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Cooperation and leadership in a segregated community

Evidence from a lab-in-the-field experiment in a South African township

Daniela Grieco,¹ Michela Braga,¹ and Francesco Bripi²

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Abstract: The paper presents the results of a lab-in-the-field experiment in three South African townships located in the suburbs of Cape Town. The experimental design consists of a set of decisions on how the members of a naturally occurring group allocate an endowment to a private or to a public account. In our treatments, we first manipulate the degree of participation of group members in the choice of the public good, from involvement of the group leader only, to collective discussion and to private voting. Additionally, we explore the effectiveness of monetary incentives (collective versus individual) set in order to promote participation. The results show that leader guidance and participatory incentives significantly raise cooperation and hold after controlling for a wide set of individual and group characteristics.

Keywords: lab-in-the-field experiment, segregation, cooperation, leadership, participation, township

JEL classification: C93, D63, D71, H41, O12

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¹ Bocconi University, Department of Economics, Milano, Italy, corresponding author: daniela.grieco@unibocconi.it; ² Bank of Italy.

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Information and requests: publications@wider.unu.edu

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Katajanokanlaituri 6 B, 00160 Helsinki, Finland

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1. Introduction

Residential segregation was first created in South Africa by the Apartheid regime between the 1940s and the 1950s of the twentieth century, when black people were forced to live in delimited areas in the suburbs of the South African cities. Although the Apartheid regime ended more than twenty years ago, economic and residential segregation is still at work in the townships around the main cities of the country, where millions of people strive to escape from poverty. Notwithstanding the hard living conditions in these areas, one positive legacy of the segregation period has been to provide a spatial and social basis for cohesion and cooperative behaviors among townships residents (World Bank 2014).

Understanding the effects of segregation on cooperation is not an easy task. In fact, on the one hand people living in distressed areas may suffer the consequences of harmful neighborhood, such as greater criminal involvement, worse educational, economic and health outcomes (e.g. Ludwig et al. 2012). On the other hand, spatially concentrated disadvantaged areas may enhance “collective efficacy”, i.e. the willingness of community residents to work together to cooperate and comply with shared norms on education and family/work stability (Sampson, Morenoff and Gannon-Rowley 2002).

In this paper we provide new evidence on whether segregation affects community members’ levels of cooperation to a public good. We analyze the behavior of various groups of inhabitants of three townships of Cape Town. The case is particularly interesting because the prolonged and forced cohabitation in the same disadvantaged areas may have pushed its inhabitants (mostly black) to develop mechanisms of mutual aid to mitigate the exacerbated opportunistic behaviors typical of distressed population. Thus, given the high levels of unemployment and poverty in these suburbs, disentangling the incentives to cooperation can be a very useful tool to promote local development.

We conduct a lab-in-the-field experiment in three townships (Langa, Philippi and Khayelitsha) located in the suburbs of Cape Town and populated by black Africans. In the terminology of Harrison and List (2004), our study is an artefactual field experiment as our subject pool is non-standard (that is, non-students).

The paper is the first lab-in-the-field experiment conducted in a township.¹ Beyond this, it provides several novelties with respect to the existing literature. First, we differ from most standard lab experiments on public goods, because we do not “build” artificial groups but we involve groups that are already operating in the townships. This allows us to introduce another source of novelty: in

¹ Kocher, Martinsson and Visser (2012) run a lab linear public goods experiment involving four high school students in Cape Town, including one school located in Langa and one school in Rondebosch for black students from Khayelitsha and Gugulethu townships.

our work, the public good is an indivisible sum of money that the group agrees to spend for its common activities, instead of being split among participants as typically occurs in lab experiments.

Our experiment is designed to reproduce a set of decisions on how each member of the group allocates a certain endowment between a private or a public account, where “public” refers to the group the subjects belong to. We manipulate two key features of this allocation decision. In the first treatment we compare the degree of cooperation in the decision process heading to the choice of the public good: the decision is taken by a leader, or by the group through a public discussion, or by the group through private voting. In the second treatment we introduce and compare individual vs. collective monetary incentives as prizes for a minimum level of cooperation (“participatory incentives”). The latter manipulation mimics the mechanisms of the community-led development programs which require, in general, a personal monetary commitment by the community members involved. Moreover, it is designed to explore the effects of leadership when interacted with incentives.

The experiment involved 269 subjects, belonging to 10 groups already operating in the townships, differing in their mission, frequency of interaction and characteristics of their members. We are able to control for several personal and group features. These derive from a capillary survey we conducted on participants’ social status, job, type of dwelling, family composition, degree of education, living conditions and participation in the everyday life of the local community, together with information on group characteristics and values.

On average the contribution level reached 45% of the individual endowment, a relevant percentage considering their high degree of deprivation of the subjects involved. The analysis highlights that two mechanisms of social influence are particularly effective in prompting cooperation: leadership guidance and participatory incentives.

In detail, we find three results. In the first treatment, subjects contribute significantly more when the leader is required to take the decision on how to spend the sum collected as public good (about 29% of the endowment), rather than having the group discuss publicly or vote privately on the allocation decision (17%). Second, in the treatment with participatory incentives, the average contribution reaches 62%, significantly higher than the average of the previous scenario. Third, in both treatments the leader contributes more than the average of the group. All our results are robust to the inclusion of several characteristics of the participants and of their groups.

The rest of the paper is organized as follows. Section 2 briefly reviews the related relevant literature. Section 3 describes the main features of the specific context analyzed. Section 4 describes

the experimental design, while the results are presented and discussed in Section 5. Finally, Section 6 concludes.

2. Related literature

From a methodological perspective, the game explored here can be classified as a collective-action game (Dixit and Skeath 1999), which arises when local public goods (“bads”) must be produced (prevented). The players involved belong to a community institution, which is defined as “a group small enough to allow good circulation of information among its members who interact more or less continuously over infinite or indeterminate periods of time” (Platteau and Abraham 2002).

The paper provides relevant novelties with respect to the existing studies on leadership in collective-action games. The first strand of related literature is the experimental evidence on social dilemmas using the “leadership-by-example” mechanism (Güth et al. 2007), where the leader decides and announces his contribution before the other group members make their contribution choices. A series of experimental articles in this framework finds that leadership significantly raises the average contribution levels compared to the cases of no leadership or to the leader’s cheap talk suggestions to team members (leadership “by suggestion”, as in Sahin, Eckel and Komai 2015). Note that typically in these games the leadership position is assigned exogenously, for example after the random selection among the subjects.

Differently from these studies, we do not need to artificially instill the leadership role by “example” because we use naturally existing groups where the leader emerges endogenously.² This relationship between the leader’s contribution and his group members’ – *without* a leading-by-example sequential mechanism at work – has not been investigated yet. If a significant correlation exists, it might depend on the fact that leadership influence is embedded in the group’s own history.

Indeed, in our experiments we find that the leader’s behavior significantly explains the contribution levels of the other members. In this sense, our results are close to the experimental evidence in games with simultaneous contributions by all group members. In these interactions a positive correlation emerges among members’ cooperation levels due to mechanisms of social influence and conformity to others’ behavior (e.g. Croson and Shang 2005; Fischbacher and Gächter 2010) or if a social norm arises (Fehr and Fischbacher 2004; Faillo, Grieco and Zarri 2013).

² Relevant examples of “endogenous leader appointment” include the following cases: a) the leader is selected from a ranking of an earlier task on skills (e.g. Kumru and Versterlund 2005) or on contribution levels (e.g. Gächter and Renner 2014); b) the potential leader voluntarily self-selects into the role (Arbak and Villeval 2013); c) leadership emerges as the outcome of a voting stage where subjects express their preference on institution with or without an (informed) leader (Potters, Sefton and Vesterlund 2005).

Within the leadership-by-example literature, the paper closest in methodology to our investigation is by Jack and Recalde (2015), who conduct an artifactual field experiment, involving 52 communities in rural Bolivia, to study the role of different forms of leadership. They compare randomly assigned leadership to the case when the leader is the formal community authority. The contributions are directed to buy environmental education books for the local school.

We differ from Jack and Recalde (2015) in the choice of the public good. In fact, in our case it is not exogenously decided by the experimenter, but is left to the group's decision. This guarantees that the chosen public good reflects more genuinely the group preferences of what the group needs for its activity. We use various procedures to let each group decide their own public good: either the leader or the group decides, and in the latter case by means of public discussion or with private voting. So far we are not aware of any evidence in the experimental domain giving such a choice. Nonetheless, experimental evidence on other collective decisions in groups of different size shows that, when groups are large, taking decisions and solving conflicts without a leader but, for instance, through a public discussion might end up in confusion and ineffectiveness (Weber et al. 2001; Chaudhuri et al. 2009).

The paper is also related to the scarce literature on “participatory incentives” that we introduce in the second treatment. This is a form of enforcement based on the involvement of local population, for instance through rewards that the community receives only if its members demonstrate to each other their willingness to participate and cooperate. A theoretical study is from Breier and Visser (2006), who show that, in a community-based provision of development services, individuals' contribution is feasible only when the subjects expect a sufficiently high proportion of other beneficiaries to contribute. An example of participatory incentives is provided by South Africa's Mvula Trust. This NGO has promoted the “emergency fund” rule, such that the project implementation is conditional on the community financial commitment for a minimum specific percentage of the project's capital costs. According to Palmer (1998) the rule represents an effective mobilization tool for the community and it also serves as savings to insurance against future breakdowns. We provide the first experimental evidence on participatory incentives.

Finally, the paper investigates the interaction between leadership and incentives. In this vein, it is related to Gutiérrez, Hilborn and Defeo (2011), who highlight the role of leadership in enhancing the effectiveness of incentives in a field experiment on the management of a common resource. They show that an accountable and legitimate community leader plays a prominent role in making incentives work, to the extent that he influences users' compliance, enhances conflict resolutions and gives resilience to changes in governance. Similarly, Esman and Uphoff (1984) find that leaders in rural communities drive to a more efficient coordination by elucidating incentives, constraints and

enforcement mechanisms. Differently from these studies, we find that participatory incentives are so effective in enhancing cooperation that the difference between the leader's and the other members' contributions vanishes when we introduce those incentives.

