

Kudashvili, Nikoloz; Lergtporer, Philipp

Working Paper

Do Minorities Misrepresent Their Ethnicity to Avoid Discrimination?

CESifo Working Paper, No. 7861

Provided in Cooperation with:

Ifo Institute – Leibniz Institute for Economic Research at the University of Munich

Suggested Citation: Kudashvili, Nikoloz; Lergtporer, Philipp (2019) : Do Minorities Misrepresent Their Ethnicity to Avoid Discrimination?, CESifo Working Paper, No. 7861, Center for Economic Studies and ifo Institute (CESifo), Munich

This Version is available at:

<https://hdl.handle.net/10419/207252>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.

Do Minorities Misrepresent Their Ethnicity to Avoid Discrimination?

Nikoloz Kudashvili, Philipp Lergetporer

Impressum:

CESifo Working Papers

ISSN 2364-1428 (electronic version)

Publisher and distributor: Munich Society for the Promotion of Economic Research - CESifo GmbH

The international platform of Ludwigs-Maximilians University's Center for Economic Studies and the ifo Institute

Poschingerstr. 5, 81679 Munich, Germany

Telephone +49 (0)89 2180-2740, Telefax +49 (0)89 2180-17845, email office@cesifo.de

Editor: Clemens Fuest

www.cesifo-group.org/wp

An electronic version of the paper may be downloaded

- from the SSRN website: www.SSRN.com
- from the RePEc website: www.RePEc.org
- from the CESifo website: www.CESifo-group.org/wp

Do Minorities Misrepresent Their Ethnicity to Avoid Discrimination?

Abstract

Discrimination against minorities is pervasive in many societies, but little is known about minorities' strategies to avoid being discriminated against. In our trust game among 758 high-school students in the country of Georgia, ethnic Georgian trustors discriminate against the ethnic Armenian minority group. We introduce an initial signaling stage to investigate Armenians' willingness to hide their ethnicity to avoid expected discrimination. 43 percent of Armenian trustees untruthfully signal to have a Georgian name. Signaling behavior is driven by expected transfers and non-pecuniary motives. This strategic misrepresentation of ethnicity increases Georgian trustors' expected back transfers and eliminates their discriminatory behavior.

JEL-Codes: C910, C930, D830, J150, J160, D900.

Keywords: discrimination, trust game, experiment, signaling, adolescents.

Nikoloz Kudashvili
CERGE-EI
Charles University
Prague / Czech Republic
nikoloz.kudashvili@cerge-ei.cz

Philipp Lergetporer
ifo Institute – Leibniz Institute for Economic
Research at the University of Munich
Germany – 81679 Munich
lergetporer@ifo.de

16 September 2019

We would like to thank Zareh Asatryan, Vojtech Bartos, Michal Bauer, Leonardo Bursztyn, Luigi Butera, Alexander Cappelen, Glenn Dutcher, Randall Filer, Uri Gneezy, Daniel Hamermesh, Andreas Menzel, Fatemeh Momeni, Will Pyle, Matthias Sutter, and seminar participants at the ifo Institute, the Economic Science Association meeting in Berlin, the IAREP-SABE meeting in Dublin, and the Nordic Conference on Behavioral and Experimental Economics in Kiel for very helpful comments. This study was supported by Charles University in Prague, GAUK project No. 552217. Nikoloz Kudashvili acknowledges support from the Czech Science Foundation Grant 17-13869S. Both authors thank the University of Chicago for its hospitality during their research stays, which initiated this project. Philipp Lergetporer gratefully acknowledges financial support by the Fritz Thyssen Foundation. The experiment was pre-registered in the AEA RCT Registry as trial 2522, <https://www.socialscienceregistry.org/trials/2522>.

1. Introduction

Discrimination against minorities is pervasive in many societies all around the world. Over the past decades, an impressive body of research in economics and related fields has documented discrimination in various market- and non-market settings (for surveys of the field-, lab-, and non-experimental literature, see Arrow (1998), Yinger (1998), Altonji and Blank (1999), Riach and Rich (2002), Anderson et al. (2006), List and Rasul (2011), Bertrand and Duflo (2017)). Discrimination can be based on different attributes of the groups discriminated against (e.g., ethnicity, gender, or religion), and materializes in decisions related to hiring, pricing, letting, or allocating attention (e.g., Bartos et al. (2016)).¹ The literature so far has mainly focused on majority-group members' decisions to discriminate, e.g., by studying the existence of discrimination, or the effectiveness of anti-discrimination policies.² In contrast, minorities' strategic responses to discrimination have received little scholarly attention. In particular, very little is known about what strategies minority-group members apply to circumvent anticipated discrimination, and about the effectiveness of these strategies. This is the research gap that we address in this paper.

We focus on minorities' strategic misrepresentation of their ethnicity to avoid being discriminated against. Existing models of discrimination usually assume that minorities' ethnic affiliation is perfectly observable. In reality, however, many interactions are characterized by asymmetric information, where majority-group members only observe a noisy signal of minority-group members' ethnicity. Consequently, minority-group members have some discretion over what ethnicity-revealing signals to send. For instance, job applicants can decide whether to include racial cues in their résumés (Kang et al. (2016)), students can decide whether to perform rituals which identify their religious affiliation (Lavy et al. (2018)), car dealers can decide whether to reveal their typical ethnic names in their advertisements (Zussman (2013)), immigrants can decide whether to adopt typical names of the host-country

¹ Victims of discrimination face, for instance, lower likelihood of educational success (Alesina et al. (2018)), higher probabilities of being assigned monetary bail (Arnold et al. (2018)) and being convicted (Anwar et al. (2012)), worse labor- and rental-market outcomes (Bertrand and Mullainathan (2004), Ahmed and Hammarstedt (2008)), and higher consumer prices (Gneezy et al. (2012)).

² Potential policies to mitigate discrimination (or its consequences) include enhancing majority-group members' contact to minority-group members (Boisjoly et al. (2006)), raising awareness of racial bias or stereotypes (Pope et al. (2018), Alesina et al. (2018)), introducing anonymous application procedures (Goldin and Rouse (2000)), or implementing affirmative-action programs (Holzer and Neumark (2000)).

population (Arai and Thoursie (2009), Biavashi et al. (2017)), and minority university students can decide whether to use ethnic-majority names when emailing their professors (Zhao and Biernat (2017)). The previous literature documents that misrepresentation of ethnicity is a common phenomenon among minorities.³

We experimentally study the causes and consequences of minorities' strategic signaling behavior in the context of the marginalized Armenian minority in the country of Georgia. Georgia provides an ideal setting for two reasons: First, like in many other societies, names are unambiguous identifiers of ethnicity. Second, recent historical accounts suggest that some Armenians adopted Georgian-sounding names to avoid discrimination (see section 2 for historical and cultural background information).⁴

We conduct our lab-in-the-field experiment with a total of 758 high school students (aged between 12 and 17 years) from six high schools in Tbilisi, Georgia.⁵ Studying the determinants and consequences of strategic name-signaling behavior with observational data is extremely challenging since credible exogenous variation to identify causal effects as well as high-quality data on behaviors and beliefs are usually unavailable. To sidestep these identification challenges, we use a modified version of the trust (or "investment") game (Berg et al. (1995)) as our vehicle to measure discrimination. The trust game is a two-player game in which the first player ("trustor") is endowed with a fixed amount of tokens, and has to decide how many tokens, if any, to transfer to the second player ("trustee"). The experimenter multiplies the transfer and hands it over to the trustee, who then decides how many of the received tokens, if any, to transfer back. Back transfers are not multiplied. A major advantage

³ For instance, Biavashi et al. (2017) shows that 31 percent of U.S. immigrants in the early twentieth century engaged in name Americanization, Zussman (2013) reports that 30 percent of Arab car dealers in Israel hide their typical ethnic names in advertisements, and Kang et al. (2017) finds that 31 percent (40 percent) of black (Asian) students conceal racial cues in their résumés.

⁴ Names are the most common way to manipulate perceived minority traits in correspondence studies (Bertrand and Duflo (2017)). The literature documents various ways individuals can "choose" majority-sounding names strategically: One set of options refer to official naming decisions, such as legally binding name changes (e.g., Arai and Thoursie (2009), Biavashi et al. (2017)), or parents choosing names for their children (e.g., Abramitzky et al. (2016, 2019)). Another set of option concern situations where individuals have the possibility to choose names which not necessarily correspond to their official names. For instance, Lieber-son (2000) lists original and stage names of entertainers in the U.S., and argues that stage names are often chosen to hide ethnic or religious origins. Similarly, new technologies such as emails or social media provide a particularly easy way to manipulate perceived minority status (e.g., Zhao and Biernat (2017)). For instance, anecdotal evidence suggests that teenagers of Arabic descent in Germany choose Latino-sounding names on Facebook to improve their mating probabilities (Bayerischer Rundfunk, 8 September 2016, <https://www.br.de/puls/themen/leben/aus-muslim-wird-latino-100.html> [accessed 11 January 2019]).

⁵ In Harrison and List's (2004) taxonomy, our study is classified as a "framed field experiment".

of the trust game is that it is not a zero-sum game, which allows us to assess the efficiency-consequences of discrimination. We use this experimental paradigm to address the following three research questions: First, do Georgians discriminate against the Armenian minority in the trust game? Second, do Armenians expect discrimination and do they misrepresent their ethnicity to avoid being discriminated against? Third, is Armenians' strategic signaling behavior effective in reducing discrimination?

Focusing on Georgians in the role of trustors and Armenians in the role of trustees, we implement four between-subject treatments in which first names serve as indicators for interaction partners' ethnic affiliation. In the first treatment, the trustor is ethnic Georgian and the trustee is also ethnic Georgian. In the second treatment, the trustor is ethnic Georgian and the trustee is ethnic Armenian. These two treatments do not include a signaling stage and serve as our benchmark to measure Georgians' trust discrimination against Armenians. The third treatment is identical to the second treatment, except that the Armenian trustee can send the Georgian trustor a message about her name before the trustor takes her decision. The trustee can decide between sending (i) a truthful message signaling that her name is ethnic Armenian, (ii) an untruthful message signaling that her name is ethnic Georgian, or (iii) no message. Comparing Georgian trustors' transfers to Armenian trustees across treatments with and without signaling stage reveals the extent to which Armenian trustees' signaling behavior mitigates discrimination. Finally, the fourth treatment is identical to the third treatment except that the trustor is Armenian. Comparing Armenian trustees' signaling behavior toward Georgian versus Armenian trustors allows us to assess to what extent signaling behavior is strategic in the sense that it depends on the ethnicity of the trustor.

We have three main findings. First, there is pronounced discrimination by Georgian trustors against Armenian trustees: While Georgian trustors transfer on average 5.2 tokens to Georgian trustees in the first treatment, transfers to Armenian trustees are significantly lower by 1.2 tokens ($p < 0.01$). This discrimination is based on Georgians' correct belief about lower back transfers from Armenian trustees. Second, Armenians anticipate this extent of discrimination, and many react to it by misrepresenting their names: In the third treatment with signaling stage, 43 percent of trustees send the untruthful message that their name is Georgian. Our data show that signaling behavior is driven by both expected transfers and non-

pecuniary considerations, such as the perceived importance of observable markers of ethnicity and ethnic in-group attachment. The fact that none of the Armenian trustees sends a Georgian name signal when the trustor is also Armenian in the fourth treatment shows that minority members use the signaling device strategically to avoid discrimination. Third, Armenians' signaling behavior is effective in reducing discrimination: On average, the magnitude of Georgian trustors' discrimination halves when introducing the signaling stage, which increases overall efficiency (and Armenian trustees' profits). Scrutinizing the underlying mechanisms of these effects, we suggest that the signal alters trustors' transfers by raising their expectations about trustees' back transfers.

