

Ingroup bias and social identification: A lab-in-the-field experiment

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Abstract: *We recruit naturally-existing groups of people living in a slum and experimentally test whether they contribute more in favor of their group as compared to another group (“ingroup bias”). We find that ingroup bias decreases the higher the heterogeneity among group members, and when a more inclusive identity is activated.*

Keywords: social identity; ingroup bias; cooperation; experiment; cross-categorization.

JEL codes: C91, D03, Z13

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1. Introduction

Which aspects of identity are context-dependent, and which can be primed? Levine et al. (2005)'s experiment show that Manchester United supporters turn into willing to help rivals (namely the supporters of a rival soccer team) when salience is given to the common identity of soccer fans. Once others are characterized as members of a super-categorized ingroup that includes *all* soccer teams fans, such categorization leads to “perceptions of similarity, feelings of greater closeness, and increased feelings of responsibility for the welfare of others” (Taniguchi and Ikegami, 2021, p. 2) that increases the willingness to help.

Building own social identity is a complex endeavor, since individuals may identify with a multiplicity of social groups. As noted by Charness and Chen (2020), “previous work suggests that the dimension of in-group versus out-group seems to be relatively hardwired, while priming identity seems fraught with some peril” (p. 693). Group identification is endogenous and permeable (Akerlof and Kranton, 2000; Benjamin et al., 2010), and people are more likely to identify with a group the more similar they see themselves to other group members (Shayo, 2009; Goette et al., 2006). Collaborative intergroup contact may however increase intergroup friendships and reduce ingroup favoritism (Lowe, 2021). Once the super-categorized group – to which both the ingroup and the outgroup belong to, and in the context of which intergroup interaction occurs – becomes salient, a larger and more inclusive identity can be activated.

The contribution of the paper is studying the role of two aspects of identity that have never been tested jointly to reduce individual ingroup bias: ingroup similarity and super-categorization. With the help of a local NGO, we conduct an incentivized within-subject lab-in-the-field experiment (or artefactual field experiment, since as our subject pool is non-standard) involving 240 subjects who live in deprived conditions in a South-African slum (locally called “township”) and belong to ten groups operating in the slum. 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 long-term cohesion among townships residents (World Bank, 2014), allowing to consider the township as a community.

The subjects of each group shared mutual interests and endeavors: groups include individuals involved in education or social activities. In addition to acquiring information on groups' features, we collect information on individuals' socio-demographic characteristics and attitude towards the community they live in (the township).

2. Materials and methods

In our within-subject experiment, participants make two individual decisions presented in a randomized order. One decision concerns their individual contribution to a public account that will

be used to finance a project or good that the group will enjoy collectively. For sake of simplicity, we will call it “ingroup public good”; this condition is named “Ingroup Condition”. The other decision relates to their individual contribution to a public account that will be used to finance a project or good that *another group operating in the same slum* will enjoy collectively (“outgroup public good”). The specific group will be chosen at random among the other nine groups recruited for the experiment. This represents the “Outgroup Condition”. In both conditions, the public good is an indivisible sum of money that the group agrees in front of the NGO to spend for its common activities, instead of being split among participants as typically occurs in lab experiments on Voluntary Contribution Mechanisms.

The game consisted of two phases. In Phase 1 subjects earned 50 South African rands (corresponding roughly to 15 U.S. dollars, 2014 P.P.P) by answering two questionnaires. Questionnaire A contained standard socio-demographic questions, while Questionnaire B contained, among the others, a set of questions about the relationship the subject has with the other inhabitants in the township. 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 give to each one of the two public accounts (“Ingroup” and “Outgroup” conditions), presented in a randomized order.

After deciding how much to contribute in the two conditions, subjects were asked to make guesses about their peers’ behavior. This belief elicitation was incentivized using the binarized scoring rule (BSR) introduced in Hossain and Okui (2013).

Only one of the two conditions was actually played: it was determined by asking one subject to roll a dice in front of all the other participants. Before proceeding to final payments, the experimenter read aloud the amount contributed by the group in the selected condition. When the Ingroup condition was selected, the experimenter publicly gave an envelope containing the money for the group to its leader. When the Outgroup condition was selected, the experimenter kept the envelope and gave it to the leader of another group after selecting the group at random among the other nine groups taking part into the experiment. Then, private payments in opaque envelopes (in order not to make the specific contribution of each member recognizable) were carried out after calling subjects one at time. The Instructions are reported in Appendix A, while Questionnaires A and B in Appendix B.

3. Results

Table 1 summarizes the contribution levels and beliefs in the two conditions.

[Insert Table 1]

Contribution levels are significantly lower in the Outgroup condition, providing evidence in favor of ingroup bias. When subjects contribute to a public good whose returns will be enjoyed by the group itself, the average level of contribution is 22.26 out of an endowment of 50 rands (panel a). When the public good is destined to the outgroup, the average level of contribution is 7.18 (panel b). Using a Wilcoxon matched-pairs signed-rank test, the differences between the two conditions is statistically significant: $z = 2.648$, and $p < 0.001$. Beliefs follow a similar pattern: subjects expects peers will contribute significantly more when the money is destined to the ingroup (19.70, see panel a) than when the money is destined to the outgroup (6.24, panel b), and the difference is significant (Wilcoxon matched-pairs signed-rank test, with $z = 2.255$ and $p < 0.001$).

To investigate how identity affects economic choices, we use the answers collected in the questionnaires to build two indexes. The information on individual's gender, education level, housing condition and employment is used to build the Herfindahl-Hirschman index (HHI) of group homogeneity: HHI scores range from 0.00 (complete heterogeneity) to 1.00 (complete homogeneity). HHI is used to test the "similarity" hypothesis, i.e. whether belonging to a more homogeneous group entails a stronger ingroup bias.