3. The field: Langa, Philippi and Khayelitsha townships

The lab-in-the-field experiment was conducted in three townships in the Cape Town area. Analyzing townships today, more than two decades after the end of Apartheid, is still a worthwhile exercise. In fact, even before Apartheid was formally introduced in 1948, racial discrimination led to physically separating the life of white colonists from their non-white servants (Black Afrikaans or slaves deported from other colonies).³ Physical separation was particularly severe in Cape Town, which “[...] was conceived with a white-only center, surrounded by contained settlements for the black and colored labor forces to the East, each hemmed in by highways and rail lines, rivers and valleys, and separated from the affluent white suburbs by protective buffer zones of scrubland” (Wainwright 2014⁴).⁵ This separation remained even after the abolition of Apartheid, and according to some it was made even worse by unequal and controversial policies adopted by the government (Mattes 2002; Seeking 2007). Nowadays, the unresolved problem of housing segregation is still a great concern in South Africa as it creates significant social and political tensions.

The three townships we consider (Langa, Philippi and Khayelitsha) are extremely homogeneous for ethnic composition, income distribution and educational attainment. With very few exceptions, all inhabitants are Black African and belong to the Xhosa ethnic group. According to the latest official data, about 35% of the population have completed high school and 75% have a monthly income of 3,200 rands or less, corresponding to U.S.\$960 P.P.P. 2014 (census data).⁶ More details about each of the three townships are given in Appendix A.

In general these townships are overcrowded slums, where dwellers live very close to each other, interact continuously and share several moments in their everyday life. According to some township residents the strong sense of community is a natural consequence of the Apartheid period, in that “[...] has managed to bring us together. Although it wasn't a good idea, it has brought us together

³ The townships were initially built as dormitory towns, isolated from the nearby city, to host colored or black servants.

⁴ <http://www.theguardian.com/cities/2014/apr/30/cape-town-apartheid-ended-still-paradise-few-south-africa>.

⁵ The physical legacy of a plan designed to separate poor blacks from rich whites is still carved into Cape Town urban form, so that townships' dwellers face not the problems of high unemployment and bad quality of housing, but also dependency from the nearby city, where all the economic activities are located.

⁶ Data are taken from the 2011 City of Cape Town Suburbs Census. The data from the Census on income and education levels are available only for official residents.

in such a way that now we are able to pursue or to do our traditions and customs because we know one another” (Sabu Siyaka, resident in Langa).⁷

This makes these townships an ideal environment to investigate the mechanisms promoting cohesion and cooperation among segregated people. Indeed, in lab experiments Rand et al. (2009) find that repeated interactions have future consequences for everyday life; since the identities of virtuous and non-virtuous people are usually known, social control among naturally existing communities’ members is strong and reputation is often at stake.⁸ In these environments high rates of cooperation are a likely outcome because of stronger efficiency in monitoring peers’ behavior and in the use of sanction and rewards, especially if non-monetary (e.g. Houser et al. 2008).

4. The experiment

The experiment consists of a one-shot, simultaneous, pen-and-paper game employing a Voluntary Contribution Mechanism. Ten experimental sessions were conducted between July 27 and August 11 2015, with two treatments of five sessions each. In the month before the experiment, we recruited about 300 participants belonging to 10 different existing groups active in the three townships: 269 showed up. Group size ranged from 17 to 34 people. The subjects of each group shared mutual interests and activities: for instance, mothers engaged in HIV prevention, youth involved in social activities, sports team supporters, social workers and ward residents. Groups’ characteristics (mission, composition, frequency of activity, degree of cohesion, etc.) are summarized in Table 1.

⁷ See <http://mapping.wm.edu/2014/01/04/post-apartheid-identity-in-cape-town-townships>.

⁸ See also Monge et al. (1985) on the effects of high levels of physical proximity on social control.

Table 1: Groups' characteristics

Session	Group name	Location of activities	Mission	Frequency of group meetings	Leadership and cohesion	Public good selected (to be bought with the money collected by the group)
1	Ikamva Peace Marker	Philippi, Samora Machel, Kosovo and Sweet Home	Neighborhood watching (especially children when entering/exiting from school)	Monthly, the group has everyday activities	Diffuse leadership, very cohesive group	Flashlights
2	Tsoga Centre Volunteers	Samora Machel	Social workers, youth group employed with grant from the Youth National Agency to do social activities from the community	Monthly, the group has everyday activities	Group members are selected by public call and get access to a subsidy to work for the community. Members change frequently. The leader is in charge of coordination and is not chosen by the group.	Kitchen soup
3	Iqhaya FM Radio Station	Samora Machel	Community radio	Monthly, the group has everyday activities	Diffuse leadership, very cohesive group	Rent payment for the radio site
4	Khanyisa Youth Development	Samora Machel	Awareness and education activities in the community	Monthly	Diffuse (weak) leadership	T-shirts with the group logo
5	Orlando Pirates Samora Machel Branch	Samora Machel	Orlando football team supporter	Monthly, depends on football matches	Diffuse leadership, very cohesive group	Supporters' trip to Johannesburg
6	Inyanda Youth Network	Philippi	Youth Network supporting young artists (music, dance, theater, etc.)	Monthly	Diffuse leadership. Difficulty in finding a permanent setup.	Office stationery
7	Women's Network	Various townships in Cape Town Area	HIV prevention	Monthly	Diffuse leadership	Seeds for the group's vegetable garden
8	EMBO Langa initiation site	Langa	Management of initiation site	Every 3 Months	Diffuse leadership, roles are pre-determined by traditional leaders or institutions representatives. No election by the group.	Facilities for the initiation ceremony
9	Masibambisane Youth Education	Khayelitsa	Use drama as education tool	Every week	Diffuse leadership	Container
10	Representatives of Ward 53	Langa	Local committee of house owners	Monthly	Diffuse leadership, non cohesive group	Facilities for the common room

Source: Authors' compilation.

Arrangements for the timing and location for the experimental sessions were made through group leaders. Each group's leader presented himself or herself as the "chairperson" of the group while giving a brief presentation of the group history and activities before the session started. This made him or her easily identifiable by the experimenters.

Each group took part in one session only and was randomly assigned to one of our two treatments. Before the experiment, the instructions, the surveys and the games material were translated into local language (Xhosa) by three of the facilitators.

4.1. Experimental design

Participants were welcomed, assigned an identification number on a random basis and took a seat in the room. The experimenter read aloud the instructions in English. One facilitator repeated them in the local language, Xhosa. When necessary, the same mechanism was used to answer clarification questions publicly and in private.⁹

Before the beginning of their active participation in the experiment, subjects were asked to sign a consent form, which clarified that all submitted decisions were anonymous and that the experimenters were not able to associate their name with the identification number that was reported in the questionnaires and in any decision sheet. Communication among participants during the experiment was strictly forbidden.

In both treatments the experiment consisted of two phases. In Phase 1 subjects earned 50 rands by answering two questionnaires. Questionnaire A contained standard socio-demographic questions on gender, age, job, education level, family composition and type of dwelling. After a short break, during which subjects were offered coffee and biscuits, they received Questionnaire B, focused on their relationship within the group and their attitudes towards trust and values.¹⁰ By completing both questionnaires, they earned 50 South African rands (corresponding roughly to U.S.\$15, 2014 P.P.P).

In Phase 2 subjects had to decide the destination of the money they had earned in Phase 1 by determining how many rands they wanted to keep for themselves and how many rands they wanted to donate to the group. Specifically, let $I = \{1, 2, \dots, n\}$ denote a group of n subjects who interact in a one-shot, simultaneous public goods game. Individual $i \in I$ receives the endowment e of 50 rands, which can be allocated either to a private good or to a public good. The voluntary contribution of individual i (c_i) to the public good must satisfy $0 \leq c_i \leq e$. Therefore, the payoff of member i in group g , labeled $\pi_{i,g}$, is determined according to the following equation:

$$\pi_{i,g} = e - c_{i,g} + \gamma_{i,g} \sum_{j=1}^n c_{j,g} \quad (1)$$

⁹ For details about the instructions, see Appendix B.

¹⁰ For details about the questionnaires, see Appendix C.

where the group size n varies across groups and the endowment e is fixed 50 rands. The parameter $\gamma_{i,g}$ denotes the Marginal Per Capita Return (MPCR) from investing in the public good. Note that in standard public good games there is an equal split of the public account among group members, so that γ is equal for all subjects ($\gamma = \frac{1}{n}$). In addition, it is chosen in order to satisfy $0 < \gamma < 1 < n\gamma$, which means that there is a conflict between the self-interested choice and the socially optimal one: subjects face a social dilemma. Differently, in our experiment the public good is specific to each group and subjects are potentially heterogeneous for what concerns the private returns from the public good and the opportunity cost of contributing to it. Then, the MPCR γ is subject and group specific.¹¹ The public goods the groups chose to buy with the money collected are summarized in the last column of Table 1.

After deciding how much to donate, subjects were asked to make guesses about their peers' behavior. Belief elicitation was incentivized: subjects won h rands for the number of correct guesses b (out of the B guesses they have to make). Taking into account the monetary consequences of the correct guesses yields the following payoff function for a group member i :

$$\pi_{i,g} = e - c_{i,g} + \gamma_{i,g} \sum_{i=1}^n c_{i,g} + hb_{i,g} \quad (2)$$

where h corresponds to 10 rands.

The decision process differs across two alternative treatments, described in detail below. Before proceeding to final payments, the experimenter read aloud the amount contributed by the group in a way that the specific contribution of each member was not made recognizable. The experimenter publicly gave an envelope containing the money to the leader of the group. Then, private payments in opaque envelopes were carried out after calling subjects one at time.

4.2. Treatments

The experimental setting calls for two different treatments. In Treatment 1, participants received a sheet containing detailed instructions of this phase and they had to decide how many of the 50 rands earned in Phase 1 they wanted to keep for themselves and how many they wanted to contribute to a public account to buy the public good.

Participants had to make a choice on their contribution levels in four conditions. The fund destination was decided by: (a) the community leader; (b) a public discussion; (c) private voting, with

¹¹ Isaac and Walker (1988) find that subjects' contributions to public goods increase in their own marginal return from contributions (that is, a subject contributes more the lower the opportunity cost of contribution). Glöckner et al. (2011) show that, when one subject has a stronger incentive to contribute than the others, other participants are more cooperative.

“one head one vote” (e.g. each vote had the same weight); (d) private voting, with each vote being weighted according to the subject’s contribution.

After the participants’ choices were made, only one of these situations, randomly selected by rolling a dice, was actually implemented; the order of the four situations was randomized across sessions. To assure anonymity, participants wrote their contributions choices in the sheet and immediately gave it to the experimenter or to one of the facilitators. Moreover, they were asked to guess the average contribution of peers in each situation: if they were correct, they won additional h rands for each correct guess. The feedback on the correct answers was given at the end of the experiment.