Our paper is related to several strands of the economic literature. At the most basic level, it complements the large body of experimental studies on ethnic discrimination. While experimental evidence for discrimination is vast, this literature mostly measures discrimination without accounting for potential victims' strategic responses to circumvent anticipated discrimination. Abstracting from minorities' optimizing behaviors is problematic when extrapolating experimental estimates of discrimination to real-world settings. As our results show, adjusting for minority-group members' optimizing behavior (in the form of strategic ethnicity revelation) halves the magnitude of trust discrimination. Of course, the extent to which adjusted or unadjusted discrimination rates are more meaningful is context-specific, but our results highlight that accounting for minorities' strategic behavior has important effects on measured discrimination.⁶

Only few papers examine minorities' strategic behavior in response to discrimination.⁷

⁶ Relatedly, a major criticism against audit- and correspondence studies is that they assume that job seekers apply for positions in a random fashion. In reality, however, real job seekers optimize their behavior during the search process, for instance by not applying for certain positions, or by strategically highlighting or hiding some of their characteristics in their application material. Thus, these types of studies measure average differences in hiring probabilities, but not discrimination at the margin, i.e. after minority-group members adjusted their behavior strategically to the realities of the specific market (see Heckman (1998), and section 1.5 in Bertrand and Duflo (2017)).

⁷ A related strand of literature studies minorities' endogenous behavioral (non-strategic) responses to discrimination. For instance, the research on "stereotype threat" suggests that stereotyping some groups as less productive causes its member to be less productive (e.g., Steele and Aronson (1995)). Direct evidence for endogeneous behavioral responses to discrimination is provided by Glover et al. (2017). Studying cashiers with African origin in a French grocery store chain, the authors show that cashier performance decreases when supervised by biased managers. Relatedly, Lavy and Sand (2018) study the effect of primary-school teachers' gender bias on children's educational achievements in middle- and high school. They find that teachers with a greater bias in favor of girls (boys) have positive effects on girls' (boys') later achievements and course choices. Note that these studies differ importantly from ours, since our focus is on minorities' strategic behavior to avoid discrimination.

Most prominently, Parsons et al. (2011) investigate pitchers' strategic behavior in Major League Baseball. Pitchers correctly anticipate that strikes are called less often if umpires do not match their ethnicity. Consequently, pitchers throw pitches that allow other-ethnicity umpires less subjective judgements, which biases minorities' performance measures downward. Complementing this paper, we show that minorities' strategic behavior to avoid discrimination is also prevalent in decisions to signal their ethnic affiliation.

We are only aware of three papers that study signaling behavior in the presence of possible discrimination. Zussman (2013) provides descriptive evidence that Arab car dealers in Israel, compared to Israeli car dealers, are more likely to leave the name fields of their advertisements blank. The author suggests that Arab car dealers obfuscate their ethnic identity to avoid being discriminated against. Relatedly, Alston's (2018) working paper shows that experimental subjects in the role of workers (mistakenly) assume that managers will discriminate against females in their hiring decisions, and that female (male) workers therefore have positive willingness to pay for not revealing (revealing) their gender in their résumé. Finally, Kang et al. (2016) finds that black and Asian job applicants engage in "résumé whitening", i.e. concealing racial cues in résumés, to avoid anticipated discrimination. Our experiment extends this small evidence base by studying behavior on both sides of discrimination (trustor and trustees), underlying beliefs, and the efficiency implications of strategic signaling behavior.

On a more general level, our paper provides an experimental micro-foundation for studies investigating the effects of minorities' name changing behavior on their economic success. The first paper to study this phenomenon is Arai and Thoursie (2009), who show for Sweden that immigrants from Asian, African, and Slavic countries experience substantial earnings increases after changing their surnames to Swedish-sounding names. Focusing on U.S. immigrants in the early twentieth century, Biavashi et al. (2017) find that the Americanization of first names is associated with substantial occupational upgrading.⁸ These studies speculate that minorities adopt majority-sounding names to undo name-based discrimination, which implies a trade-off between discrimination costs and identity costs associated

⁸ Relatedly, Abramitzky et al. (2016, 2019) investigate immigrants' first-name choices for their children in the U.S., and show that choosing native names relates to improved economic outcomes, e.g. in terms of educational or labor market success. A related strand of economic research analyzes name choice rather than its effect on outcomes (e.g., Goldin and Shim (2004), Fryer and Levitt (2004), Algan et al. (2013)).

with name-changing decisions.⁹ Our results support the notions that minority-group members misrepresent their ethnicity strategically to avoid discrimination, and that they face a trade-off between pecuniary and non-pecuniary consequences when taking signaling decisions.¹⁰

Methodologically, our paper is part of the literature which investigates discrimination using the trust game (Berg et al. (1995)). In their seminal contribution, Fershtman and Gneezy (2001) study ethnic discrimination between Ashkenazic (Western) and Eastern Jews in Israel. Using typical ethnic names as signals for ethnicity, they detect systematic distrust toward men of Eastern ethnicity. Our experimental design extends Fershtman and Gneezy's (2001) with an initial ethnicity-signaling stage in which trustees can send an (un)truthful message about their name. To our knowledge, the only other paper to introduce such a signaling stage in the trust game is Heyes and List (2016). Letting their subjects decide whether or not to pay for sending a picture of themselves to the opponent, they find that a substantial proportion of players is willing do so, and this does (does not) increase the tokens sent by the trustee (trustor). We extend Heyes and List's (2016) design in two key dimensions: First, we introduce the possibility of sending an incorrect signal. Second, we exogenously vary trustors' ethnicity, which allows us to uncover the strategic motives behind signaling decisions.

Finally, we add to the growing literature on economic behavior of children and adolescents (see Sutter et al. (2019) for an overview), in particular to lab-in-the-field experiments on discrimination in dictator- and cooperation games (e.g., Fehr et al. (2008, 2013), Angerer et al. (2016), List et al. (2017), Bindra et al. (2018)). While this literature scrutinized the development of discrimination early in life, our contribution is to investigate minority adolescents' strategic reactions to anticipated discrimination.

The rest of the paper is organized as follows. In section 2, we provide a brief account of the historical and cultural background of the Armenian minority in Georgia. Section 3 introduces the experimental design and procedure. Section 4 presents the results, and section 5

⁹ Jia and Persson (2017) discusses the role of discrimination- and identity costs related to mixed couples' ethnicity choice for their children in China.

¹⁰ While we provide evidence for strategic name-signaling behavior, we do not mean to imply that observed name changes necessarily reflect strategic motives. It might well be that they arise from minorities' efforts to assimilate to the majority society, or from general preferences for majority-sounding names.

concludes.

2. Brief historical and cultural background

This section provides a brief description of our study's setting – the country of Georgia – and of the relationship between Georgians and ethnic Armenians in the country (see Appendix B for additional information).

Georgia is a small country in the Caucasus with a population of 3.7 million and a GDP per capita of \$ 9,702 in 2017 (PPP adjusted)¹¹. The capital of Georgia, Tbilisi, is the largest city of the country with the population of over 1 million. Georgia is a multiethnic state with ethnic minorities accounting for about 15 percent of the population. Armenians are the second largest minority group in Georgia (after the Azeris) and mostly live in Tbilisi and the Javakheti region in the country's south.¹² Georgians and Armenians are both Christians, though Georgians are Orthodox and Armenians are part of the Armenian Apostolic Church. They differ in appearance, although appearance is not an unambiguous identifier of ethnicity. Monthly average income from hired employment, educational attainment, but also unemployment rates are higher among Georgians than among members of the Armenian minority. The Armenian language differs widely from the Georgian language, but over 96 percent of the Armenian minority in Tbilisi command the Georgian language (Osepashvili (2013)). The Armenian minority in Tbilisi is concentrated in the central districts of the city, but they are not segregated from ethnic Georgians. Tbilisi has a total of 294 schools which are segregated along ethnic lines. Most of the schools are Georgian (and cater to Georgian children), and a small minority of ten schools are Armenian or Russian (and cater to Armenian children). Language of instructions in all public schools is Georgian.

The relationship between Georgians and Armenians living in Georgia is characterized by a long history of mistrust and rivalry, which culminated in the Georgian-Armenian war in 1918.¹³ After the collapse of the Soviet Union, Georgia saw a rise of nationalism, and minorities in Georgia were increasingly considered a threat to national security (Jones (1996)). While the relationship between Georgians and the Armenian minority has improved over the

¹¹ World Bank, <https://data.worldbank.org/country/georgia> [accessed 5 June 2019].

¹² Armenians accounted for 4.5 percent of the country's population, and for 4.8 percent of Tbilisi's population, in 2014 (see Appendix Table A1).

¹³ See Rohner et al. (2013a, 2013b) for theory and evidence of the eroding effects of conflict on trust.

past years, negative perceptions and mistrust toward Armenians still prevail in the Georgian society today (e.g, Osepashvili (2013)). For instance, the Caucasus Barometer 2017 finds that only 68 percent of people living in Georgia approve of members of their ethnicity doing business with Armenians living in Georgia (Caucasus Research Resource Centers (2017)).¹⁴ Similarly only 31 percent of Georgian subjects in our sample state that they trust Armenians “a lot” or “a bit” in our post-experimental questionnaire, whereas trust toward other Georgians is high at 74 percent (see Appendix Figure A1).¹⁵

In Georgia, names are unambiguous identifiers of ethnicity. For instance, most Georgian surnames end on the suffix *shvili*, *dze*, *ava*, *ia*, *ua*, or *iani*, whereas Armenian surnames end in *ian*. Similarly, first names are ethnicity-specific (see Appendix Table A2 for a list of the most common Georgian and Armenian first names in our sample). Reportedly, many Armenians in Georgia changed their names to Georgian-sounding names to avoid being discriminated against (Public Defender’s Office of Georgia (2008)). Name changes peaked in the 1990s which coincides to the rise of nationalism in Georgia after the fall of the Soviet Union.¹⁶ Still today, name changes are a common phenomenon in Georgia: The webpage of Georgia’s Ministry of Justice states that “A citizen of Georgia [...] has the right to change his/her name or/and surname” and offers name changes at low fees from 55 Georgian Lari (app. 20 USD; current exchange rate) (Ministry of Justice, https://sda.gov.ge/?page_id=7429&lang=en [accessed 7 June 2019]).

3. Experimental Design and Procedure

3.1 The modified trust game

Our experimental design is based on Berg et al.’s (1995) standard trust game, which consists of two players (trustor and trustee) and two stages. The trustor is endowed with 10

¹⁴ The approval rate of doing business with other Georgians is much higher at 94 percent. Similarly, only 40 percent of respondents to the Caucasus Barometer 2017 approve of women of their ethnicity marrying an Armenian living in Georgia (Caucasus Research Resource Centers (2017)).

¹⁵ Armenian subjects’ trust toward both Georgians and Armenians is equally high at 75 percent and 74 percent, respectively.

¹⁶ Qualitative evidence suggests that Armenians in Georgia change their names into Georgian names in order to avoid disadvantages, for instance on the labor market (Osepashvili (2013)). Unfortunately, data on actual name changes in Georgia is not available for researchers. While we repeatedly requested names data from the Ministry of Justice’s *Public Service Development Agency*, all our requests remained unsuccessful.

Experimental Currency Units (ECU). In the first stage, she has to decide what amount $T \in [0, 10]$ to transfer to the trustee. The experimenter then triples the transferred amount. In the second stage, the trustee observes the trustor's transfer and decides upon $B \in [0, 3T]$, i.e., the number of ECUs to transfer back to the trustor. Back transfers are not tripled by the experimenter. Transfers from the trustor (T) are usually interpreted as "trust", whereas back transfers from the trustee (B) are usually interpreted as "trustworthiness".¹⁷ The Nash equilibrium of the game with self-regarding agents is that the trustor sends nothing ($T=0$) and, consequently, that the trustee returns nothing ($B=0$). However, the socially optimal outcome (in terms of the total number of tokens produced) is that the trustor transfers his entire endowment ($T=10$). In contrast to zero-sum games, an important advantage of the trust game is that it enables quantifying the efficiency implications of discrimination.

