISK GAMES.** In this activity, actions and payoffs were not interdependent across participants. The activity included three decisions or steps that were designed to reveal aversion to risk, ambiguity, and losses.<sup>25</sup> All the games were based on six fifty-fifty lotteries that increased both in expected value and variance. The participants were shown six circles, each representing a bag with ten tokens inside. Each token represented the amount of money the player would receive, depending on the bag chosen. The player had to choose one of the six bags and then randomly pick one of the ten tokens inside to find out how much money had been earned. In one of the bags, each of the ten tokens represented the same amount of money (that is, this was the risk-free option). The remaining five bags contained five tokens with a low amount and five with a high amount. The lower and higher values varied over the five bags.

The first risk game involved showing the participants six circles or bags (we again use the Colombian peso example). The first bag represented the sure bet, in which all the tokens were valued at \$13,000. The remaining bags were fifty-fifty lotteries in which half the tokens were worth a low amount and half were worth a high amount, starting with \$10,000 and \$19,000 and increasing the variance and expected value all the way to \$0 or \$38,000 (the last two lotteries had the same expected value of \$17,000). The monitor presented a series of examples to explain how the game worked and then directed the players to mark with an X the lottery they would like to pick.

25. They were not labeled as such to the participants, but rather identified as decisions 1, 2, and 3.

Once the participants had written their decisions in their booklets, the monitor asked them to make the same kind of choice in the next decision, but now the bags only had three high-payoff tokens and three low-payoff tokens. The remaining four tokens were either high or low, and the participants did not know how many of each.

For the third decision in this activity, the participants were again asked to decide among six bags, but in this case they were initially endowed with a fixed amount of money. The players had to decide which bag to choose, which in some cases include losses instead of gains. Using our Colombian peso example, each player received \$20,000 to start the game and then had to decide between a sure loss of  $-\$7,000$  or lotteries of  $-\$10,000$  versus  $-\$1,000$ ,  $-\$13,000$  versus  $+\$5,000$ , and so on, all the way to the last lottery of  $-\$20,000$  versus  $+\$18,000$ . As can be seen, the resulting values are the same as in the previous case.

**ACTIVITY 4: RISK POOLING.** In this last activity, the participants repeated the first decision of activity 3 with one variation. Each player had to choose whether to form a group to equally share the gains from playing the risk game or to play the new risk game individually. Once they decided to form the group or not, the total number of people forming the group was announced and then the players chose among the six possible lotteries. Whether playing as a group or individually, each player had to pick one of the six lotteries, but the earnings were received individually or shared depending on the case.

The players wrote their decision about joining the group on a slip of paper. The monitor collected the slips and announced the number of people who had decided to join the group. Thus every player knew if the earnings in this game would come from an individually played lottery or from the risk-pooling group. They were then asked to mark the lottery or bag they would like to play.

### *End of an Experimental Session*

Once all the participants had completed the four activities, the activity to be paid out was randomly selected from the four activities, in front of all assistants. If activity 3 was picked (risk games), then another random selection was made to determine which of the three lottery games was to be paid and whether the high or low payoff was to be paid in the fifty-fifty lottery. If activity 4 was picked, then each of the participants picked their random outcome of the high or low payoff before the earnings were pooled.

The participants were given a snack while waiting to be called to receive their payments and to answer the post-game survey. This last stage was carried

**TABLE A - 2 . Monetary Conversions**

<i>Indicator</i>	<i>Comparison currency</i>	<i>Bogotá</i>	<i>Buenos Aires</i>	<i>Caracas</i>	<i>Lima</i>	<i>Montevideo</i>	<i>San José</i>
Currency	Dollar	Peso	Peso	Bolivar	Sol	Peso	Colón
Exchange rate (25 Jan 2007)	1	2296.81	3.1007	2149.23	3.2484	25.471	537.37
Minimum denomination used for payment	0.25	1,000 pesos	25 cents	1,000 blvs	1 sol	5 pesos	100 cols
Percent of a dollar	25	44	8	47	31	20	19

out by all the available monitors, each of whom grabbed a player's booklet and survey, called the participant to fill out the survey, and made the respective payment. Once this task was completed the participant could leave the premises.

### *Payments*

The payments made to the participants are explained in detail in tables A-2 and A-3, along with the exchange rates for comparison across cities.

**TABLE A - 3 . Payments Made for Each Game, in Local Currencies<sup>a</sup>**

<i>Indicator</i>	<i>Comparison currency</i>	<i>Bogotá</i>	<i>Buenos Aires</i>	<i>Caracas</i>	<i>Lima</i>	<i>Montevideo</i>	<i>San José</i>
Currency	Dollar	Peso	Peso	Bolivar	Sol	Peso	Colón
<i>Trust game</i>							
Min. payment possible	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Max. payment possible	\$ 20.00	\$ 48,000	\$ 120	\$ 48,000	\$ 72	\$ 560	\$ 12,000
Average offer player 1 (%)	0.446	0.368	0.486	0.431	0.496	0.449	0.454
Average return player 2 (%)	0.274	0.187	0.264	0.339	0.302	0.284	0.279
<i>Average earnings</i>							
Average payoff player 1	\$ 5.97	\$ 12,306	\$ 34.86	\$ 16,153	\$ 23	\$ 171	\$ 3,612
Average payoff player 2	\$ 8.49	\$ 20,528	\$ 54.32	\$ 18,190	\$ 31	\$ 235	\$ 5,113
Average player 1 / player 2	\$ 7.23	\$ 16,417	\$ 44.59	\$ 17,172	\$ 27	\$ 203	\$ 4,362
<i>Public goods game</i>							
Min. payment possible	\$0.80	\$ 2,000	\$ 5.00	\$ 2,000	\$ 3.00	\$ 25.00	\$ 500
Max. payment possible	\$23.20	\$ 58,000	\$ 145.00	\$ 58,000	\$ 87.00	\$ 725.00	\$ 14,500
Average payment received	\$ 9.90	\$ 22,504	\$ 61.20	\$ 28,206	\$ 36.30	\$ 313.40	\$ 6,233

a. Based on the average behavior observed in each sample.