In Treatment 2, participants received a sheet containing detailed instructions and had to decide how many of the e rands earned in Phase 1 they wanted to keep for themselves and how many they wanted to contribute to a public account to buy the public good. In this treatment, it was decided by the leader, as in Condition (a) of Treatment 1. The main feature here is that participatory incentives took the form of a jackpot that was assigned by the experimenter if the total amount of contributions was at least equal to a given threshold. The threshold is a sum of rands proportional to the number of group members.¹² That is, t rands times the number of members n , where we set t equal to 20.

Moreover, participants had to make a choice on their contribution levels in two conditions. In the first, the whole group received a “jackpot”, that is equal to p rands times the number of members. We set p equal to 50. For example, in a group of 30 members, the threshold is 600 rands; if the overall contributions were greater or equal to this sum, then the group won an additional 1,500 rands. In the second condition, *each participant* received a fraction of the jackpot (“individual jackpot”), equal to p rands. So, in the example above, each participant might win an additional 50 rands if the total amount of contributions reached at least a threshold of 600 rands.

Only one of these conditions, randomly selected, was actually implemented; the order of the two conditions was randomized across sessions. To assure anonymity, participants wrote their contributions choices in the sheet and immediately gave them to the experimenter or to one of the facilitators. As in Treatment 1, the participants were asked to guess the average contribution of their peers in both conditions: for every correct guess, they won an additional 10 rands; the feedback on the correctness of their answer was given at the end of the experiment.

¹² This is to make comparisons across groups of different size.

In formulas, the individual payoff in the “collective jackpot” condition is:

$$\begin{aligned}\pi_{i,g} &= e - c_{i,g} + \gamma_{i,g}(\sum_{i=1}^n c_{i,g} + np) + hb_{i,g} & \text{if } \sum_{j=1}^n c_j \geq tn \\ \pi_{i,g} &= e - c_{i,g} + \gamma_{i,g} \sum_{i=1}^n c_{i,g} + hb_{i,g} & \text{if } \sum_{j=1}^n c_j < tn\end{aligned} \quad (3)$$

In the “individual jackpot” condition, the payoff is:

$$\begin{aligned}\pi_{i,g} &= e - c_{i,g} + \gamma_{i,g} \sum_{i=1}^n c_{i,g} + hb_{i,g} + p & \text{if } \sum_{j=1}^n c_j \geq tn \\ \pi_{i,g} &= e - c_{i,g} + \gamma_{i,g} \sum_{i=1}^n c_{i,g} + hb_{i,g} & \text{if } \sum_{j=1}^n c_j < tn\end{aligned} \quad (4)$$

Note that the participant is indifferent between the payoffs deriving from the two conditions only if $\gamma_i = \frac{1}{n}$, which means that group members split equally the returns of the public good as in standard public good games.

4.3. Procedures

The experiments were run in four different locations: the Tsoga Centre in Samora Machell (Philippi), the Beautiful Gate (Philippi), a common room used by residents of Ward 53 at Langa and a container in Khayelitsha. There were 10 sessions, with a total of 269 participants, divided as summarized in Table 2.

Table 2: Distribution of subjects in the 10 sessions (group size)

Session	1	2	3	4	5	6	7	8	9	10
Size	29	27	19	21	32	17	27	33	34	29
Heterogeneity index ⁽¹⁾	0.0555	0.0511	0.0716	0.0683	0.0412	0.0843	0.0485	0.0422	0.0417	0.0458

(1): The heterogeneity index is the Herfindahl index of a categorical variable reflecting within-group differences in the socio-demographic characteristics. Higher values correspond to higher heterogeneity.

Source: Authors’ analysis based on data described in the text.

There were 129 people participating in Treatment 1 (sessions 1 to 5) and 140 in Treatment 2 (sessions 6 to 10). We employed a between-subjects design: no individual participated in more than one session.

5. Results

In this section we first present the main characteristics of the sample; then, we analyze the data using both non-parametric tests and empirical estimation procedures.

5.1. Main characteristics of the sample

All subjects in our sample belong to the Xhosa ethnic group (Black African). The gender distribution is fairly balanced having about 47% of women. Participants are heterogeneous for their age, ranging from 18 to 72 and an average age of 36. About one-third (36%) of the population (aged 20 years and older) has completed at least Grade 12 (high-school). The unemployment rate among working-age people (aged between 18 and 64) is quite high (56%) and symmetrically household income is quite low: 75% of the people live in households with a reported monthly income lower than 2,000 South African rands (roughly corresponding to U.S.\$600 P.P.P. 2014) or less (see Table 3).

Table 3: Summary statistics of the experimental subject pool

Description	Variable	Obs	Mean	Std Dev	Min	Max
Socio – demographic						
Age	<i>Age</i>	257	35.6	12.8	18	72
Age squared	<i>Age2</i>	257	1,430.2	1,043.4	324	5,184
Female	<i>Female</i>	262	0.473	0.5	0	1
High educational level	<i>High_edu</i>	269	0.123	0.329	0	1
No formal earning	<i>No_wage</i>	269	0.227	0.419	0	1
Poor housing conditions	<i>Poorhousing</i>	269	0.636	0.482	0	1
Involvement in the community						
Sense of neighborhood	<i>Sense of neighborhood</i>	269	2.974	1.157	0	4
Community involvement	<i>Sense of community</i>	269	2.520	1.091	0	4
Time spent in the community	<i>Time spent in community</i>	269	2.756	1.445	0	4
Daily involvement in community's activities	<i>Everyday in community</i>	269	0.665	0.473	0	1
Community like a family	<i>Community like a family</i>	269	0.234	0.424	0	1
Closest neighbors like a family	<i>Closest neighbors as family</i>	269	0.472	0.5	0	1
Values						
Trust in other people	<i>Trust</i>	269	0.297	0.458	0	1
Importance of determination	<i>Determination</i>	269	0.301	0.459	0	1
Importance of hardwork	<i>Hardwork</i>	269	0.543	0.499	0	1
Importance of responsibility	<i>Responsibility</i>	269	0.245	0.431	0	1
Importance of saving	<i>Saving</i>	269	0.227	0.419	0	1
Importance of unselfishness	<i>Unselfishness</i>	269	0.212	0.409	0	1
Group Features						
Low cohesion	<i>Low cohesion</i>	10	0.301	0.459	0	1
Group with altruistic mission	<i>Altruistic</i>	10	0.400	0.516	0	1
Group size	<i>Group size</i>	10	26.9	6.045	17	34
Group with daily activities	<i>Everyday meetings</i>	10	0.400	0.516	0	1

Source: Authors' analysis based on data described in the text.

Low income translates into very poor housing conditions: 60% of the people live in informal dwellings (shacks). Whereas 81% have access to piped water in their dwelling or inside their yard, only 42% have access to a flush toilet connected to the public sewer system. Almost 88% use electricity for lighting in their dwelling.

Since there is evidence that heterogeneity within group members might increase cooperation (e.g. Weber 2004; Reuben and Riedl 2011; Dasgupta and Hakim Orman 2013; Collins 2015), we have built a group heterogeneity measure of the previous socio-demographic variables. The Herfindahl-Hirschman index of this heterogeneity shows that each of the ten groups is quite homogeneous (Table 2).

With regard to answers to behavior and community life, it is not uncommon for community members to ask or give advice to their peers: community life becomes then a part of everyday activities, as asserted by 50.4% of participants. Despite all of this, we find a strong tendency (about 70%) to distrust other people and to be very careful when approaching them.¹³ Since this measure can capture also individual trustworthiness, and not just the belief that others can be trusted (Glaeser et al. 2000), we also ask them which qualities they believe children should learn at home. The traits recognized as most valuable by the participants were good manners, hard work, tolerance and respect for others, determination and perseverance, whereas obedience and imagination appeared to be at the bottom of the participants' priorities.¹⁴

5.2. Contribution levels

Table 4 summarizes the average contribution levels in Treatment 1 in the four conditions differing in the way the public good is selected.

¹³ To measure trust we consider the following question (question 5.8 in Questionnaire B): "Generally speaking, would you say that most people can be trusted or that you can't be too careful in dealing with people?". This question is widely used by economists. Sapienza, Toldra and Zingales (2007) counted more than 500 papers.

¹⁴ For a discussion on this point see also Tabellini (2010).

Table 4: Average contribution levels in Treatment 1

Statistics	(a) Leader's decision	(b) Public discussion	(c) Voting (one head one vote)	(d) Voting (weighted on contribution)
Average	14.55	8.26	8.70	7.94
Standard error	1.67	1.35	1.42	1.30
Min	0	0	0	0
Max	50	50	50	50
Obs	129	129	129	129

Source: Authors' analysis based on data described in the text.

Participants contribute significantly more when the leader is required to take the decision on the public good (condition (a)) than in the other three conditions: the average level of contribution is 14.55, rather than 8.26 (condition (b), public discussion), 8.70 (condition (c), voting with one head one vote), 7.94 (condition (d), voting weighted for contribution levels). Using one-sample t tests, we find that the differences are statistically significant; respectively: $t = 4.394$ ($p = 0.000$), $t = 3.844$ ($p = 0.000$), $t = 4.616$ ($p = 0.000$).¹⁵

Moreover, there is no significant difference between the contribution levels when the public good is selected *via* public discussion rather than *via* both types of voting procedures ($t = -0.919$, $p = 0.359$ and $t = 0.497$, $p = 0.620$, respectively, one-sample t test), or between contribution levels when voting occurs per capita or it is weighted by the subject's level of contribution ($t = 1.271$, $p = 0.206$, one-sample t test).

Contribution levels in Treatment 2 are summarized in Table 5.

¹⁵ All statistical tests are two-tailed unless otherwise specified.

Table 5: Average contribution levels in Treatment 2

Statistics	Collective jackpot	Individual jackpot
Average	29.43	32.34
Standard error	1.11	1.07
Median	25	30
Min	0	0
Max	50	50
Obs	140	140

Source: Authors' analysis based on data described in the text.