As is standard for the trust game, we use the strategy method (Selten (1967)) to elicit trustees' decisions, i.e., trustees have to specify their back transfer (B) for each possible level of trustors' transfer (T).¹⁸ To scrutinize the motivation behind subjects' choices, we also elicit trustors' beliefs about trustees' back transfers (B) and trustees' beliefs about trustors' transfers (T) after experimental decisions are made. We incentivize beliefs to foster truthful reporting.¹⁹

The goal of this paper is to study trust discrimination by Georgian trustors against Armenian trustees. Therefore, our four treatments (which we describe in detail below) differ with respect to the ethnicity of trustors and trustees. Exploiting the fact that names are unambiguous identifiers of Georgian or Armenian ethnicity, we follow the standard approach in previous experiments and use names to induce perceptions about ethnicity. More specifically we compiled name lists of ten common Georgian respectively Armenian first names (five male and five female names) and inform the trustors that their interaction partner has one of

¹⁷ See Houser et al. (2010) and Cox et al. (2016) for detailed discussions of the interpretation of trust and trustworthiness, and Fershtman and Gneezy (2001) for an early application of the trust game to study discrimination.

¹⁸ Casari and Cason (2009) show that the strategy method yields somewhat lower levels of trustworthiness compared to the direct-response method. Brandts and Charness (2000) find no difference in behavior across both elicitation methods in two-person sequential games. Note that we keep the elicitation method constant across treatments, so that it does not affect treatment-effect estimates.

¹⁹ Subjects receive two extra ECUs if their stated belief is exactly correct, and one extra ECU if it is only one or two units away from the true value. While there are more sophisticated methods to incentivize beliefs (e.g., Trautmann and van de Kuilen (2015)), we deliberately opted for a simpler incentive scheme to foster comprehension among our sample of adolescents.

the names on the list.²⁰ A major advantage of conducting our experiment in schools is that schools provided us with complete name lists in advance. This allowed us to create individualized name lists for each subject, and induce perceptions about subjects' ethnicity without deception. Our approach to use name lists, as opposed to single names, is similar to Bauer et al. (2018) and has the advantages that (i) the risk of lifting anonymity is much smaller with name lists, (ii) false attributions of names to ethnicities are less likely.²¹ As a manipulation check, we elicited subjects' beliefs about their interaction partners' ethnicity in our post-experimental questionnaire, and we find that the name lists work as intended.²²

To study whether Armenian trustees strategically misrepresent their ethnicity to avoid being discriminated against, some of our treatments include a pre-play signaling stage. In these signaling treatments, Armenian trustees can send a signal about their ethnicity, and trustors observe the signal before deciding upon their transfers (T). Specifically, an Armenian trustee has to pick one of three options: 1. Sending the truthful message that she has an Armenian name. 2. Sending the untruthful message that she has a Georgian name. 3. Sending

²⁰ Names are one of the most common ways to manipulate perceived minority traits in experiments on discrimination (e.g., Fershtman and Gneezy (2001), Bertrand and Mullainathan (2004), Cettolin and Suetens (2019), Bertrand and Duflo (2017)). While it would also be interesting to investigate gender-specific ethnic discrimination in our setting, our ex-ante power calculations revealed that we are underpowered to split our sample to study gender differences. Therefore, we decided to shut down the possibility of gender-specific ethnic discrimination by using mixed-gender name lists.

²¹ One might be concerned that using name lists, as opposed to single names, makes it more obvious for the subjects that the experiment is about ethnicity, which, in turn, might trigger experimenter-demand effects. We consider this concern unlikely for several reasons. First, it is a priori not clear whether the focus on ethnicity is less obvious when ethnicity is signaled through single names. Second, we employ a between-subject design which is less susceptible to experimenter-demand effects when measuring discrimination than within-subject designs (e.g., Angerer et al., 2016). Third, at the most basic level, de Quidt et al. (2018) provide evidence that experimenter demand effects hardly affect choices in economic games.

²² All trustors correctly associate the Georgian (Armenian) name list with trustees' Georgian (Armenian) ethnicity. For the sake of simplicity, we induce trustees' beliefs about trustors' ethnicity by directly informing them that their interaction partner has a Georgian/Armenian first name. Note that this asymmetry between trustors and trustees in how ethnic perception is induced (name lists versus direct information) is kept constant across treatments, and therefore does not affect treatment-effect estimates.

no message.²³ Importantly, we made it clear in the trustor’s instructions of the signaling treatments that the name list is a message from the trustee, and not information provided by the experimenters. In these treatments, we elicit trustees’ beliefs about trustors’ transfers using the strategy method. Thus, each trustee has to state what transfer (T) she expects upon signaling an Armenian name, a Georgian name, and when sending no signal. To incentivize truthful reporting, we told subjects that we will randomly pick one of their beliefs and compare it to the average transfers of trustors’ who received the respective signal (see Appendix C for the instructions). These beliefs allow us to investigate the extent to which differences in expected transfers can explain trustees’ signaling behavior.²⁴ Furthermore, the post-experimental questionnaire elicits trustees’ second-order ethnic beliefs in the signaling treatments, i.e. what beliefs they expect the trustors to hold about their ethnicity.

3.2 Treatment groups

We implement four between-subject treatments to identify the extent of discrimination among majority-group members, and strategic responses of the discriminated minority. In the first treatment, *G-G*, both the trustor and the trustee are ethnic Georgians. In the second treatment, *G-A*, the trustor is ethnic Georgian and the trustee is ethnic Armenian. The third treatment, *G-A Signal*, is identical to the second treatment, with the exception that the Armenian trustee has the possibility to send a signal about her name as described above. Finally, the fourth treatment, *A-A Signal*, is identical to treatment *G-A Signal*, except that both the trustor and the trustee are ethnic Armenians. Below, we describe the treatment contrasts we focus on in our analysis.

²³ The text of the signal reads “My first name is among the names listed below”. For the truthful message, the list comprises 10 Armenian names, including the real name of the trustee. For the untruthful message, the name list comprises 10 Georgian names. Appendix Table A3 depicts an example of the trustees’ message space. All trustors in these treatments were informed that the trustee had the option to send a message, but we deliberately abstained from informing the trustor about the trustee’s message space (signaling an Armenian name, a Georgian name, or sending no signal). We took this design choice to resemble real-life interactions with asymmetric information about interaction partners’ ethnicity as closely as possible. In many real-world situations, people are also not explicitly informed that the interaction partner might not reveal her true ethnicity. Also note that our experimental design does not involve any deception from the experimenter. Instead, it is similar to the experimental literature on deception by allowing experimental subjects to deceive each other (e.g., Gneezy (2005)).

²⁴ Note that we do not impose extrinsic costs on sending a signal. However, our results in section 4.2 suggest that sending an untruthful signal is associated with significant intrinsic costs for our subjects.

Measuring the extent of discrimination without signaling: G-G versus G-A

We first measure the extent of discrimination by Georgian trustors against Armenian trustees without signaling. To do so, we compare trustors' transfers between treatments *G-G* and *G-A*. Both treatments only differ in the ethnicity of the trustees, so that differences in trustors' transfers can be causally attributed to trustees' ethnicity. The contrast between *G-G* and *G-A* serves as our benchmark to assess how Armenian trustees' strategic signaling behavior affects the extent of discrimination. Furthermore, we compare the amounts of transfers which trustees expect to receive across treatments to investigate whether subjects hold correct beliefs about the extent to which Georgians trust them.

Measuring strategic signaling behavior: G-A Signal versus A-A Signal

The main innovation of our experimental design is to introduce a pre-play signaling stage which allows Armenian trustees to misrepresent their ethnicity. Before trustors decide upon their transfers (T), Armenian trustees in these treatments can decide between truthfully signaling an Armenian name, untruthfully signaling a Georgian name, or sending no signal at all. We are particularly interested in the share of subjects who decide to signal their Armenian name in treatment *G-A Signal*. Note, however, that shares of below 100 percent in this treatment cannot be interpreted as direct evidence for *strategic* signaling behavior: It might well be that Armenians don't signal their ethnicity because they have privacy concerns or preferences for mimicking Georgian ethnicity, or because they are indifferent between messages and therefore pick a message at random. Therefore, we implement treatment *A-A Signal*, which is identical to treatment *G-A Signal* except that the trustor is Armenian and not Georgian. Comparing trustees' signaling behavior across these two treatments enables us to assess the extent to which Armenians choose signals strategically. Finally, we analyze what transfers Armenian trustees expect to receive upon sending different signals. This within-subject comparison reveals whether subjects expect discrimination-reducing effects from not revealing their Armenian ethnicity.

3.3 Subject pool and experimental procedure

The experiment was conducted in fall 2017 in 41 classes of six high schools (22 classes

in three Georgian schools and 19 classes in three Armenian schools) in Tbilisi, Georgia.²⁵ In total, 758 students aged 12 to 17 years (grades 7 to 12) participated in the experiment. High schools in Georgia are comprehensive up to grade 12, which implies that our sample is not selective with respect to educational track choice. Table 1 shows the distribution of participants across treatments and roles.²⁶ The study was pre-registered in the AEA RCT Registry (trial 2522) and approved by the schools' principals and teachers. The experiments were conducted in class during regular school hours.

Each session of the experiment lasted about 60 minutes, including the post-experimental questionnaire. The experiment was explained to the whole class in great detail, following a fixed script. We phrased our instructions as simply as possible and used visual support to assure comprehension. Prior to the decision phase, participants had to answer control questions privately. If a subject failed to answer these questions correctly, the instructions were explained again in private until comprehension was achieved. See Appendix C for the instructions and the post-experimental questionnaire.²⁷ The unit of randomization was the class level. Therefore, we cluster standard errors at the class level in our analyses. Appendix Table A4 assesses balance of observable characteristics across experimental groups. Overall it is reassuring that only six out of 60 differences are significant at the 10 percent level or lower, a result we would expect by pure chance. Closer inspection reveals that there are in fact no significant differences in observable characteristics across Georgian trustors (see columns 1 to 3) and across Armenian trustees (see columns 5 to 7).²⁸ Trustors and trustees were matched one-to-one across schools in order to minimize the risk of lifting subjects' anonymity. For

²⁵ All subjects in Georgian schools had ethnic Georgian first names. In Armenian schools, three students had ethnic Georgian names, and all other students had ethnic Armenian names. We excluded those three students so that first names in our sample are unambiguous identifiers of ethnicity.

²⁶ Note that the treatment contrast between *G-G* and *G-A Signal* is particularly important for estimating the discrimination-reducing effects of the signaling stage. To maximize statistical power for these groups, we randomly assigned them higher numbers of observations. The remaining small imbalances in the numbers of observations in Table 1 are due to natural class-size fluctuations.

²⁷ In our post-experimental questionnaire, we asked subjects to rate how well they understood the instructions on an 11-point scale (from 0 = "Did not understand at all" to 10 = "Understood very well"). The median (mean) answer to the question is 10 (9.65), and only four subjects gave an answer of "5" or below. Excluding those subjects from the analysis does not change our qualitative results (results available upon request).

²⁸ Note that the focus of this paper is on Georgian trustors' discrimination and Armenian trustees' response to anticipated discrimination, where all covariates are balanced. Imbalances turn out to be concentrated among Georgian trustees (Armenian trustors) who are, on average, less likely to be female, younger, less risk tolerant and more likely to have understood the instructions (older and more patient). We control for covariates in our regression analysis to account for imbalances.

practical reasons, we first collected all decisions of the trustees using the strategy method and then elicited trustors' decisions.