Furthermore, we use the answers to the questions 5.1-5.5 in Questionnaire B to build an index that summarizes the individual's relationship with community of people living in the slum. Since all the ten groups belong to this community, we can consider the community as a super-categorized group. The index is obtained by taking the principal component of a set of five answers capturing how often the subjects gives or takes advice from the members of the community, how the individual perceives the community and neighbors (ranging from being a family to strangers), and how much time they spend in the community. Computing the principal component allows to take into account that these answers exhibit a strong correlation level. The Super-Categorization index (SCI) ranges from 0.00 (when the individual has a very weak relationship with the community) to 1.00 (very strong relationship). The descriptive statistics about HHI and SCI are summarized in Table 2.

[Insert Table 2]

Table 3 below summarizes the effect of the two indexes and of their interaction with the condition.

[Insert Table 3]

Table 3 confirms the results of the non-parametric tests. The regression in column 1 shows that individuals contribute significantly less when the public good is destined to the outgroup, with respect to the contribution levels observed in case of a public good for the ingroup, with a decrease ranging from 10% (columns 1 and 2) to 45% (column 3) depending on the specification. When considering the HHI and the SCI indexes (column 2), we find that higher homogeneity within the group (i.e. higher HHI) entails a significantly higher contribution level in general. Column 3 investigates possible interactions between the indexes and the conditions, showing that higher group homogeneity determines significantly lower contributions when the money is destined to the Outgroup. Furthermore, while SCI has no effect on contributions, as shown in column 2, column 3 clarifies that a higher SCI implies both a reduction in general contributions *and* an increase of contribution in favor to the Outgroup, with the two effects compensating each other.

4. Discussion

We investigate the determinants of ingroup bias in a lab-in-the field experiment involving naturally-existing groups operating in a slum. We find that similarity increases the ingroup bias, while identification with a super-categorized group reduces it. The first result is likely to be explained by the fact that, in general, more homogeneous groups tend to be more cohesive and, as in Goette et al. (2012), social ties lead to larger ingroup favoritism in cooperation. Concerning the second, a stronger relationship with the super-categorized group of the slum community (higher SCI) shifts the social identification from the ingroup to the community to which both the ingroup and the outgroup belong, and is associated to significantly higher contributions in favor to the outgroup.

Our results represent a first evidence that the construction of a perceived common identity in heterogeneous groups can lead to a more favorable attitude towards outgroup members. Building a sense of shared identity but at the same time respecting diversity is thus a promising way for developing a generalized preference for equality and inclusion as long-term objective for a society. Whether these findings can be generalized to other experimental pools and scaled up to the general population are research questions we hope will be addressed by future research.

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Appendix

Appendix A: Instructions



Welcome! Thank you for arriving on time to take part in this experiment.

The experiment is divided in two parts. You as individual 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.

You will receive two sheets: in each one, you will be asked to take a decision. Please be careful in taking both decisions, because one of them will be implemented and have actual consequences on your earnings. The two decisions have the same probability to be implemented. The decision that will be actually played will be selected at random by asking one of the participants in the session to roll a dice in front of all the people taking part into the experiment.

[Instructions for the Ingroup condition (the order of the two conditions is randomized across sessions)]

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. You will be rewarded for guessing the average of your group’s choices correctly. Your payoff from guessing is determined by the squared error between your guess and the actual average. Using their computer, the experimenters will randomly choose a number: you will earn 10 rands, if your error is

below the random number and zero otherwise. Therefore, you should try to guess as accurately as possible.

[Instructions for the Outgroup condition (the order of the two conditions is randomized across sessions)]

Since we know that each group taking part into this study 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 one of these groups (yours excluded): we will call it “public good”. The specific group will be selected at random.

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. You will be rewarded for guessing the average of your group’s choices correctly. Your payoff from guessing is determined by the squared error between your guess and the actual average. Using their computer, the experimenters will randomly choose a number: you will earn 10 rands, if your error is below the random number and zero otherwise. Therefore, you should try to guess as accurately as possible.

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 plus the possible revenue of the guesses on other participants’ choices.



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 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 characteristics of the 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 B: 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?	/ / <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 => Go to question 1.10 No 2 => Go to question 1.9 Don't know where I was born 3 => Go to question 1.9				
1.8	When did you move into the community where you currently live?	Year <table border="1" style="display: inline-table; vertical-align: middle;"> <tr> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> </tr> </table>				
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> <table border="1" style="display: inline-table; vertical-align: middle;"> <tr> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> </tr> </table>		
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> <table border="1" style="display: inline-table; vertical-align: middle;"> <tr> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> </tr> </table>		
2.4	How many people live in your house, <u>excluding</u> yourself?	<i>Number of cohabitants</i> <table border="1" style="display: inline-table; vertical-align: middle;"> <tr> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> </tr> </table>		

ID number

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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 => Go to question 4.6 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?	<i>Number of other household members currently employed</i>

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 0 Seldom 1 Sometimes 2 Often 3 Always 4		
5.2	Do other community members ask your opinion before taking decisions?	Never 0 Seldom 1 Sometimes 2 Often 3 Always 4		
5.3	How often do you chat, talk and spend time together with other people in the community where you live?	Never 0 A few times each year 1 A few times each month 2 A few times each week 3 Every day 4		
5.4	What best describes <u>the community</u> where you live?	A family 0 A group of friends 1 Neighbors 2 Strangers 3 Other 4		
5.5	What best describes <u>your closest neighbors</u> ?	A family 0 A group of friends 1 A group of people with the same origin of mine.. 2 Strangers 3 Other 4		
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>			
	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		