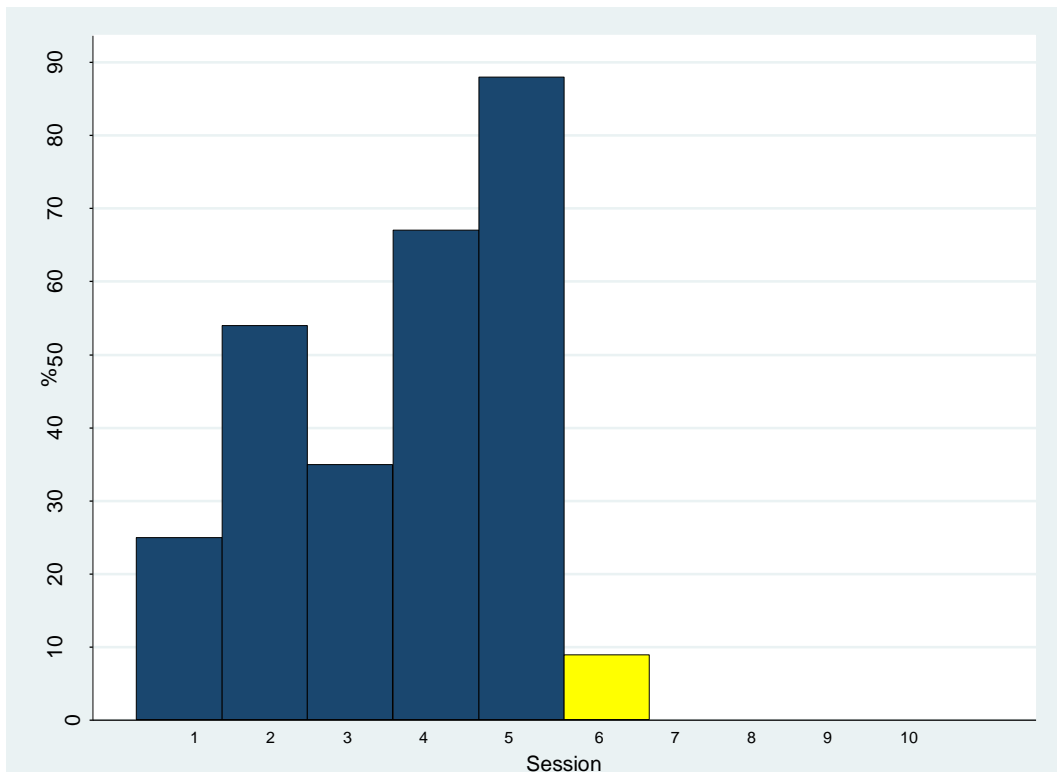
In this treatment, contribution levels significantly increase when the prize is individual rather than the case when the prize is awarded to the whole group. In the collective jackpot condition (that is, when the prize for reaching a pre-determined threshold is to the benefit of the whole group), the average contribution level is 29.43 rands; in the other condition (individual jackpot), the average is 32.34. The difference is statistically significant ($t = 4.122$, $p = 0.000$, one-sample t test).

Interestingly, we find that when a *jackpot* is awarded the contributions are significantly higher than in condition (a) of Treatment 1.¹⁶ In detail, the monetary incentive works either when collective ($Z = -7.91$, $p = 0.000$; Wilcoxon rank-sum test on individual averages) or when individual ($Z = -8.56$, $p = 0.000$).

We also find a strong treatment effect in reducing the frequency of zero-level contributions: while in Treatment 1 their frequency ranged from 25% to 88%, in Treatment 2 they are almost inexistent (Figure 2).

¹⁶ Note that the three conditions (condition (a) of Treatment 1 and conditions with collective and individual jackpot in Treatment 2) are comparable because it is the leader who decides how to allocate the public fund.

Figure 2: Frequency of zero-level contributions in the ten sessions



Source: Authors' analysis based on data described in the text.

5.3. Beliefs on peers' behavior

For each decision we measure subjects' correctness of beliefs on peers' contribution with the distance between the subject's incentivized guess and the actual average contribution made by the group. Subjects are quite well-calibrated on predicting the group behavior: 63% of guesses are correct, whereas 25% of guesses underestimate the group's contribution and 12% overestimate it. Beliefs are significantly higher in Treatment 2 (Wilcoxon rank-sum test on individual averages, with $Z = -19.632$, $p = 0.000$), but there are no differences in the correctness of beliefs across the two treatments (Wilcoxon rank-sum test on individual averages, with $Z = 1.191$, $p = 0.233$).

The individuals who cooperate more are the ones who expect their peers to contribute more: we find a positive and significant correlation between a subject's belief in the group contribution and his/her own contribution (Spearman correlation test, with coefficient = .760, $p = 0.000$). The correlation is stronger in Treatment 2 (Spearman correlation test, with coefficient = .506, $p = 0.000$ in Treatment 1, and coefficient = .737, $p = 0.000$ in Treatment 2, suggesting that participatory incentives entail not only beliefs of higher cooperation, but also higher subjects' responsiveness to their expectation on peers' behavior. We interpret this result as follows: the presence of a jackpot, either collective or individual, stimulates a collective effort for reaching at least the minimum cooperation

threshold for winning the prize. Since this goal needs members' commitment, the individual decision is more sensitive to what members expect others to do.

Interestingly, leaders are less optimistic than other members when predicting the group's contribution behavior. They underestimate the group's cooperation level significantly more than other subjects: the average distance between the leader's belief and the group's actual contribution is -6.66; the analogous distance for other subjects is -2.59. The difference between the two distances is statistically significant (Wilcoxon rank-sum test on individual averages, with $Z = 2.859$, $p = 0.004$).

Finally, leaders' contributions exhibit a very low correlation with their expectations on peers' behavior (Spearman correlation test, with coefficient = .787, $p = 0.098$), suggesting they decide to cooperate even if they do not expect that the rest of the group will do so.

5.4 Determinants of voluntary contribution

In this sub-section we study the determinants of cooperative behavior considering individual and group related factors. Individual factors are subject specific; they are further categorized as *socio-demographic*, *involvement in the community* (sense of neighborhood, time spent in the community, etc.) and *values* (trust in other people, importance of values to be transmitted to children, etc.). Specific features related to the group (*group factors*) consist of a set of features as described in Table 1: leadership style, degree of cohesion, group age, mission, meeting frequency, number of females.

The empirical estimation is described by the following equation:

$$C_{i,g} = \alpha + \beta T + \Gamma X_{i,g} + \Pi V_{i,g} + \theta Z_g + \varepsilon_{i,g} \quad (5)$$

where $C_{i,g}$ is the contribution in rands of individual i of group g . Our variable of interest (T) is the Treatment dummy, assuming value zero for Treatment 1 and one for Treatment 2. $X_{i,g}$ is matrix of individual socio-demographic controls. $V_{i,g}$ are various measures of individual values, Z_g is matrix of group level features and $\varepsilon_{i,g}$ is the standard idiosyncratic error term. In all regressions we report estimated bootstrapped coefficients, clustered at group level. Basic descriptive statistics for the variable used in the econometric analysis are presented in Table 3.

In the multivariable regression analyses we find that, irrespective of the chosen specification, the non-parametric evidence presented in the previous sub-section is confirmed. In Table 6 we report the estimated coefficients of the baseline model when the leader is required to take the decision on the public good in Treatment 1 (condition (a)) or in Treatment 2 in the presence of the collective jackpot.

Table 6: Determinants of contribution – individual characteristics (collective jackpot)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Age + Age ²	Female	High_edu	No_wage	Poorhousing	All controls	Leader interacted with Treatment
Treatment	14.985* (7.831)	14.670** (7.336)	14.929** (7.380)	15.539** (7.627)	14.933** (7.159)	15.447* (8.487)	16.029** (7.936)
Leader	14.583*** (2.774)	14.975*** (3.595)	13.999*** (3.837)	14.453*** (3.776)	14.579*** (4.051)	13.834*** (4.096)	21.515*** (5.760)
Leader x Treatment							-15.367** (6.941)
Age	0.105 (0.558)					0.273 (0.655)	0.241 (0.601)
Age2	0.000 (0.006)					-0.001 (0.007)	-0.001 (0.006)
Female		1.690 (3.387)				1.941 (3.512)	2.044 (2.819)
High_edu			3.008 (4.252)			5.688 (3.567)	5.966 (3.706)
No_wage				-4.036** (1.874)		-4.467** (2.130)	-4.238** (1.805)
Poorhousing					0.091 (1.584)	0.185 (1.732)	0.043 (1.824)
Constant	9.696 (12.764)	13.352** (5.807)	13.635*** (4.703)	14.585** (5.889)	13.918** (5.789)	5.128 (13.649)	5.408 (11.302)
Observations	257	262	269	269	269	253	253
R-squared	0.220	0.194	0.203	0.209	0.200	0.238	0.245

The table shows OLS regressions of the individual contribution level (dependent variable). Treatment is a dummy equal to 1 in Treatment 2 (0 in Treatment 1). Treatment 2 is limited to the case of collective jackpot. Age is the number of years since birth. Female is a dummy=1 for females. High_edu is a dummy=1 if the subject has completed high school. No_wage is a dummy=1 if the subject has no labor earnings. Poorhousing is a dummy=1 if the subject lives in a dwelling without electricity, or without toilet or in a single room. Bootstrapped standard errors, clustered at group level in brackets: *** p<0.01, ** p<0.05, * p<0.1.

Source: Authors' analysis based on data described in the text.

As usual, among socio–demographic variables we include individual age (*Age*) and its squared (*Age2*), a dummy equal to 1 for females (*Female*) and a dummy equal to 1 for individuals having completed at least secondary school education (*High_edu*). In addition, we introduce two controls of material deprivation that could affect the individual attitude to cooperate: an indicator for not having any regular source of income (*No_wage*) and a control for living in a very poor housing condition (i.e. a dwelling without electricity, or without a toilet, or with only one room; *Poorhousing*).

In all the specifications the collective jackpot exerts a positive effect on the individual contributions to the public good. Individual age, gender and school attainment are not correlated with individual behavior. The contribution level decreases by about 4.2 rands for people having no official and regular earnings, as expected, and the effect is significant, while there is no relevant correlation between housing conditions and cooperation. We also try to investigate the role of the group leader by adding a dichotomous indicator for being the group leader, as previously defined. The leader

contributes significantly more than other group members, suggesting that he/she seems more unselfish and to act in the group's interest. For example, considering column 6, our estimates indicate that the leader contributes 13.8 rands more than non-leader participants. In column 7 we interact the leader and the treatment dummies to investigate if there is complementarity or substitution between the two variables. The effect is negative and significant, meaning that the effect of being a leader matters in Treatment 1 and is weaker in Treatment 2, where contributions are mainly driven by monetary incentives.¹⁷ Finally, unreported estimates do not show any statistically significant correlation between group heterogeneity and contribution levels.