We incentivized choices using gift vouchers of a well-known office-supplies chain. Each token was worth two Georgian Lari (app. 0.8 USD). In our post-experimental questionnaire, almost all participants (99.5 percent) stated that they like the gift voucher, which indicates that the incentives were meaningful for them. In addition to the tokens earned during the experiment, participants received a show-up fee of a gift voucher worth two Georgian Lari. While the show-up fee was paid immediately after the experiment, payment for subjects' experimental decisions was delayed one week because decisions of trustors and trustees had to be matched to calculate earnings. Delayed payments were made in sealed envelopes marked with an anonymized ID. According to our post-experimental questionnaire, almost all subjects (99.5 percent) trusted us that they actually will receive the delayed payment.²⁹

4. Results

We present our results in three steps. First, we analyze Georgian trustors' transfers, Armenian trustees' back transfers, and beliefs without the signaling stage. Second, we investigate Armenians' strategic name-signaling behavior. Third, we evaluate its effects on Georgian trustors' discrimination.

4.1 Discrimination against Armenian trustees without signaling

We begin with a depiction of Georgian trustors' transfers and beliefs without signaling. Figure 1 shows their average transfers to Georgian and Armenian trustees in treatments $G-G$ and $G-A$, respectively. On average, Georgian trustors transfer 5.2 tokens of their 10-tokens endowment to Georgian trustees (see bar "Treatment $G-G$ "). Transfers to Armenian trustees are significantly lower at 4.0 tokens (or about 77 percent of the average transfer to a Georgian trustee; see bar "Treatment $G-A$ "). Columns 1 and 2 of Table 2 presents OLS regressions of Georgian trustors' transfers on an indicator for treatment $G-A$ (omitted category: treatment $G-G$).³⁰ The coefficient on treatment $G-A$ in column 1 shows that the difference in transfers

²⁹ Excluding those few subjects who (i) do not like the gift voucher or (ii) do not trust to receive the delayed payment from the analysis does not change our results (results available upon request).

³⁰ All models in this paper are estimated as linear regression models. (Ordered) probit models yield qualitatively identical results (results available upon request).

to Georgian versus Armenian trustees of 1.2 tokens is highly statistically significant, and it hardly changes when controlling for standard covariates in column 2 (covariates include gender, age, number of siblings, and self-reported risk tolerance and patience). Thus, we find robust evidence for pronounced discrimination by Georgian trustors against Armenian trustees which, by the nature of the trust game, decreases overall efficiency.

To scrutinize the motivation behind trust discrimination against Armenians, we next investigate trustors' expected back transfers from Georgian and Armenian trustees. In columns 3 and 4 of Table 2, we regress our incentivized measure of expected back transfers on treatment indicator $G-A$, controlling for trustors-transfer dummies. On average, Georgian trustors expect to receive a back transfer of 5.6 tokens from Georgian trustees (see control mean). The significant and negative treatment coefficient in column 3 shows that Georgian trustors' expected back transfers from Armenian trustees are significantly lower by 0.8 tokens.³¹

Comparing Georgian trustors' beliefs about trustees' back transfers with actual back transfers in columns 1 and 2 of Table 3, it turns out that trustors' beliefs are very well-calibrated: While Georgian trustees on average transfer 5.7 tokens back to Georgian trustors, Armenian trustees' back transfers are significantly lower by more than 0.5 tokens.³² Figure 2 depicts Armenian and Georgian trustees' back transfers for each possible trustor transfer. The pattern that back transfers strictly increase with trustor transfers shows that both Armenian and Georgian trustees act reciprocally. Most importantly, however, Armenian trustees' back transfers are lower than Georgians' back transfers for each possible trustor transfer. Thus, Georgian trustors have accurate beliefs about Georgians' and Armenians' trustworthiness. This finding suggests that trust discrimination against Armenians is (at least partially) driven by statistical discrimination (Becker (1957)) in the sense that Georgian trustors correctly expect lower back transfers from Armenian trustees and therefore transfer less to

³¹ In additional analyses in Appendix Table A5, we regress trustors' beliefs on treatment indicator $G-A$, trustors' transfer and its interaction. Results show that the gap in expected back transfers from Georgian versus Armenian trustees increases with trustors' transfers (see significant coefficient on the interaction term and the corresponding Wald tests at the bottom of the table). Note also that, on average, expected back transfers increase with trustors' transfers, which is an intuitive result.

³² The dependent variable in columns (1) and (2) of Table 3 is the back-transfer which was actually implemented. Since we used the strategy method to elicit ten back-transfer decisions from each trustee (i.e., one decision for each possible trustor transfer), columns 1 and 2 of Appendix Table A6 instead use each trustee's average back transfer as dependent variable. It is reassuring that the results in Table 3 are robust to this alternative definition of the dependent variable.

them.^{33, 34}

Finally, we investigate what amount of transfers trustees expect to receive. Comparing Armenian and Georgian trustees' beliefs (see columns 3 and 4 of Table 3) with actual transfers reveals that trustees hold very accurate beliefs about trustors' behavior: On average, Georgian trustees expect that trustors transfer 5.11 tokens (see control mean). As the negative coefficient on the treatment indicator in column 3 shows, Armenian trustees' expectations are significantly lower by 1.79 tokens. This effect is robust to controlling for covariates in column 4. The comparison between Armenian and Georgian trustees shows that beliefs are consistent with trustors' actual transfers. Note, however, that this descriptive analysis is not informative about whether individual Armenian trustees anticipate discrimination. In the next section, we analyze the extent to which Armenian trustees anticipate discrimination upon sending different signals about their ethnicity.

Having established that (i) Georgians discriminate against Armenians in the trust game without signaling, and (ii) that trustors and trustees hold accurate beliefs about each others' transfers, we next investigate Armenian trustees' strategic name-signaling behavior.

4.2 Strategic signaling of Armenian trustees

Signals sent to Georgian trustors

Figure 3 and Table 4 present the distribution of the signals sent by Armenian trustees to trustors in treatments *G-A Signal* and *A-A Signal*. In treatment *G-A Signal*, where the trustor is Georgian, 56 percent of trustees send the truthful message that they have an Armenian

³³ One obvious concern with the analysis of trustors' beliefs is self-serving bias (e.g., Gino et al. (2016)): Georgian trustors might state biased beliefs about Armenian trustees' back transfers to justify own low transfers. The fact that we incentivized the accuracy of beliefs mitigates this concern (see Bullock et al. (2015) and Prior et al. (2015) for evidence that monetary incentives reduce self-serving bias in stated beliefs). It is interesting to note that subjects' incentivized beliefs are uncorrelated with their answers to the general risk question (results available upon request), since subjects' risk preferences have been theorized to affect the ability of incentive schemes to foster truthful reporting (e.g., Trautmann and van de Kuilen (2015)).

³⁴ Our results are in line with Falk and Zehnder (2013) who show that trust discrimination against people from different districts in Zurich is based on accurate beliefs about their relative trustworthiness. This result contrasts Fershtman and Gneezy (2001) who argue that discrimination against Eastern Jews is largely based on downward-biased beliefs about their trustworthiness. As in most of the literature that studies discrimination among natural groups, we note that it might well be that Georgians' discrimination is also based on (perceived) characteristics of Armenians, such as income or education. Bohren et al. (2019) provide a recent careful discussion of the role of (biased) beliefs in explaining observed discrimination, and advocate distinguishing between *accurate* and *inaccurate* statistical discrimination.

name. The share of untruthful messages that they have a Georgian name is 43 percent, and only one single Armenian (0.89 percent) chooses the option of sending no signal. Thus, while a sizable share of Armenians misrepresents their ethnicity when interacting with a Georgian trustor, the majority truthfully signals to have an Armenian name. It is noteworthy that the option of not sending any signal is very unpopular, despite that it represents a middle path in the sense that it (i) conceals Armenian ethnicity but (ii) does not involve untruthful signaling.

To scrutinize the motivation behind Armenian trustees' signaling behavior, we next investigate what transfers they expect to receive upon sending different signals to the Georgian trustor. After experimental decisions were made, we therefore elicited trustees' beliefs about trustors' transfers for the three possible signals using the strategy method. On average, trustees expect a transfer of 3.12 tokens from Georgian trustees when signaling an Armenian name (see left panel of Figure 4). When signaling a Georgian name, expected transfers are significantly higher at 5.34 tokens ($p < 0.01$, Wilcoxon signed rank test). Put differently, 78 percent of Armenian trustees expect a higher transfer when signaling a Georgian rather than an Armenian name, 22 percent expect equal transfers, and not a single one expects that signaling an Armenian name pays off more. Expected transfers when sending no signal are 3.1 tokens, which is significantly lower than when signaling a Georgian name, and statistically indistinguishable from expected transfers when signaling an Armenian name ($p < 0.01$ respectively $p = 0.638$, Wilcoxon signed rank tests).

The observation that 78 percent of Armenian trustees expect higher transfers when signaling a Georgian name, but only 43 percent actually send a Georgian name signal, raises the question of what drives signaling behavior. The probability of sending a Georgian name is positively correlated with expecting higher transfers from sending this signal ($\text{corr} = 0.46$, $p = 0.000$), which indicates that pecuniary considerations partly explain signaling behavior. Yet, a sizable share of subjects who expect higher transfers when signaling a Georgian name still signal an Armenian name, which indicates that non-pecuniary considerations – such as identity-based preferences (Akerlof and Kranton (2000)) – matter as well. To explore the motivations behind signaling decisions more systematically, Table 5 regresses a dummy variable coded 1 if the trustee in treatment *G-A Signal* signals a Georgian name, 0 else, on

different explanatory variables collected in the post-experimental questionnaire. While column 1 shows that pride about Armenian ethnicity does not affect signaling decisions, those who consider observable markers (such as language or names) important for being “truly Armenian” are significantly less likely to signal a Georgian name (column 2).³⁵ Adding expected transfers in column 3 shows that beliefs about trustors’ transfers when signaling a Georgian name are significantly and positively related to sending such signal. Column 4 adds two measures of attachment to the Armenian ingroup: the share of subjects’ Armenian friends, and a hypothetical allocation decision between an Armenian and a Georgian stranger. Both measures of Armenian ingroup attachment are positively related to the probability of signaling a Georgian name.³⁶ Finally adding further control variables in column 5 shows that risk tolerance is negatively associated with sending a Georgian signal. Of course, this descriptive analysis is not exhaustive since additional unobserved factors - such as intrinsic lying costs (e.g., Abeler et al. (2014)) – might matter as well.³⁷ Having that said, our results do indicate that signaling decisions are not only driven by pecuniary considerations, but also by non-pecuniary motivations (which is in line with Hett et al. (2017), for instance).

Signals sent to Armenian trustors

From the signals sent in treatment *G-A Signal* it is not entirely clear whether Armenians use the signaling device *strategically* to avoid being discriminated against. For instance, some Armenians might simply have preferences for presenting themselves as Georgians, independent of their interaction partner’s ethnicity. Treatment *A-A Signal*, where the trustor is Armenian, reveals that signaling behavior is in fact strategic: In this treatment, all but one trustee (99 percent) send the truthful signal that they have an Armenian name, and not a

³⁵ See footnote of Table 5 for the exact question wordings. The variable “importance of ethnic markers” is the mean of the answers to two questions on the importance of (i) speaking Armenian and (ii) having an Armenian name. Including both measures separately in the regressions shows that, while both coefficients are negative, only the one on language reaches statistical significance (results available upon request).

³⁶ One possible explanation for this finding is that other-regarding preferences toward Georgian trustors decreases with ingroup attachment, which makes it more acceptable for Armenians to send a signal which might reduce Georgian trustors’ payoff.

³⁷ While we did not measure lying costs directly, the fact that only one single subjects chose the option not to send any signal – which conceals Armenian ethnicity without explicitly lying to the trustor – suggests that lying costs are unlikely a driving factor of signaling behavior in our context. Assessing the exact role of directly measured lying costs is an interesting avenue for future research. Interestingly, self-assessed understanding of the instructions does not correlate with signal choice, which suggests that strategic sophistication is probably no key determinant of signaling behavior (see Fe and Gill (2018) for evidence on how cognitive skills and strategic sophistication emerge in children).

single subject sends the untruthful message that they have a Georgian name (see Figure 3 and Table 4). The signaling differences between *G-A Signal* and *A-A Signal* are highly significant (see column 5 of Table 4) and show that Armenians condition their signals on trustors' ethnicity. Consistently, Figure 4 and Appendix Table A7 show that trustees' expected transfers when signaling an Armenian (Georgian) name are significantly higher (lower) in treatment *A-A Signal*, than in treatment *G-A Signal*.³⁸

Having established that Armenian trustees use the signaling device strategically to misrepresent their ethnicity, we now investigate whether trustors believe in the signals sent. To this end, our post-experimental questionnaire collected trustors' binary beliefs about trustees' ethnicity (Georgian or Armenian), as well as trustees' second-order beliefs about trustors' beliefs. Appendix Table A8 depict the share of trustors who believe that the trustee's ethnicity is Armenian (column 1) and Georgian (column 2). On average 56 percent of Georgian trustors in treatment *G-A Signal* believe that the trustee is ethnic Armenian, 44 percent believe that she is Georgian. Inspecting beliefs by the name-signal received, it turns out that trustors fully believe the signals: Georgian trustors who received the message that the trustee has a Georgian (Armenian) name think that she is ethnic Georgian (Armenian). Similarly, Armenian trustors believe the signal they received. The fact that trustors fully believe trustees is particularly interesting given that we emphasized that the name signal is a *message* from the trustee, and not a piece of factual information provided by the experimenter.³⁹ Trustees, in turn, hold correct beliefs about the impacts of their signal on trustors' beliefs (see columns 3 and 4): Those who signal an Armenian (Georgian) name correctly expect trustors to believe that they are ethnic Armenians (Georgians).⁴⁰

³⁸ In treatment *A-A Signal*, expected transfers are 5.98 tokens when signaling an Armenian, 3.69 tokens when signaling a Georgian name ($p < 0.01$, Wilcoxon signed rank test), and 3.21 when sending no signal ($p = 0.108$ and $p < 0.01$ in comparison to signaling an Armenian and Georgian name, respectively). A natural interpretation of this finding is that Armenian trustees expect that both Armenian and Georgian trustors exhibit endophilia toward interaction partners from their own ethnicity (e.g., Feld et al., 2016).

³⁹ Given that our instructions and message sheet clearly indicate that the name signal is a message from the interaction partner, it is very unlikely that trustors' ignorance toward this fact can rationalize their beliefs. But even if this ignorance left some trustors unaware that the signal stems from the trustee and is therefore potentially subject to untruthful reporting, we consider this a natural reflection of everyday-life interactions, where the possibility that interaction partners manipulate signals about their ethnicity is often not salient or apparent.

⁴⁰ Sutter (2009) shows that a significant portion of senders in cheap-talk sender-receiver games with asymmetric information try to deceive the receiver by (i) sending a truthful message, and (ii) expecting the receiver not to believe the message. Note that Armenian trustees' second-order beliefs reveal that such considerations do not drive trustees' signaling behavior.

In sum, this section shows that trustees use the pre-play name-signaling stage to strategically misrepresent their ethnicity, that trustors believe the messages sent, and that trustees anticipate that trustors believe their messages. In the next section, we investigate the extent to which strategic signaling affects Georgian trustors' transfers, beliefs, and profits.

4.3 Effects of name-signaling on discrimination against Armenian trustees

Figure 1 shows that Georgian trustors transfer, on average, 4.44 tokens to Armenian trustees in treatment *G-A Signal*. This number lies between transfers to Georgian and Armenian trustees without signaling in treatments *G-G* and *G-A*, respectively. OLS regressions in Table 6 show that differences in Georgian trustors' transfers between treatments *G-G* and *G-A Signal*, and between treatments *G-A* and *G-A Signal*, are statistically significant. Thus, allowing Armenian trustees to send a signal about their ethnicity halves the magnitude of trust discrimination in our setting. Going beyond these reduced-form effects, we next investigate the causal effect of receiving a Georgian name signal on trustors' behavior.

Figure 1 shows that Georgian trustors' transfers vary strongly by the signal received in treatment *G-A Signal*. While trustors who are signaled that the trustee has a Georgian name transfer 5.19 tokens on average, transfers are much lower at 3.88 if no such signal is received.⁴¹ Note that these transfers are remarkably similar to those in treatments without signaling (*G-G* and *G-A*, respectively). Columns 1 and 2 of Table 7 show that this difference is highly significant and robust to controlling for standard covariates.

To understand the mechanisms behind the effect of Georgian name signals on trustors' transfers, we next investigate how the signal affects trustors' expected back transfers from the trustee. Columns 3 and 4 of Table 7 regress trustors' expected back transfers from the trustee on a dummy indicating receipt of a Georgian name signal, controlling for trustor-transfer dummies. The significant and positive coefficients show that receiving a Georgian name signal has a strong and positive effect on trustors' expected back transfers. This finding suggests that Georgian name signals increase trustors' transfers through altering their expected back transfers.

⁴¹ Note that differences in trustors' outcomes by the signal received can be interpreted as the causal effect of the signal, because trustees' actual signals were randomly assigned to trustors. Since random assignment of signals was implemented at the individual level (and not on the class level), we do not cluster standard errors at the class-level in these analyses.

Turning to Armenian trustees' transfers, it turns out that Georgian trustors overestimate actual back transfers: Columns 5 and 6 of Table 7 show that Armenian trustees' actual back transfers are unrelated to the signal they sent.⁴² The same picture emerges when looking at back transfers for each possible trustor transfer in Appendix Figure A2.⁴³ Thus, Armenian trustees seem to increase Georgian trustors' transfers by inducing an incorrectly high level of expected back transfers.

Finally, we are interested in how Armenian trustees' strategic signaling behavior affects profits. Table 8 presents OLS regressions of Georgian trustors' and Armenian trustees' profits on an indicator on whether a Georgian name was signaled in treatment *G-A Signal*. While receiving a Georgian name signal has no overall effect on Georgian trustors' profits (see columns 1 and 2), signaling Georgian ethnicity significantly increases Armenian trustees' profits: Armenian trustees who signal a Georgian name earn 2.26 tokens, or about 27 percent, more than those who do not signal a Georgian name (see column 3). This effect is robust to controlling for standard covariates (see column 4). In sum, introducing a pre-play signaling stage increases overall efficiency. This is because Armenian trustees' strategic signals mitigate Georgian trustors' inefficient discriminatory behavior. Since Armenian trustees do not increase their back transfers when sending a Georgian name signal, they are able to capture the extra "pie" produced.

5. Conclusion

Ethnic discrimination is a pervasive phenomenon in many societies. But while majority-group members' decisions to discriminate have been under close scientific scrutiny in the past decades, evidence on minority-group members' strategic behavior to avoid discrimination is extremely scarce. We address this research gap by running a lab-in-the-field experiment with more than 750 high-school students in the country of Georgia, where the Armenian minority faces discrimination from the ethnic Georgian majority. In our modified trust

⁴² Again, using average back transfers from our strategy-method elicitation instead of actually implemented back transfers yields the same results (see columns 3 and 4 of Appendix Table A6).

⁴³ The strictly increasing pattern of the figure reveals that reciprocal motivations for back transfers are prevalent in treatment *G-A Signal*, which is similar to the back-transfer pattern in treatments without signaling (see Figure 2).

game, we implement a pre-play signaling stage in some treatments to study whether Armenian trustees misrepresent their ethnicity to avoid being discriminated against.

Our results show that Georgian trustors discriminate against Armenian trustees by transferring significantly less tokens than to Georgian trustees. Allowing Armenian trustees to send an (un)truthful signal about their ethnicity, Armenians' strategic signaling behavior halves Georgians' trust discrimination and thereby increases overall efficiency. Our rich choice-, beliefs- and background data allows us to study pecuniary and non-pecuniary motivations for (strategic) signaling behavior, as well as the channels through which the signaling stage increases Georgians' transfers.

Our results are relevant for situations in which ethnic affiliation is not perfectly observable and minorities have some discretion over what ethnicity-revealing signals to send. Examples abound and include, for instance, written job applications, naming decisions, or decisions whether to wear typical ethnic markers in everyday-life (e.g., clothes or accessories). Previous literature shows that minorities misrepresenting their ethnicity in such situations is not a marginal phenomenon: For instance, more than 30 percent of minorities misrepresent their ethnicity in Zussman (2013), Biavashi et al. (2017), and Kang et al. (2017). A particularly interesting area for which our results are relevant are new communication technologies. Recent studies show that discrimination can be based on self-reported information on social media (e.g., Tjaden et al. (2018), Acquisti and Fong (2019)). At the same time, it is very easy to manipulate profile information on social media, or use majority-sounding names in emails, to alter perceived minority status.

Our results carry implications for the interpretation of experimental studies on discrimination. While these studies usually abstract from minorities' optimizing behaviors when measuring discrimination (e.g. by sending out fictitious job applications with randomized applicant characteristics), our findings show that minorities' strategic behavior can affect measured discrimination, and therefore the transferability of experimental estimates of discrimination to real-world settings. From a policy perspective, our findings suggest that allowing minority-group members to choose what signals to reveal about their ethnicity (e.g., in the context job-search activities) might mitigate discrimination and increase efficiency.

6. References

- Abeler, J., Becker, A., Falk, A. (2014). Representative evidence on lying costs. *Journal of Public Economics*, 113, 96-104.
- Abramitzky, R., Boustan, L. P., Eriksson, K. (2016). Cultural assimilation during the age of mass migration. NBER Working Paper 22381.
- Abramitzky, R., Boustan, L. P., Eriksson, K. (2019). Do immigrants assimilate more slowly today than in the past? *American Economic Review: Insights*, forthcoming.
- Acquisti, A., Fong, C. M. (2019). An experiment in hiring discrimination via online social networks. *Management Science*, forthcoming.
- Ahmed, A. M., Hammarstedt, M. (2008). Discrimination in the rental housing market: A field experiment on the Internet. *Journal of Urban Economics*, 64 (2), 262-372.
- Akerlof, G. E., Kranton, R. E. (2000). Economics and identity. *Quarterly Journal of Economics*, 115 (3), 715-753.
- Alesina, A., Carlana, M., La Ferrara, E., Pinotti, P. (2018). Revealing stereotypes: Evidence from immigrants in schools. NBER Working Paper 25333.
- Algan, Y., Mayer, T., Thoenig, M. (2013). The economic incentives of cultural transmission: Spatial evidence from naming patterns across France. Working Paper.
- Alston, M. (2018). The (perceived) cost of being female: An experimental investigation of strategic response to discrimination. Working Paper.
- Altonji, J. G., Blank, R. M. (1999). Race and gender in the labor market. In Ashenfelter, O., Card, D., eds., *Handbook of Labor Economics*, Elsevier.
- Anderson, R., Fryer, R., Holt, C. (2006). Discrimination: Experimental evidence from psychology and economics. In Rodgers, W., ed., *Handbook on the Economics of Discrimination*, Edward Elgar.
- Angerer, S., Glätzle-Rützler, D., Lergetporer, P., Sutter, M. (2016). Cooperation and discrimination within and across language borders: Evidence from children in a bilingual city. *European Economic Review*, 90, 254-264.
- Anwar, S., Bayer, P., Hjalmarsson, R. (2012). The impact of jury race in criminal trials. *Quarterly Journal of Economics*, 127, 1017-1055.
- Arai, M., Thoursie, P. S. (2009). Renouncing personal names: An empirical examination of surname change and earnings. *Journal of Labor Economics*, 27(1), 127-147.
- Arnold, D., Dobbie, W., Yang, C. S. (2018). Racial bias in bail decisions. *Quarterly Journal of Economics*, 133 (4), 1885-1932.
- Arrow, K. J. (1998). What has economics to say about racial discrimination? *Journal of Economic Perspectives*, 12 (2), 91-100.
- Bartos, V., Bauer, M., Chytiolová, J., Matejka, F. (2016). Attention discrimination: Theory and field experiments with monitoring information acquisition. *American Economic Review*, 106 (6), 1437-1475.