In Table 6bis we repeat the same exercise of the previous table, but in Treatment 2 we consider the presence of the individual jackpot. All previous results are confirmed. Again, the jackpot exerts a positive effect on the individual contributions, but note that in this case the magnitude of the treatment variable (the estimated coefficient ranges from 17.6 to 19.2) is higher than in the previous table (from 14.7 to 16.0); this implies that having an individual incentive increases the contribution more, as already emphasized in the non-parametric tests shown in sub-section 5.2. Also the leader effect is positive and significant, but the coefficient is lower. Third, the interaction of the leader with the treatment variable is negative and significant as above.¹⁸

¹⁷ The sum of the estimated parameters on the variables Leader and LeaderXTreatment is statistically different from zero only at 10% (p-value = 0.0867, χ^2 test).

¹⁸ The sum of the estimated parameters on the two variables Leader and LeaderXTreatment is not statistically different from zero (p-value = 0.7476, χ^2 test).

Table 6bis: Determinants of contribution – individual characteristics (individual jackpot)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Age + Age^2	Female	High_edu	No_wage	Poorhousing	All controls	Leader interacted with Treatment
Treatment	17.899** (8.419)	17.638** (7.644)	17.825** (7.824)	18.444*** (6.434)	17.832** (7.254)	18.415** (8.168)	19.172** (7.958)
Leader	11.723** (4.589)	12.526*** (4.562)	11.752** (4.632)	11.904*** (3.714)	12.030*** (3.925)	11.272** (5.130)	21.248*** (6.571)
Leader x Treatment							-19.960*** (7.192)
Age	0.351 (0.622)					0.530 (0.483)	0.489 (0.600)
Age2	-0.003 (0.006)					-0.005 (0.005)	-0.004 (0.006)
Female		2.126 (3.776)				1.969 (3.309)	2.102 (3.503)
High_edu			1.370 (3.344)			3.601 (3.771)	3.961 (2.963)
No_wage				-4.073** (1.908)		-4.732*** (1.640)	-4.435** (1.830)
Poorhousing					0.089 (1.701)	0.044 (1.891)	-0.140 (1.495)
Constant	5.291 (13.729)	13.229** (5.893)	13.925*** (5.087)	14.689*** (4.395)	14.018** (6.097)	1.080 (12.328)	1.445 (14.116)
Observations	257	262	269	269	269	253	253
R-squared	0.277	0.248	0.254	0.262	0.254	0.291	0.302

The table shows OLS regressions of the individual contribution level (dependent variable). Treatment is a dummy equal to 1 in Treatment 2 (0 in Treatment 1). Treatment 2 is limited to the case of individual jackpot. Age is the number of years since birth. Female is a dummy=1 for females. High_edu is a dummy=1 if the subject has completed high school. No_wage is a dummy=1 if the subject has no labor earnings. Poorhousing is a dummy=1 if the subject lives in a dwelling without electricity, or without toilet or in a single room. Bootstrapped standard errors, clustered at group level in brackets: *** p<0.01, ** p<0.05, * p<0.1.

Source: Authors' analysis based on data described in the text.

Next, we test whether individual involvement in the local community explains the contribution levels. The impact of a greater involvement in the local community on the level contribution is not clear *a priori*. In fact, on the one hand, people who interact more with the local community might be less altruistic towards other communities (such as the experimental group) due to some “substitution” effect. On the other side, people with a deep involvement in community activities could also turn out to be those with strong pro-social attitudes.

Table 7: Determinants of contribution – involvement in the local community (collective jackpot)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Treatment	16.430** (7.389)	16.017** (7.392)	17.080** (7.149)	16.090** (7.664)	16.193** (7.861)	15.930** (7.714)	17.453** (6.954)	18.052*** (6.846)
Leader	13.813*** (3.951)	14.150*** (4.239)	13.801*** (3.657)	13.099*** (3.690)	14.199*** (4.101)	13.977*** (4.573)	13.420*** (4.564)	21.223*** (6.904)
Leader x Treatment								-15.674** (7.792)
Sense of neighborhood	-1.946** (0.902)							
Closest neighbors as family		-4.323** (1.722)						
Sense of community			-2.343** (1.091)					
Community like a family				-3.734** (1.748)				
Time in the community					-0.991 (1.484)			
Everyday in community						4.746** (2.098)		
P Comp. 1 (community)							-1.787*** (0.615)	-1.771*** (0.624)
P Comp. 2 (community)							0.981 (1.044)	1.072 (1.007)
Age	0.080 (0.498)	0.172 (0.679)	0.108 (0.658)	0.222 (0.571)	0.232 (0.516)	0.335 (0.515)	0.077 (0.501)	0.048 (0.490)
Age2	0.001 (0.005)	-0.001 (0.007)	0.000 (0.007)	-0.001 (0.006)	-0.001 (0.005)	-0.002 (0.005)	0.000 (0.005)	0.001 (0.005)
Female	1.922 (2.858)	2.153 (2.851)	1.656 (3.251)	1.833 (2.279)	1.446 (2.914)	2.371 (3.190)	1.716 (2.788)	1.829 (2.768)
High_edu	5.853 (3.829)	5.462 (3.356)	5.880 (3.937)	5.379* (3.122)	5.704 (3.905)	6.661** (3.113)	5.728 (4.217)	6.024 (4.372)
No_wage	-4.106** (1.821)	-4.201** (2.066)	-4.413** (1.765)	-4.545** (2.125)	-4.277** (1.760)	-4.061** (1.701)	-4.216** (1.969)	-3.992** (2.034)
Poorhousing	0.186 (1.373)	0.183 (1.733)	0.841 (1.411)	0.432 (1.578)	0.709 (1.665)	0.017 (1.370)	0.808 (1.251)	0.664 (1.265)
Constant	14.528 (11.578)	9.134 (14.528)	13.392 (14.488)	6.704 (12.411)	8.587 (11.552)	0.615 (12.755)	8.216 (10.857)	8.417 (10.670)
Observations	253	253	253	253	253	253	253	253
R-squared	0.252	0.252	0.256	0.246	0.243	0.253	0.264	0.271

The table shows OLS regressions of the individual contribution level (dependent variable). Treatment is a dummy equal to 1 in Treatment 2 (0 in Treatment 1). Treatment 2 is limited to the case of collective jackpot. The variables Sense of neighborhood, Sense of community and Time in the community take integer values that range from 0 to 4 (higher values are ranked with higher scores). The variables Everyday in community, Community like a family and Closest neighbors as family are dummies. P Comp. 1/2 (community) are the principal components of the variables Sense of neighborhood, Closest neighbors as family, Sense of community, Community like a family, Time in the community and Everyday in community. Age is the number of years since birth. Female is a dummy=1 for females. High_edu is a dummy=1 if the subject has completed high school. No_wage is a dummy=1 if the subject has no labor earnings. Poorhousing is a dummy=1 if the subject lives in a dwelling without electricity, or without toilet or in a single room. Bootstrapped standard errors, clustered at group level in brackets: *** p<0.01, ** p<0.05, * p<0.1.

Source: Authors' analysis based on data described in the text.

The results (Table 7) show that our variables of interest (Treatment and Leader) are both significant and positive, as expected, thus confirming the validity of the baseline estimates. Moreover, the effects of the first four indicators on subjects' attitude towards neighbors and the local community are negatively and significantly correlated with the contribution levels (columns 1 to 4). When considering subjects' actual behavior, measured in terms of time spent in the community, the effect is still negative, but not significant (column 5). The sign is reversed and statistically different from zero only for those who have daily activities in the community (column 6). In columns 7 and 8 we repeat this exercise with the principal components of all these additional regressors: the estimates on our key variables are confirmed, the overall effect of the community involvement is negative and the effect of being a leader is weaker in Treatment 2.

The results are confirmed with the individual jackpot in Treatment 2 (Table 7bis).

Table 7bis: Determinants of contribution – involvement in the local community (individual jackpot)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Treatment	19.525** (7.774)	19.101** (7.937)	20.132** (8.209)	19.096** (8.468)	18.804** (9.060)	18.931** (8.217)	20.540*** (7.619)	21.316*** (7.529)
Leader	11.247** (4.386)	11.651*** (3.640)	11.236*** (3.839)	10.494** (4.121)	11.462** (5.281)	11.423** (4.680)	10.828** (4.685)	20.941*** (6.558)
Leader x Treatment								-20.311*** (7.697)
Sense of neighborhood	-2.194** (1.038)							
Closest neighbors as family		-5.196*** (1.475)						
Sense of community			-2.462** (1.113)					
Community like a family				-3.951*** (1.501)				
Time in the community					-0.517 (1.631)			
Everyday in community						5.057*** (1.789)		
P Comp. 1 (community)							-1.889*** (0.572)	-1.869*** (0.585)
P Comp. 2 (community)							1.052 (0.799)	1.170 (0.805)
Age	0.313 (0.613)	0.409 (0.515)	0.357 (0.503)	0.476 (0.596)	0.509 (0.635)	0.597 (0.556)	0.323 (0.613)	0.286 (0.592)
Age2	-0.002 (0.006)	-0.004 (0.005)	-0.003 (0.005)	-0.004 (0.005)	-0.004 (0.006)	-0.006 (0.005)	-0.003 (0.006)	-0.002 (0.006)
Female	1.947 (3.403)	2.224 (3.388)	1.669 (3.418)	1.854 (3.444)	1.710 (3.723)	2.427 (3.116)	1.732 (3.312)	1.878 (3.281)
High_edu	3.786 (3.496)	3.329 (2.875)	3.803 (2.741)	3.273 (3.148)	3.609 (2.836)	4.637 (3.109)	3.645 (2.873)	4.029 (3.150)
No_wage	-4.326** (1.884)	-4.413*** (1.531)	-4.676** (1.969)	-4.815** (1.897)	-4.633** (1.938)	-4.300*** (1.467)	-4.468* (2.380)	-4.177* (2.347)
Poorhousing	0.046 (1.345)	0.042 (1.312)	0.734 (1.647)	0.306 (1.615)	0.318 (1.538)	-0.135 (1.891)	0.704 (1.323)	0.518 (1.314)
Constant	11.680 (15.032)	5.896 (11.980)	9.767 (10.345)	2.748 (14.906)	2.884 (12.205)	-3.729 (12.268)	4.337 (14.764)	4.597 (14.354)
<i>Observations</i>	253	253	253	253	253	253	253	253
<i>R-squared</i>	0.307	0.310	0.309	0.299	0.292	0.307	0.318	0.330

The table shows OLS regressions of the individual contribution level (dependent variable). Treatment is a dummy equal to 1 in Treatment 2 (0 in Treatment 1). Treatment 2 is limited to the case of individual jackpot. The variables Sense of neighborhood, Sense of community and Time in the community take integer values that range from 0 to 4 (higher values are ranked with higher scores). The variables Everyday in community, Community like a family and Closest neighbors as family are dummies. P Comp. 1/2 (community) are the principal components of the variables Sense of neighborhood, Closest neighbors as family, Sense of community, Community like a family, Time in the community and Everyday in community. Age is the number of years since birth. Female is a dummy=1 for females. High_edu is a dummy=1 if the subject has completed high school. No_wage is a dummy=1 if the subject has no labor earnings. Poorhousing is a dummy=1 if the subject lives in a dwelling without electricity, or without toilet or in a single room. Bootstrapped standard errors, clustered at group level in brackets: *** p<0.01, ** p<0.05, * p<0.1.