- Bauer, M., Cahliková, J., Chytilová, J., Želinský, T. (2018). Social contagion of ethnic hostility. *Proceedings of the National Academy of Sciences*, 115 (19), 4881-4886.
- Becker, G. (1957). *The Economics of Discrimination*. Chicago: University of Chicago Press.
- Berg, J., Dickhaut, J., McCabe, K. (1995). Trust, reciprocity, and social History. *Games and Economic Behavior*, 10, 122-142.
- Bertrand, M., Duflo, E. (2017). Field experiments on discrimination. In Banerjee, A., Duflo, E. eds., *Handbook of Field Experiment*, North Holland.
- Bertrand, M., Mullainathan, S. (2004). Are Emily and Greg more employable than Lakisha and Jamal? A field experiment on labor market discrimination. *American Economic Review*, 94(4):991–1013.
- Biavashi, C., Giuliatti, C., Siddique, Z. (2017). The economic payoff of name Americanization. *Journal of Labor Economics*, 35 (4), 1089-1116.
- Bindra, P. C., Glätzle-Rützler, D., Lergetporer, P. (2018). Discrimination at young age: Experimental evidence from preschool children. CESifo Working Paper 7396.
- Bohren, J., Haggag, K., Imas, A., Pope, D. G. (2019). Inaccurate statistical discrimination. Becker Friedman Institute for Economics Working Paper No. 2019-86.
- Boisjoly, J., Duncan, G. J., Kremer, M., Levy, D. M., Eccles, J. (2006). Empathy or antipathy? The impact of diversity. *American Economic Review*, 96 (5), 1890–1905.
- Brandts, J., Charness, G. (2000). Hot vs. cold: sequential responses and preference stability in experimental games. *Experimental Economics*, 2, 227–238.
- Bullock, J. G., Gerber, A. S., Hill, S. J., Huber, G. A. (2015). Partisan bias in factual beliefs about politics. *Quarterly Journal of Political Science*, 10, 519–578.
- Casari, M., Cason, T. N. (2009). The strategy method lowers measured trustworthy behavior. *Economics Letters*, 103 (3), 157–159.
- Caucasus Research Resource Centers (2017). Caucasus Barometer 2017 Georgia. Retrieved from <http://www.crrcenters.org/caucasusbarometer/> on 5 June 2019.
- Cettolin, E., Suetens, S. (2019). Return on trust is lower for immigrants. *Economic Journal*, forthcoming.
- Cox, J. C., Kerschbamer, R., Neururer, D. (2016). What is trustworthiness and what drives it? *Games and Economic Behavior*, 98, 197-218.
- De Quidt, J., Haushofer, J., Roth, C. (2018). Measuring and bounding experimenter demand effects. *American Economic Review*, 108 (11), 3266-3302.
- Falk, A., Zehnder, C. (2013). A city-wide experiment on trust discrimination. *Journal of Public Economics*, 100, 15-27.
- Fe, E., Gill, D. (2018). Cognitive skills and the development of strategic sophistication. Working Paper.
- Fehr, E., Bernhard, H., Rockenbach, B. (2008). Egalitarianism in young children. *Nature* 454, 1079-1083.

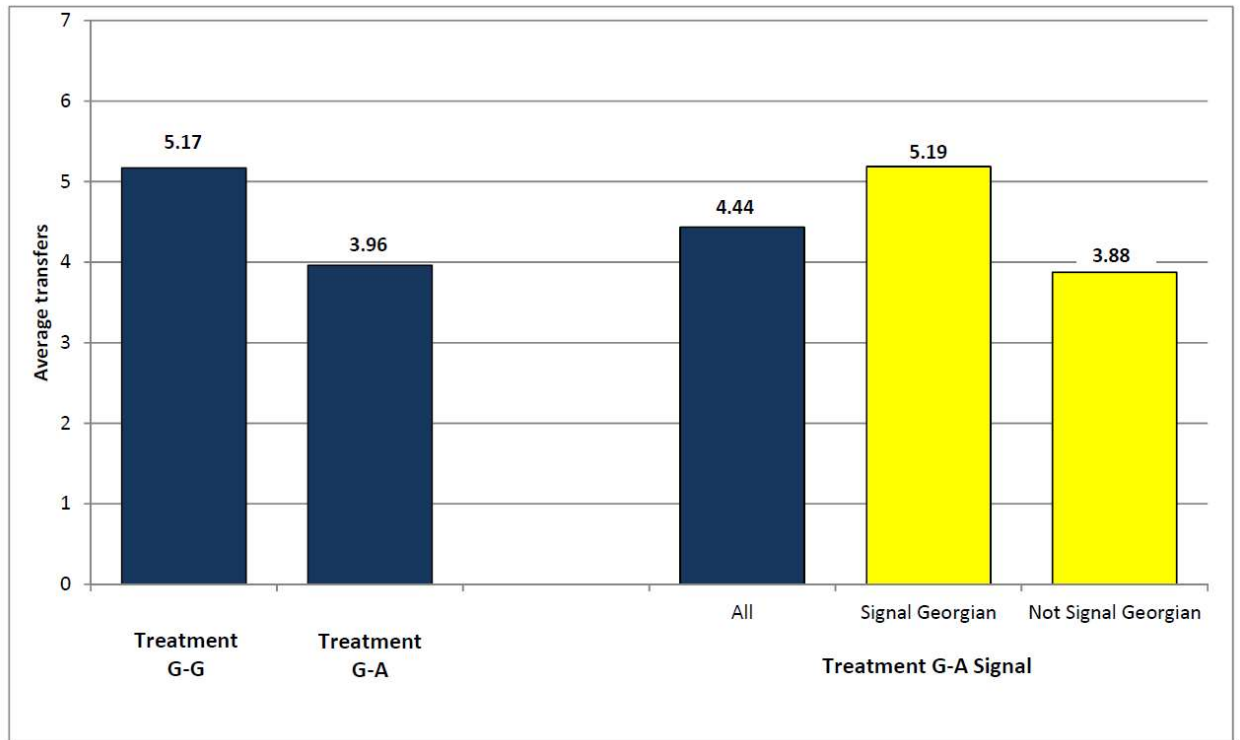
- Fehr, E., Glätzle-Rützler, D., Sutter, M. (2013). The development of egalitarianism, altruism, spite and parochialism in childhood and adolescence. *European Economic Review* 64, 369-383.
- Feld, J., Salamanca, N., Hamermesh, D. S. (2016). Endophilia or exophobia: Beyond discrimination. *Economic Journal*, 124 (594), 1503-1527.
- Fershtman, C., Gneezy, U. (2001). Discrimination in a segmented society: An Experimental approach. *Quarterly Journal of Economics*, 116 (1), 351–377.
- Fryer, R. G., Levitt, S. D. (2004). Causes and consequences of distinctively black names. *Quarterly Journal of Economics*, 116, 351-377.
- Gino, F., Norton, M. I., Weber, R. A. (2016). Motivated Bayesians: Feeling moral while acting egoistically. *Journal of Economic Perspectives*, 30 (3), 189-212.
- Glover, D., Pallais, A., Pariente, W. (2017). Discrimination as a self-fulfilling prophecy: Evidence from french grocery stores. *Quarterly Journal of Economics*, 132 (3), 1219-1260.
- Goldin, C., Rouse, C. (2000). Orchestrating impartiality: The impact of “blind” auditions on female musicians. *American Economic Review*, 90 (4), 715-741.
- Goldin, C., Schim, M. (2004). Making a name: Women’s surnames at marriage and beyond. *Journal of Economic Perspectives*, 18 (2), 143-160.
- Gneezy, U. (2005). Deception: The role of consequences. *American Economic Review*, 95 (1), 384-394.
- Hett, F., Kröll, M., Mechtel, M. (2017) Choosing who you are: The structure and behavioral effects of revealed identification preferences. Working Paper.
- Harrison, G. W., List, J. (2004). Field experiments. *Journal of Economic Literature*, 42, 1009-1055.
- Heckman, J. T. (1998). Detecting discrimination. *Journal of Economic Perspectives*, 12 (2), 101-116.
- Heyes, A., List, J. A. (2016). Supply and demand for discrimination: Strategic revelation of own characteristics in a trust game. *American Economic Review: Papers & Proceedings*, 106 (5), 319-323.
- Holzer, H., Neumark, D. (2000). Assessing affirmative action. *Journal of Economic Literature*, 38 (3), 483-568.
- Houser, D., Schunk, D., Winter J. (2010). Distinguishing trust from risk: An anatomy of the investment game. *Journal of Economic Behavior and Organization*, 74 (1-2), 72-81.
- Jia, R., Persson, T. (2017). Individual vs. social motives in identity choice: Theory and evidence from China. 21st Century China Center Research Papers No. 2017-06.
- Jones, S, F. (1996). Georgian-Armenian Relations in 1918-20 and 1992-94: A Comparison. In Suny, R., ed., *Transcaucasia, Nationalism and Social Change: Essays in the History of Armenia, Azerbaijan and Georgia*, University of Michigan Press, Ann Arbor.

- Kang, S. K., DeCelles, K. A., Tilcsik, A., Jun, S. (2016). White resumes: Race and self-presentation in the labor market. *Administrative Science Quarterly*, 61 (3), 469-502.
- Lavy, V., Sand, E. (2018). On the origins of gender gaps in human capital: Short- and long-term consequences of teachers' biases. *Journal of Public Economics*, 167, 263-279.
- Lavy, V., Sand, E., Shayo, M. (2018). Charity begins at home (and at school): Effects of religion-based discrimination in education. NBER Working Paper No. 24922.
- Liebersohn, S. (2000). *A matter of taste: How names, fashion and culture change*. New Haven, CT: Yale University Press.
- List, J. A., Rasul, I. (2011) Field experiments in labor economics. In Ashenfelter, O., Card, D., eds., *Handbook of Labor Economics*, Elsevier.
- List, A. J., List, J. A., Samek, A. (2017). Discrimination among pre-school children: Field experimental evidence. *Economics Letters*, 157, 159-162.
- Osepashvili, I. (2013). General comparison of ethnic Georgians' attitudes towards Armenians and Azerbaijanis. Center for Social Sciences. <http://css.ge/files/documents/Project%20reports/Irina/General%20Comparison%20of%20ethnic%20Georgians%20attitudes%20towards%20Armenians%20and%20Azerbaijanis.pdf>
- Parsons, C. A., Sulaeman, J., Yates, M. C., Hamermesh, D. S. (2011). Strike three: Discrimination, incentives, and evaluation. *American Economic Review*, 101, 1410-1435.
- Pope, D. G., Price, J., Wolfers, J. (2018). Awareness reduces racial bias. *Management Science*, 64 (11), 4967-5460.
- Prior, M., Sood, G., Khanna, K. (2015). You cannot be serious: The impact of accuracy incentives on partisan bias in reports of economic perceptions. *Quarterly Journal of Political Science*, 10, 489-518.
- Public Defender's Office of Georgia (2008). *Etnosebi Saqartveloshi*. ISBN 978-9941-0-0901-3, 108.
- Riach, P. A., Rich, J. (2002). Field Experiments of Discrimination in the Market Place. *Economic Journal*, 112 (483), F480-F518.
- Rohner, D., Thoenig, M., Zilibotti, F. (2013a). War signals: A theory of trade, trust and conflict. *Review of Economic Studies*, 80 (3), 1114-1147.
- Rohner, D., Thoenig, M., Zilibotti, F. (2013b). Seeds of distrust: conflict in Uganda. *Journal of Economic Growth*, 18 (3), 217-252.
- Selten, R. (1967). Die Strategiemethode zur Erforschung des eingeschränkt rationalen Verhaltens im Rahmen eines Oligopolexperiments. In: Sauermann, H., ed., *Beiträge zur experimentellen Wirtschaftsforschung*, J.C.B. Mohr (Siebeck).
- Steele, C. M., Aronson, J. (1995). Stereotype threat and the intellectual test performance of African Americans. *Journal of Personality and Social Psychology*, 69 (5), 797-811.
- Sutter, M. (2009) Deception through telling the truth?! Experimental evidence from individuals and teams. *Economic Journal*, 119, 47-60.