Source: Authors' analysis based on data described in the text.

We also explore the role of individual values and attitudes in shaping subjects' behavior. In fact, Kocher, Martinsson and Visse (2012) find that significant differences in cooperation between blacks and whites disappear when adding measures of trust as controls. Then, we verify that our results hold also when the previous empirical specification is modified by adding the measures of trust as background controls for attitudes and behaviors (Table 8).¹⁹

Table 8: Determinants of contribution – values and trust (collective jackpot)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Treatment	15.175**	15.215**	15.634**	15.519**	15.327**	15.375**	17.019**	17.618**
	[7.136]	[7.010]	[7.156]	[7.041]	[6.690]	[7.062]	[7.616]	[7.458]
Leader	14.175***	12.998***	13.752***	13.908***	13.957***	13.794***	14.018***	21.848***
	[4.515]	[4.590]	[4.424]	[4.320]	[4.283]	[4.265]	[4.719]	[6.485]
Leader x Treatment								-15.713**
								[7.244]
Trust	-1.078						-1.857	-1.879
	[3.130]						[2.441]	[2.537]
Determination		1.868						
		[2.451]						
Hardwork			-0.579					
			[1.753]					
Responsibility				-0.530				
				[2.296]				
Saving					0.843			
					[2.125]			
Unselfishness						0.446		
						[2.073]		
P Comp. of values							-1.859***	-1.843***
							[0.579]	[0.597]
P Comp. 1 (community)							0.944	1.035
							[1.027]	[0.995]
P Comp. 2 (community)							0.035	0.030
							[0.695]	[0.636]
Constant	4.935	4.905	5.463	5.275	4.676	4.979	8.031	8.233
	[11.433]	[11.513]	[11.390]	[11.418]	[10.964]	[11.592]	[10.190]	[10.042]
Observations	253	253	253	253	253	253	253	253
R-squared	0.239	0.240	0.238	0.238	0.239	0.238	0.266	0.273

The table shows OLS regressions of the individual contribution level (dependent variable). Treatment is a dummy equal to 1 in Treatment 2 (0 in Treatment 1). Treatment 2 is limited to the case of collective jackpot. The variable Trust is a dummy =1 if the answer to question 5.8 is "Most people can be trusted." Determination, Hardwork, Responsibility, Saving and Unselfishness are dummies =1 for the corresponding answers to question 5.9. P Comp. (values) is the principal component of the variables Determination, Hardwork, Responsibility, Saving and Unselfishness variables (question 5.9). P Comp. 1/2 (community) are the principal components of the variables Sense of neighborhood, Closest neighbors as family, Sense of community, Community like a family, Time in the community and Everyday in community. The coefficients of the individual characteristics variables (Age, Age2, Female, High_edu, No_wage, Poorhousing) are not reported. Bootstrapped standard errors, clustered at group level in brackets: *** p<0.01, ** p<0.05, * p<0.1.

Source: Authors' analysis based on data described in the text.

¹⁹ Specifically, the level of trust in other people and the qualities important in everyday life that must be transmitted to children from parents.

First, note that the treatment and leader dummies maintain their significance over all the specifications. Moreover, we do not find any statistically significant correlation between the individual contributions and trust in other people (column 1). Similarly, no effect is found when considering alternative values that each subject believes to be important in everyday life and therefore must be taught to their children: determination, hard work, responsibility, saving and selfishness (columns 2 to 6). Finally, we consider trust, the principal component of values and also add the principal components of the involvement in the local community, introduced in Table 7. Our main results are confirmed also in this case (column 7).

Our findings hold also when repeating these estimates with the individual jackpot (Table 8bis).

Table 8bis: Determinants of contribution – values and trust (individual jackpot)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Treatment	18.301**	18.167***	18.369**	18.441***	18.491***	18.298***	20.200***	20.976***
	[7.119]	[7.005]	[7.134]	[7.007]	[6.825]	[6.968]	[7.757]	[7.566]
Leader	11.415**	10.377**	11.292**	11.297**	11.193**	11.205**	11.229**	21.362***
	[4.749]	[4.539]	[4.661]	[4.440]	[4.453]	[4.408]	[4.914]	[6.129]
Leader x Treatment								-20.336***
								[6.451]
Trust	-0.453						-1.230	-1.258
	[3.290]						[2.640]	[2.815]
Determination		1.999						
		[2.740]						
Hardwork			0.143					
			[2.335]					
Responsibility				-0.186				
				[2.290]				
Saving					-0.539			
					[2.197]			
Unselfishness						0.728		
						[1.867]		
P Comp. (values)							0.088	0.082
							[0.782]	[0.728]
P Comp. 1 (community)							-1.939***	-1.919***
							[0.533]	[0.554]
P Comp. 2 (community)							1.030	1.148
							[1.072]	[1.053]
Constant	0.999	0.842	0.998	1.132	1.369	0.836	4.180	4.441
	[11.429]	[11.688]	[11.945]	[11.466]	[11.067]	[11.471]	[10.023]	[10.015]
Observations	253	253	253	253	253	253	253	253
R-squared	0.291	0.293	0.291	0.291	0.291	0.291	0.319	0.331

The table shows OLS regressions of the individual contribution level (dependent variable). Treatment is a dummy equal to 1 in Treatment 2 (0 in Treatment 1). Treatment 2 is limited to the case of individual jackpot. The variable Trust is a dummy =1 if the answer to question 5.8 is “Most people can be trusted.” Determination, Hardwork, Responsibility, Saving and Unselfishness are dummies =1 for the corresponding answers to question 5.9. P Comp. (values) is the principal component of the variables Determination, Hardwork, Responsibility, Saving and Unselfishness variables (question 5.9). P Comp. 1/2 (community) are the principal components of the variables Sense of neighborhood, Closest neighbors as family, Sense of community, Community like a family, Time in the community and Everyday in community. The coefficients of the individual characteristics variables (Age, Age2, Female, High_edu, No_wage, Poorhousing) are not reported. Bootstrapped standard errors, clustered at group level in brackets: *** p<0.01, ** p<0.05, * p<0.1.

Source: Authors’ analysis based on data described in the text.

In the next step, we focus on group features as key determinants for average contribution level. In particular, we classify the ten groups according to the size, the level of internal cohesion, the mission (altruistic vs. non altruistic), and the frequency of the activities and meetings. Results are presented in Table 9.

Table 9: Determinants of contribution – group characteristics (collective jackpot)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Treatment	5.665** [1.849]	15.966* [8.802]	22.337*** [6.843]	14.127* [7.819]	21.102*** [3.148]	24.382*** [6.924]	24.910*** [6.763]
Leader	14.836*** [4.499]	15.235*** [4.582]	13.187*** [4.770]	13.638*** [4.782]	15.201*** [4.110]	14.241*** [4.611]	21.492*** [6.771]
Leader x Treatment							-14.553* [7.476]
Group size		0.488 [0.756]					
Low cohesion			-18.879*** [4.520]				
Altruistic				7.024 [6.560]			
Everyday meetings					19.934*** [3.505]		
P Comp. (group characteristics)						-6.166 [3.918]	-6.143 [3.880]
Trust	-2.148 [1.970]	-2.598 [2.683]	-0.647 [2.560]	-2.426 [2.349]	-2.260 [1.460]	-0.799 [2.351]	-0.823 [2.476]
P Comp. (values)	0.167 [0.513]	-0.128 [0.765]	-0.559 [0.506]	0.546 [0.606]	0.350 [0.479]	-0.699 [0.590]	-0.701 [0.536]
P Comp. 1 (community)	-0.541 [0.466]	-1.953*** [0.672]	-2.283*** [0.617]	-1.047* [0.611]	-0.369 [0.463]	-2.229*** [0.495]	-2.214*** [0.513]
P Comp. 2 (community)	0.229 [0.758]	0.959 [1.048]	0.462 [0.662]	1.293 [0.971]	-0.321 [0.800]	-0.104 [0.771]	-0.016 [0.746]
Constant	7.248 [6.023]	-2.342 [12.411]	21.846** [9.446]	1.807 [9.515]	-9.398** [4.324]	4.761 [8.767]	4.960 [8.698]
Session FE	Yes	No	No	No	No	No	No
Observations	253	253	253	253	253	253	253
R-squared	0.562	0.284	0.349	0.294	0.510	0.403	0.409

The table shows OLS regressions of the individual contribution level (dependent variable). Treatment is a dummy equal to 1 in Treatment 2 (0 in Treatment 1). Treatment 2 is limited to the case of collective jackpot. Group size is the number of group members. Low cohesion is a dummy =1 for non-cohesive groups. Altruistic is a dummy for groups with pro-social mission. Everyday meetings is a dummy =1 if the group meets on a daily basis. The variable Trust is a dummy =1 if the answer to question 5.8 is “Most people can be trusted.” P Comp. (group characteristics) is the principal component of Group size, Low cohesion, Altruistic and Everyday meetings. P Comp. (values) is the principal component of the variables Determination, Hardwork, Responsibility, Saving and Unselfishness variables (question 5.9). P Comp. 1/2 (community) are the principal components of the variables Sense of neighborhood, Closest neighbors as family, Sense of community, Community like a family, Time in the community and Everyday in community. The coefficients of the individual characteristics variables (Age, Age2, Female, High_edu, No_wage, Poorhousing) are not reported. Standard errors are clustered at group level in Columns 1 and 6 (in brackets). In the other columns standard errors are bootstrapped and clustered at group level (in brackets): *** p<0.01, ** p<0.05, * p<0.1.

Source: Authors’ analysis based on data described in the text.

In Table 9, not only the effects of treatment and leader are still in place, but also some group features matter significantly for shaping individual behavior. In particular, in column 1 we run the regression adding group fixed effects. In the other columns, where we replace the fixed effects with group characteristics, we find that the subjects’ contribution level decreases in groups with low internal cohesion (column 3) and increases for groups with daily activities (columns 5). In columns 6 and 7 we report the regressions with the group characteristics summarized by the principal

components, and the previous results are confirmed. Finally, we repeat the estimates in the presence of the individual jackpot and we obtain the same results (Table 9bis).

Table 9bis: Determinants of contribution – group characteristics (individual jackpot)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Treatment	6.162*** [1.624]	19.515** [8.678]	25.559*** [7.016]	16.740* [8.653]	23.996*** [4.049]	27.011*** [8.252]	27.710*** [8.068]
Leader	11.621* [5.225]	12.020** [4.788]	10.391** [5.061]	10.774** [4.978]	12.328*** [4.405]	11.434** [4.860]	21.033*** [6.447]
Leader x Treatment							-19.264*** [6.625]
Group size		0.317 [0.693]					
Low cohesion			-19.022*** [4.412]				
Altruistic				8.405 [6.652]			
Everyday meetings					18.532*** [3.316]		
P Comp. (group characteristics)						-5.703 [4.089]	-5.673 [4.087]
Trust	-1.396 [2.106]	-1.712 [2.980]	-0.011 [2.839]	-1.910 [2.630]	-1.604 [1.670]	-0.251 [2.544]	-0.283 [2.754]
P Comp. (values)	0.186 [0.412]	-0.018 [0.844]	-0.510 [0.560]	0.700 [0.626]	0.381 [0.601]	-0.590 [0.686]	-0.593 [0.624]
P Comp. 1 (community)	-0.655 [0.394]	-2.001*** [0.610]	-2.367*** [0.571]	-0.968 [0.613]	-0.555 [0.428]	-2.282*** [0.467]	-2.262*** [0.487]
P Comp. 2 (community)	0.655 [0.817]	1.040 [1.094]	0.544 [0.682]	1.447 [0.924]	-0.146 [0.901]	0.061 [0.796]	0.178 [0.788]
Constant	5.338 [6.240]	-2.570 [10.329]	18.099* [10.191]	-3.268 [9.403]	-12.024* [6.207]	1.155 [9.999]	1.418 [10.072]
Session FE	253	253	253	253	253	253	253
Observations	0.595	0.326	0.399	0.357	0.518	0.430	0.440
R-squared	6.162***	19.515**	25.559***	16.740*	23.996***	27.011***	27.710***

The table shows OLS regressions of the individual contribution level (dependent variable). Treatment is a dummy equal to 1 in Treatment 2 (0 in Treatment 1). Treatment 2 is limited to the case of individual jackpot. Group size is the number of group members. Low cohesion is a dummy =1 for non-cohesive groups. Altruistic is a dummy for groups with pro-social mission. Everyday meetings is a dummy =1 if the group meets on a daily basis. The variable Trust is a dummy =1 if the answer to question 5.8 is “Most people can be trusted.” P Comp. (group characteristics) is the principal component of Group size, Low cohesion, Altruistic and Everyday meetings. P Comp. (values) is the principal component of the variables Determination, Hardwork, Responsibility, Saving and Unselfishness variables (question 5.9). P Comp. 1/2 (community) are the principal components of the variables Sense of neighborhood, Closest neighbors as family, Sense of community, Community like a family, Time in the community and Everyday in community. The coefficients of the individual characteristics variables (Age, Age2, Female, High_edu, No_wage, Poorhousing) are not reported. Standard errors are clustered at group level in Columns 1 and 6 (in brackets). In the other columns standard errors are bootstrapped and clustered at group level (in brackets): *** p<0.01, ** p<0.05, * p<0.1.

Source: Authors’ analysis based on data described in the text.

6. Discussion and conclusions

This work aims at shedding a light on collective-action problems among segregated communities. We run a lab-in-the-field experiment in three South African townships of Cape Town

(Langa, Philippi and Khayelitsha). The townships were first created during the Apartheid era for the specific purpose of separating black Africans' housing from the rest of the city (lived in by whites). Despite the complete abolition of formal rules of segregation in 1994, nowadays a vast majority of poor black people still live in the townships, creating an ideal environment to study *de facto* residential segregation.

Our experiment tests the cooperative attitude of naturally existing groups where members have to decide how much to donate to their group out of an endowment they earn for completing a questionnaire. The decision occurs within two alternative treatments. In the first, we provide no incentives and the decision on which public good to buy is left to the leader or to a public discussion or through private voting. In the second, we introduce monetary incentives that reward the group or the individual, and the decision on the public good is taken by the leader.

The experiment involved 269 participants living in the three townships. Despite their low standard of living, the average level of contribution was substantial, reaching almost 45% of the endowment.

Our key results deal with leadership and participatory incentives, respectively. First, subjects contribute significantly more when the leader is required to take the decision on the public good, rather than when the decision occurs through a public discussion or by private voting. This result is in line with African leadership style, typically non authoritarian and based on consensus. African societies tend to be egalitarian within age groups, but hierarchical or gerontocratic between age groups (Linguist and Adolph 1996). Since consensus is highly valued, decision making within levels can take a long time (Cosway and Anankum 1996), while between levels observance of hierarchy implies that consensus can be achieved relatively quickly (Dia 1994). These decision processes are similar to the ones used by groups in townships, where individuals speak privately or in a small group to the leader (or "chairperson"), who collects all the opinions and takes a final decision. Decision making after a collective discussion takes place very rarely and private voting is never used, consistent with the large size of the groups we involved in our experiment (between 17 and 34 members), where taking decisions through a public discussion might be chaotic and ineffective.

Second, subjects responded significantly more when they faced "participatory incentives", a mechanism similar to community-led development programs which require, in general, a personal commitment by the community recipients of the aid. In our manipulation, subjects obtained a public or a private reward if the sum of all contributions reached a given threshold. These incentives turned out to be very effective and the high levels of individual contributions revealed also the beliefs that other group members would behave accordingly. This finding also reflects the evidence on

community development, which is more effective when the beneficiaries are active participants and projects are accompanied by community-building initiatives.

Finally, we explore the interaction between leadership and incentives. While the empirical evidence highlights the role of the leader in driving more efficient coordination, we find that the incentives are very effective in enhancing cooperation and the difference of contribution between the leader and the other members shrinks significantly.

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APPENDIX

Appendix A: Description and history of the three townships

The first township we took into consideration is Langa, which is Cape Town's oldest South-African township, established in 1923. The area is relatively small and informal settlements could not expand further due to geographical constraints. Being the oldest township in Cape Town, Langa has seen generations of people grow up together and develop a strong sense of community pride. The proximity of housing in Langa was one crucial factor in promoting a high degree of neighborhood.

The second township, Khayelitsha or "New Home", was established in 1983 to accommodate informal settlement dwellers on the Cape Peninsula. People living in squatter camps or existing townships were housed in a newly proposed 3220-hectare site located to the South-East of the peninsula. The government envisaged Khayelitsha as a relocation point to accommodate all legal residents (the government classified people as legal if they had already lived in the area for ten years) of the Cape Peninsula in one new purpose-built and easily controlled township. Due to the large and continuous inflow of people, it is now the largest around Cape Town and the third largest township in South Africa. Overall Khayelitsha is young, rapidly expanding.

The third township, Philippi, is located in an area named Cape Flats. Although the first community of local residents is recorded in 1833, its developments and substantial residential growth emerged in the early 1980s. The history and expansion of Philippi is linked to Apartheid policies. In fact, it increasingly became a place of refuge for people from the political conflict and violence in the former homelands. Moreover, the farms' elimination in the nearby area of Mitchells Plain caused a number of workers to be deposed and having to move elsewhere (Adlard 2011).

Appendix B: Instructions



The triple challenge
UNU-WIDER Field Study - Cape Town



Welcome! Thank you for arriving on time to take part in this experiment. The experiment is divided in two parts. You will have the opportunity to earn a total amount of 50 rands by answering two Questionnaires, called A and B, respectively. After the two questionnaires, you will be asked to make a set of choices involving the money you earned. All your answers in the questionnaires and all your decisions will be completely anonymous and all the information we collect will be confidential: no one outside our study team will have access to the information that you provide. The experiment will last approximately one hour and you will receive your payment at the end of the session. Please answer all questions, thinking that there are no better or worse answers, because the experiment simply aims to understand how people make decisions.

Consent form

Before we begin the experiment it is necessary that we hand out a form titled “Consent to participate in research”. This is a document used by universities to make sure that the questions we ask and the activities we perform during the experimental sessions do not hurt the people involved. We request your signature only as a proof that you have received the aforementioned information and you agree to participate in this experiment.

<< Hand out consent form >>

Now we ask to please sign the form before proceeding. The people who do not sign the form will not be able to participate in the experiment and earn money. Please ask any questions right now before signing the form. After answering questions, we will collect the signed form.

<< Collect signed forms >>

Part A

We now ask you to complete Questionnaire A. There are no right or wrong answers: we are simply interested in learning about you and your experiences. We ask that all of you fill out the questionnaire at the same time. You can ask clarifications as we proceed with the questionnaire. We will make sure everyone has answered each question and will assist whoever needs help before proceeding with the help of a few facilitators who speak both English and Xhosa.

<< Hand out Questionnaire A and pens >>

First, note that on the top left-hand corner of the questionnaire, in the space provided next to “ID”, there is the identification number you received during registration. Now we will go around the room making sure that everyone has completed the questionnaire.

<< Collect questionnaires and check if they are complete >>

We now ask you to complete Questionnaire B. Again, there are no right or wrong answers: we are simply interested in learning about you and your experiences. We ask that all of you fill out the questionnaire at the same time.

<< Hand out questionnaire B >>

Again, on the top left corner you find your ID number. The number should go in the blank space provided next to “ID”. Now we will go around the room making sure that everyone has completed the questionnaire.

<< Collect questionnaires and check if they are complete >>

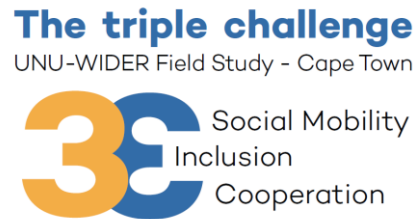
Part B

The 50 rands you have earned by completing both questionnaires is yours. Now each of you can decide to take it all and use it as you wish. However, since we know that your group shares common interests and projects, we would like to give you the opportunity to contribute part, all, or none of the money to a common fund that will be used for something that will be beneficial for the whole group: we will call it “public good”.