- Sutter, M., Zoller, C., Glätzle-Rützler, D. (2019). Economic behavior of children and adolescents – A first survey of experimental economics results. *European Economic Review*, 111, 98-121.
- Tjaden, J. D., Schwemmer, C., Khadjavi, M. (2018). Ride with me – Ethnic discrimination, social markets, and the sharing economy. *European Sociological Review*, 34 (4), 418-432.
- Trautmann, S. T., van de Kuilen, G. (2015). Belief elicitation: A horse race among truth serums. *Economic Journal*, 125, 2116-2135.
- Yinger, J. (1998). Evidence on discrimination in consumer markets. *Journal of Economic Perspectives*, 23–40.
- Zhao, X., Biernat, M. (2017). "Welcome to the U.S." but "change your name"? Adopting Anglo names and discrimination. *Journal of Experimental Social Psychology*, 70, 59-69.
- Zussman, A. (2013). Ethnic discrimination: Lessons from the Israeli online market for used cars. *Economic Journal*, 123, F433-F468.

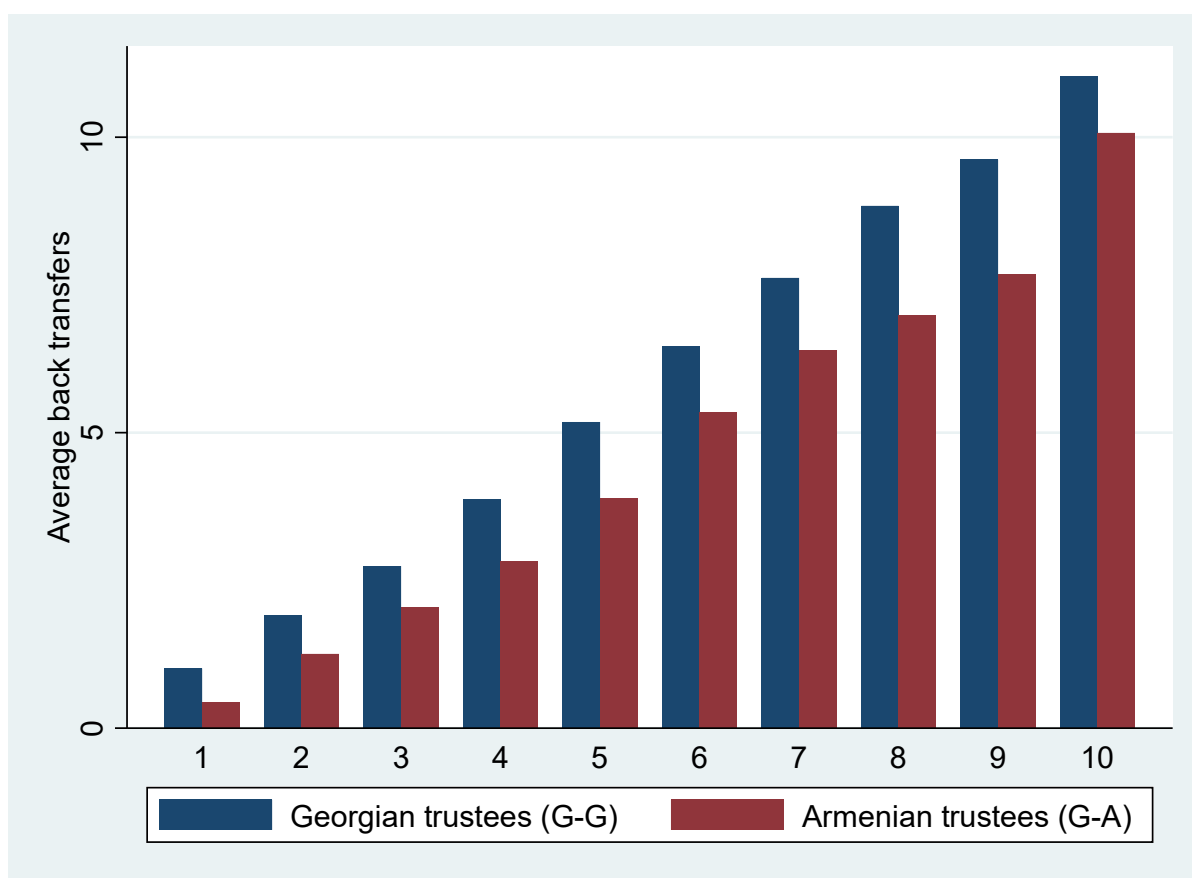
Figures and Tables

Figure 1: Georgian trustor's average transfers



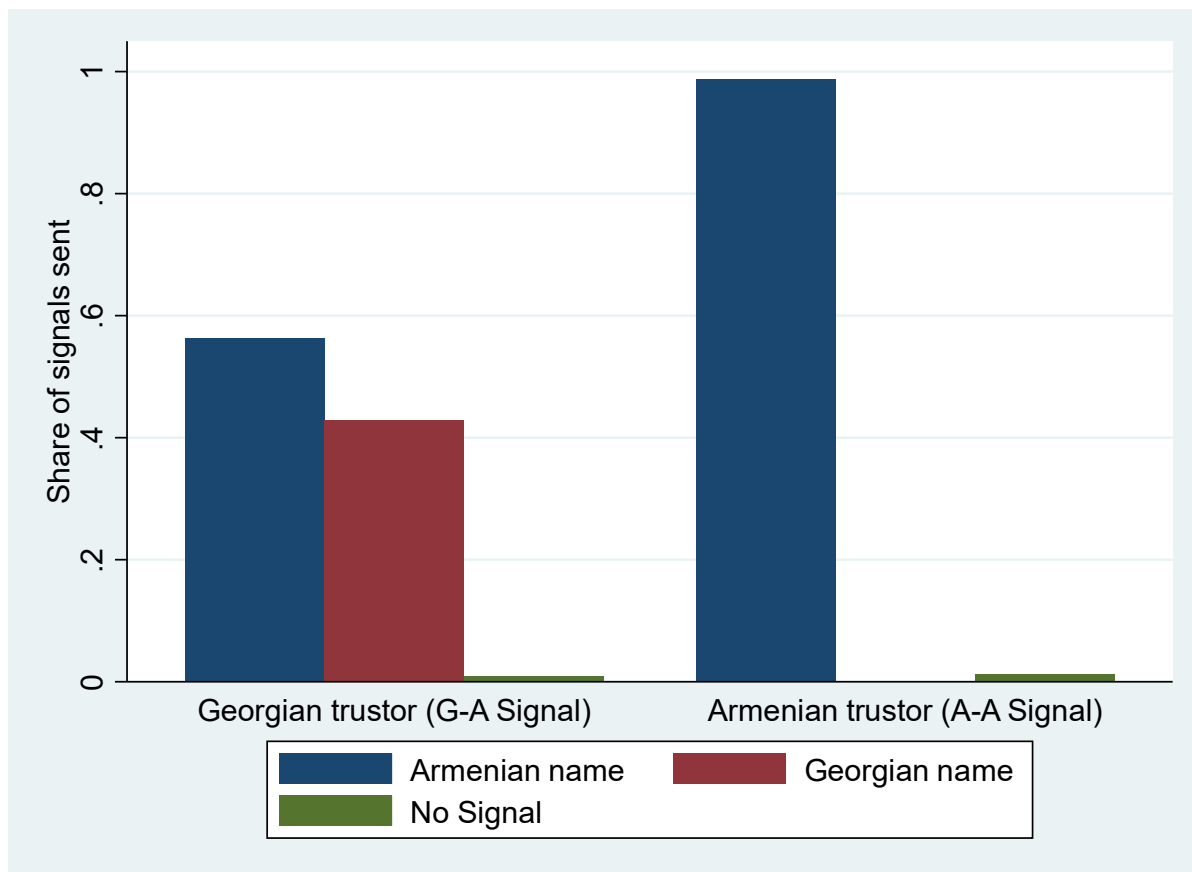
Notes: The figure shows transfers by Georgian trustors in treatments *G-G*, *G-A*, and *G-A Signal*. Blue bars represent average transfers per treatment, the yellow bars represent average transfers of trustors who did and did not receive the signal that the trustee has a Georgian name.

Figure 2: Trustees' back transfers without signaling



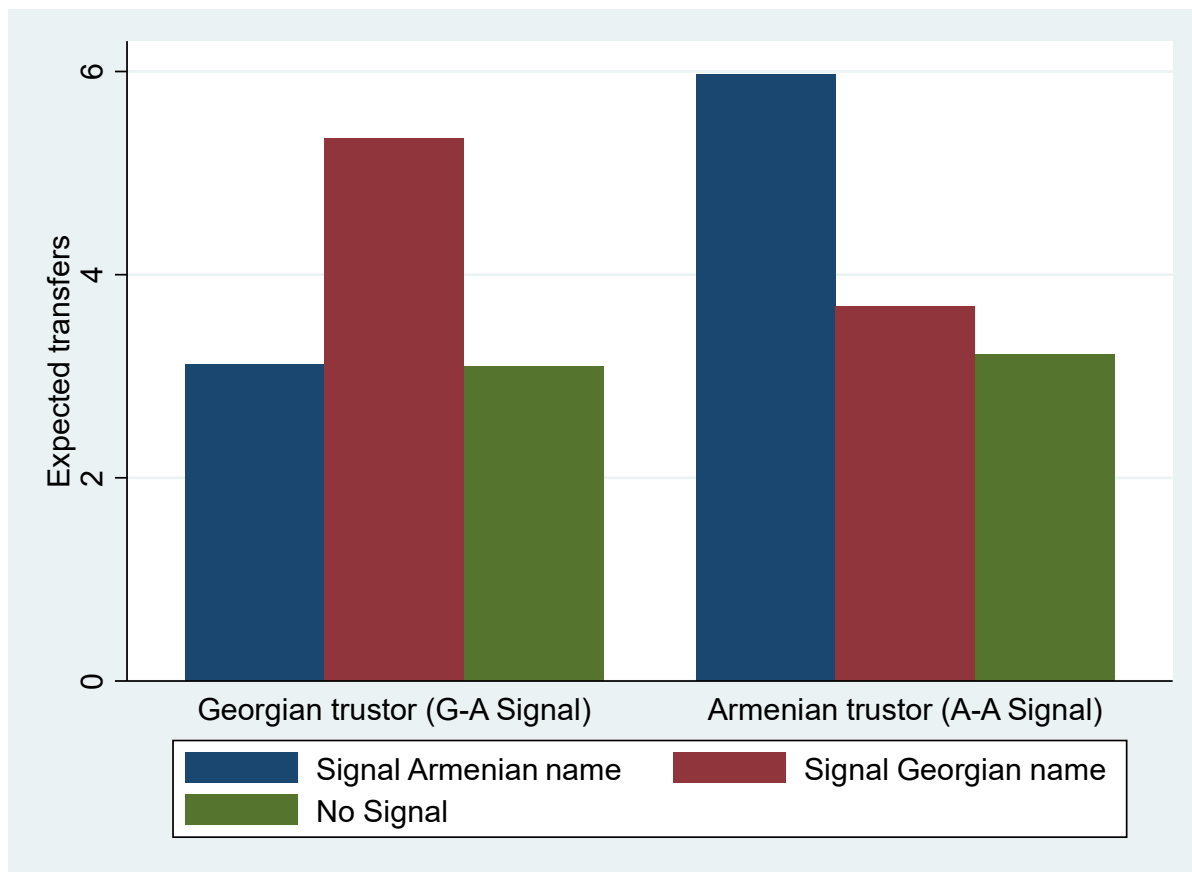
Notes: The figure shows actual back transfers by Georgian (blue bars) and Armenian (red bars) trustees to Georgian trustors. Each trustee reported a back-transfer decision for each possible trustor transfer (strategy method).

Figure 3: Signals sent from Armenian trustees to Georgian and Armenian trustors



Notes: The figure shows the shares of Armenian trustees who signal Armenian names (truthfully), Georgian names (untruthfully), or send no signal to the trustor.