Now you receive the “decision sheet” where you have to indicate your choices. In this sheet, we also ask you to make guesses about the choices the other participants in the session made in the previous situations.

Payments

The experiment is finished. We will proceed with payments. Each participant will receive the amount of money he/she earned in the two questionnaires and did not decide to contribute either to the public fund or to donate to the other group.



Consent form to participate in the research

You have been invited to take part in this research project. The researcher will explain the project to you in detail. You should feel free to ask questions. If you have more questions later, Daniela Grieco, the person mainly responsible for this study, will discuss them with you. You must be at least 18 years old to be in this research project.

Description of the project. The project aims at investigating how people make decisions between members of the same group and across groups.

What will be done. If you decide to take part in this study here is what will happen: you will answer two questionnaires that will allow you to earn money. Then, you will make decisions regarding the possibility to use all, part or none of this money to contribute to a common project for your group or for another group who also takes part in this experiment.

Benefits of this study. Although there will be no direct benefit to you for taking part in this study, the researchers may learn more about the degree of cooperation and cohesion among people living in this area.

Confidentiality. All the information you provide in this study is strictly confidential. None of the information will identify you by name. All records will be included in a dataset in anonymous form.

Decision to quit at any time. The decision to take part in this study is up to you. You do not have to participate. If you decide to take part in the study, you may quit at any time. If you wish to quit for some reason, simply inform the experimenters of your decision.

Rights and complaints. If you are not satisfied with the way this study is performed, you may discuss your complaints with Daniela Grieco, anonymously, if you choose.

You have read the Consent Form. Your questions have been answered. Your signature on this form means that you understand the information and you agree to participate in this study.

Signature of Participant

Signature of Researcher

Typed name

Typed name

Date

Date

Appendix C: Questionnaires

ID number

QUESTIONNAIRE A

Before you fill out the answers, it's important to read the brief instructions at the beginning of each section and details in each question. Make sure to understand the questions.

In the majority of questions you will be given some possible options as answers. Please put a circle around the number corresponding to your answer. If you do not find your answer among the proposed options, you can simply write your answer, in the "Other (specify)" cell. Please write all your answers in CAPITAL LETTERS.

SECTION 1: DEMOGRAPHIC CHARACTERISTICS

We would ask you some information about yourself

Number	QUESTION	ANSWER																				
1.1	What is your date of birth?	<table style="margin: auto; border: none;"> <tr> <td style="border: 1px solid black; width: 20px; height: 20px; display: inline-block;"></td> <td style="border: 1px solid black; width: 20px; height: 20px; display: inline-block;"></td> <td style="font-size: 24px; vertical-align: middle; margin: 0 10px;">/</td> <td style="border: 1px solid black; width: 20px; height: 20px; display: inline-block;"></td> <td style="border: 1px solid black; width: 20px; height: 20px; display: inline-block;"></td> <td style="font-size: 24px; vertical-align: middle; margin: 0 10px;">/</td> <td style="border: 1px solid black; width: 20px; height: 20px; display: inline-block;"></td> <td style="border: 1px solid black; width: 20px; height: 20px; display: inline-block;"></td> <td style="border: 1px solid black; width: 20px; height: 20px; display: inline-block;"></td> <td style="border: 1px solid black; width: 20px; height: 20px; display: inline-block;"></td> </tr> <tr> <td colspan="2" style="text-align: center;"><i>Day</i></td> <td></td> <td colspan="2" style="text-align: center;"><i>Month</i></td> <td></td> <td colspan="4" style="text-align: center;"><i>Year</i></td> </tr> </table>			/			/					<i>Day</i>			<i>Month</i>			<i>Year</i>			
		/			/																	
<i>Day</i>			<i>Month</i>			<i>Year</i>																
1.2	What is your gender?	Male 1 Female 2																				
1.3	What is your population group?	African 1 Coloured 2 White 3 Indian/Asian 4 Other (Specify)..... 5																				
1.4	What is the main language you speak at home?	(Specify).....																				
1.5	What is the highest level of schooling that you have completed?	None 0 Grade 1 1 Grade 2 2 Grade 3 3 Grade 4 4 Grade 5 5 Grade 6 6 Grade 7 7 Grade 8 8 Grade 9 9 Grade 10 10																				

		Grade 11 11 Grade 12 12 Grade 13 /Post Matric..... 13 College..... 14 Graduate/Post graduate..... 15 Other (Specify)_____ 16
1.6	Where do you currently live?	(Specify)_____ The place you specified is located: In the district of Cape Town 1 In another district in South Africa 2 Outside South Africa 3
1.7	Were you born in the community where you currently live?	Yes..... 1 => <i>Go to question 1.10</i> No 2 => <i>Go to question 1.8</i> Don't know where I was born 3 => <i>Go to question 1.9</i>
1.8	When did you move into the community where you currently live?	Year <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
1.9	What is your religion?	None 0 Catholic 1 Muslim..... 2 Hinduism 3 African traditional religion 4 Judaism..... 5 Other (Specify)_____ 6

SECTION 2: HOUSEHOLD COMPOSITION

We would ask you some information about your household and people living with you

Number	QUESTION	ANSWER
2.1	What is your current marital status?	Single (Never married) 1 Currently Married/Cohabiting 2 Divorced/Separated 3 Widowed 4
2.2	How many children do you have?	<i>Number of your children currently alive</i> <input type="text"/> <input type="text"/>
2.3	How many of your children are currently enrolled in schools in the community where you live?	<i>Number of your children currently enrolled within the school community</i> <input type="text"/> <input type="text"/>
2.4	How many people live in your house, <u>excluding</u> yourself?	<i>Number of cohabitants</i> <input type="text"/> <input type="text"/>

ID number

QUESTIONNAIRE B

As in Questionnaire A, please read the brief instructions at the beginning of each section and details in each question. Make sure to understand the questions. Put a circle around the number corresponding to your answer. If you do not find your answer among the proposed options, you can simply write your answer, in the “Other (specify)” cell. Please write all your answers in CAPITAL LETTERS.

SECTION 4. EMPLOYMENT AND EARNINGS

We would like to ask you some questions about the work you do and about your earnings. We would ask also some questions on your household income

Number	QUESTION	ANSWER
4.1	What is your <u>current main</u> job activity?	Paid employee (private sector)..... 1 Paid employee (public sector /government)..... 2 Self-employed with employees..... 3 Self-employed without employees..... 4 Housewife /Home-maker 5 Unemployed but looking for a job 6 Student..... 7 Pensioner, retired, too old to work..... 8 Ill or disabled 9 Other (Specify)..... 10
4.2	Considering your current (last) job, do (did) you work throughout the year, seasonally, or only once in a while?	I never worked 1 => <i>Go to question 4.8</i> I work(ed) throughout all the year 2 I work(ed) seasonally/part of the year..... 3 I work(ed) once in a while 4
4.3	Considering your current (last) job, in what sector is (was) your <u>main</u> job activity?	Agriculture 1 Fishing 2 Mining and quarrying 3 Manufacturing 4 Building or construction 5 Trade/retail sale 6 Transport..... 7 Public sector/government 8 Other services 9 Other (Specify)..... 10
4.4	How are you usually paid for your main work?	Cash only 1 Cash and in kind 2 In kind only..... 3 Not paid 4
4.5	<u>Last month</u>, how much money (rands) did you earn from a job?	Not paid 1 Less than 1000 2 More than 1000 but less than 3000 3 More than 3000 but less than 5000 4 More than 5000 but less than 10000 5 More than 10000 but less than 20000 6

		More than 20000 7
4.6	How many of other household members are currently employed?	Number of other household members currently employed <input type="text"/> <input type="text"/>
4.7	What was the total income of your household (in rand) during the last month?	No income..... 1 Less than 2000 2 More than 2000 but less than 6000 3 More than 6000 but less than 10000 4 More than 10000 but less than 20000 5 More than 20000 but less than 40000 6 More than 40000 7
4.8	Does your family save a fraction of its monthly income?	Never 1 Seldom /only sometimes 2 Often 3 Always 4

SECTION 5: BEHAVIOR and COMMUNITY LIFE

We would like to ask you some questions about the way in which main decisions are taken in your household and the involvement of your household into the community you live

Number	QUESTION	ANSWER		
5.1	Do you usually ask other community members' opinion before taking decisions?	Never 1 Seldom 2 Sometimes 3 Often 4 Always 5		
5.2	Do other community members ask your opinion before taking decisions?	Never 1 Seldom 2 Sometimes 3 Often 4 Always 5		
5.3	How often do you chat, talk and spend time together with other people in the community where you live?	Never 1 A few times each year 2 A few times each month 3 A few times each week 4 Every day 5		
5.4	What best describes <u>the community</u> where you live?	A family 1 A group of friends 2 Neighbors 3 Strangers 4 Other 5		
5.5	What best describes <u>your closest neighbors</u> ?	A family 1 A group of friends 2 A group of people with the same origin of mine 3 Strangers 4 Other 5		
5.6	How much are the following issues a problem to you on a daily basis? <i>Put an "X" in the corresponding cell.</i>	<i>Not a problem</i>	<i>A small problem</i>	<i>A big problem</i>
	Food			
	Energy			
	Hygienic condition			
	Uncooperative neighbors			

	Garbage			
	Lack of transports			
	Poor schools			
	Poor health facilities			
	Lack of other services			
	Lack of safety			
5.7	How much are the following issues a problem to the community where you live on a daily basis? <i>Put an "X" in the corresponding cell.</i>	<i>Not a problem</i>	<i>A small problem</i>	<i>A big problem</i>
	Food			
	Energy			
	Clean water and hygienic condition			
	Uncooperative neighbors			
	Garbage			
	Lack of transport			
	Poor schools			
	Poor health facilities			
	Lack of other services			
	Lack of safety			
5.8	Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people? <i>Please provide only one answer.</i>	Most people can be trusted 1 Need to be very careful 2 Don't know 3		
5.9	Here is a list of qualities that children can be encouraged to learn at home. Which, if any, do you consider to be especially important? <i>Please choose up to five.</i>	Good manners 1 Determination and perseverance 2 Hard work 3 Imagination 4 Independence 5 Obedience 6 Religious faith 7 Feeling of responsibility 8 Thrift, saving money and things 9 Tolerance and respect for others 10 Unselfishness 11		