Figure 4: Armenian trustees' expected transfers upon sending different signals



Notes: The figure shows the amount of transfers Armenian trustees expect to receive from Georgian trustors (left panel) and Armenian trustors (right panel) upon sending a Georgian name signal (blue), an Armenian name signal (red), and no name signal (green).

Table 1: Number of participants by treatments

Treatment	Role		
	Trustors	Trustees	Total
G-G	105	105	210
G-A	82	82	164
G-A Signal	112	112	224
A-A Signal	80	80	160
Total	379	379	758

Table 2: Extent of Georgian trustors' discrimination and beliefs without signaling

	Trustors' transfers		Trustors' beliefs about trustees' back transfers	
	(1)	(2)	(3)	(4)
<i>Treatment G-A</i>	-1.208*** (0.291)	-1.273*** (0.225)	-0.829*** (0.205)	-0.651** (0.221)
Trustors-transfer dummies	n.a.	n.a.	Yes	Yes
Control mean (G-G)		5.171		5.648
Covariates	No	Yes	No	Yes
Observations	187	186	187	186
R^2	0.095	0.150	0.662	0.691

Notes: OLS regressions. Dependent variable: Col. (1)-(2): Transfers from Georgian trustors; col. (3)-(4): Georgian trustors' beliefs about trustees' transfers. Control mean: mean of the outcome variable in treatment G-G. Covariates: gender, age, number of siblings, risk tolerance, and patience. Robust standard errors clustered at the class-level in parentheses. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 3: Trustees' back transfers and beliefs without signaling

	Trustees' back transfers		Trustees' beliefs about trustors' transfers	
	(1)	(2)	(3)	(4)
<i>Treatment G-A</i>	-0.512*	-0.773**	-1.785**	-2.279**
	(0.262)	(0.279)	(0.645)	(0.714)
Trustors-transfer dummies	Yes	Yes	n.a.	n.a.
Control mean (G-G)		5.724		5.114
Covariates	No	Yes	No	Yes
Observations	187	185	187	185
R^2	0.594	0.621	0.106	0.143

Notes: OLS regressions. Dependent variable: Col. (1)-(2): Trustees' actual back transfers; col. (3)-(4): trustees' beliefs about trustors' transfers. Control mean: mean of the outcome variable in treatment G-G. Covariates: gender, age, number of siblings, risk tolerance, and patience. Robust standard errors clustered at the class-level in parentheses. Significance levels: *** p<0.01, ** p<0.05, * p<0.1.

Table 4: Name signaling behavior

	G-A Signal		A-A Signal		Difference
	(1)	(2)	(3)	(4)	(5)
Signal	#	%	#	%	p-values
Armenian name	63	56.25%	79	98.75%	0.000
Georgian name	48	42.86%	0	0.00%	0.000
No signal	1	0.89%	1	1.25%	0.810
Total	112	100%	80	100%	

Notes: The table depicts the signals sent by Armenian trustees to Georgian and Armenian trustors. The figures represent the absolute and relative numbers of Armenian trustees who signal Armenian names (truthfully), Georgian names (untruthfully), or send no signal to trustor. Col. (1)-(2): Georgian trustors; col. (3)-(4): Armenian trustors. p-values in column 5 stem from Chi-squared tests.

Table 5: What predicts Georgian name signals among Armenian trustees?

	Signaling Georgian name				
	(1)	(2)	(3)	(4)	(5)
Pride about Armenian ethnicity ^a	0.006 (0.076)	0.060 (0.086)	0.062 (0.083)	0.009 (0.062)	-0.001 (0.064)
Importance of ethnic markers ^a		-0.203** (0.086)	-0.223** (0.088)	-0.136* (0.077)	-0.144* (0.076)
Expected transfers when signaling Georgian name			0.055* (0.031)	0.056** (0.024)	0.062** (0.025)
... signaling Armenian name			-0.032 (0.030)	-0.006 (0.025)	-0.026 (0.028)
... sending no signal			-0.029 (0.025)	-0.040* (0.021)	-0.037* (0.022)
Ingroup attachment					
Share of Armenian friends				0.553*** (0.150)	0.513*** (0.151)
Hypothetical ingroup allocation ^c				0.105*** (0.018)	0.102*** (0.019)
Female					-0.003 (0.081)
Age					0.038 (0.027)
Siblings					-0.013 (0.055)
Risk tolerance					-0.030** (0.012)
Patience					-0.012 (0.009)
Constant	0.399 (0.359)	1.046** (0.492)	1.017* (0.522)	-0.257 (0.471)	-0.342 (0.559)
Observations	112	112	112	111	111
R^2	0.000	0.046	0.078	0.374	0.434

Notes: Linear probability models. Sample: Armenian trustees in treatment *G-A Signal*. Dependent variable: categorical variable coded 1 if subject signals to have a Georgian name, 0 otherwise. Robust standard errors in parentheses. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

^a Pride about Armenian ethnicity: response to the following question: “How proud are you to be Armenian?” Answer categories ranged from 1=“not at all proud” to 5=“very proud”.

^b *Importance of ethnic markers*: average response to the following two questions: “Some people say that the following things are important for being truly Armenian. Others say they are not important. How important do you think it is to be able to speak Armenian? How important do you think it is to have an Armenian name?” Answer categories ranged from 1=“very unimportant” to 5=“very important”.

^c *Hypothetical ingroup allocation*: “Please consider the following situation: You have to decide how to split 10 Lari between two strangers. One stranger is Georgian, the other is Armenian. How would you split the money?”

Table 6: Georgian trustors' transfers with and without signaling

	Trustors' transfers	
	(1)	(2)
<i>Treatment G-A</i>	-1.208*** (0.285)	-1.271*** (0.229)
<i>Treatment G-A Signal</i>	-0.734*** (0.233)	-0.766*** (0.218)
Control mean (G-G)	5.171	
Covariates	No	Yes
Observations	299	297
R^2	0.063	0.110
<i>Wald-Test</i>		
$H_0: \beta_{G-A} - \beta_{G-A \text{ Signal}} = 0$	-0.474*	-0.505**

Notes: OLS regressions. Dependent variable: Transfers from Georgian trustors to trustees. Control mean: mean of the outcome variable in treatment G-G. Covariates: gender, age, number of siblings, risk tolerance, and patience. Robust standard errors clustered at the class-level in parentheses. Significance levels: *** p<0.01, ** p<0.05, * p<0.1.

Table 7: Georgian trustors' transfers, expected back transfers and Armenian trustees' actual back transfers with signaling (treatment *G-A Signal*)

	Trustors' transfers		Trustors' beliefs about trustees' back transfers		Trustees' back transfers	
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Signal Georgian name (=1)</i>	1.312*** (0.346)	1.197*** (0.357)	1.033*** (0.347)	1.095*** (0.368)	0.108 (0.473)	0.0210 (0.470)
Trustors-transfer dummies	n.a.	n.a.	Yes	Yes	Yes	Yes
Control mean (not signal Georgian)	3.875		3.656		3.272	
Covariates	No	Yes	No	Yes	No	Yes
Observations	112	111	112	111	112	112
R^2	0.116	0.140	0.678	0.683	0.615	0.652

Notes: OLS regressions. Sample: treatment *G-A Signal*. Dependent variable: Col. (1)-(2): Transfers from Georgian trustors to trustees; col. (3)-(4): Georgian trustors' beliefs about trustees' transfers; col. (5)-(6): trustees' actual back transfers. Independent variable: coded 1 if Armenian trustee signals a Georgian name, 0 otherwise. Control mean: mean of the outcome variable without signaling a Georgian name. Covariates: gender, age, number of siblings, risk tolerance, and patience. Robust standard errors in parentheses. Significance levels: *** p<0.01, ** p<0.05, * p<0.1.

Table 8: Effects of signals on Georgian trustors' and Armenian trustees' profits

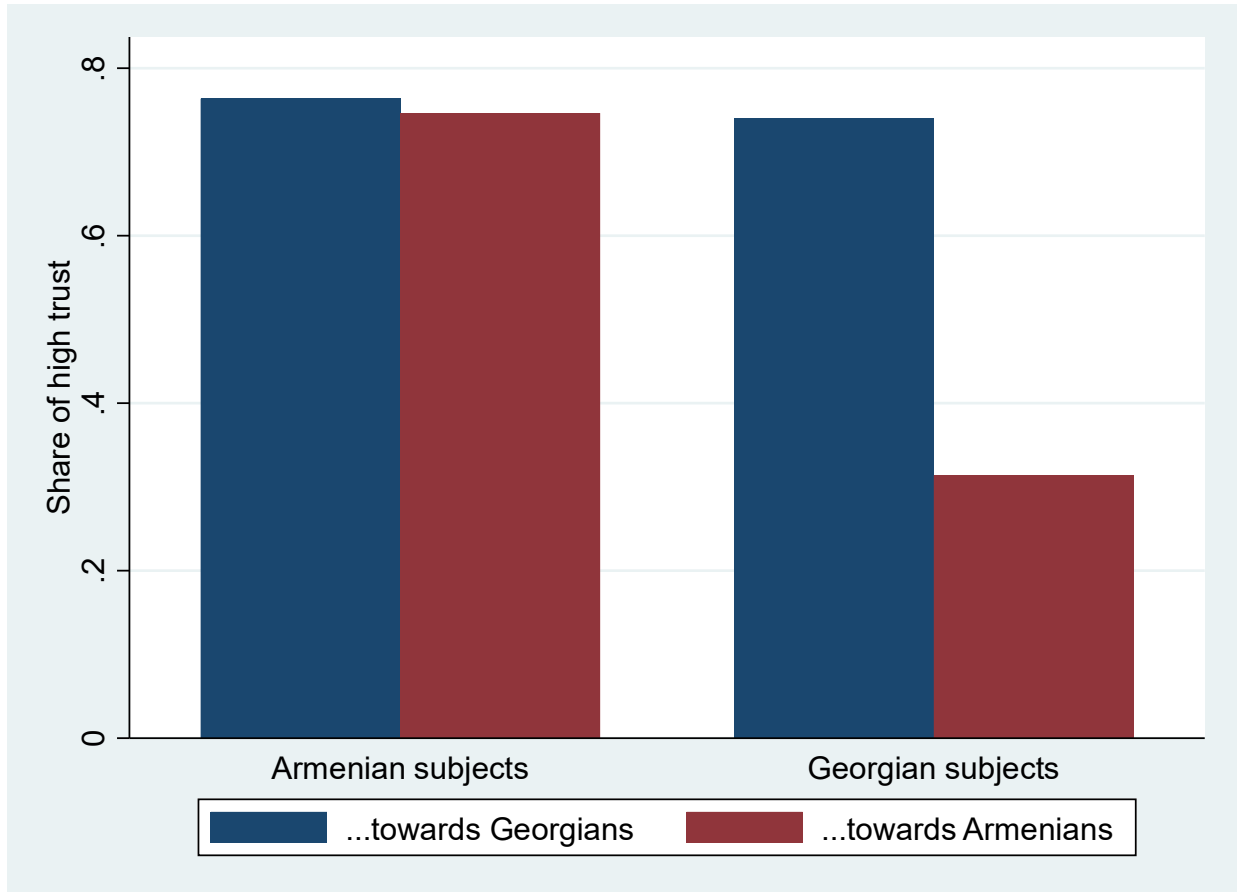
	Georgian trustors' profits		Armenian trustees' profit	
	(1)	(2)	(3)	(4)
<i>Signal Georgian name (=1)</i>	0.365 (0.436)	0.358 (0.449)	2.260*** (0.741)	2.287*** (0.779)
Control mean (not signal Georgian)	9.531		8.219	
Covariates	No	Yes	No	Yes
Observations	112	111	112	111
R^2	0.006	0.047	0.078	0.112

Notes: OLS regressions. Sample: treatment *G-A Signal*. Dependent variable: Col. (1)-(2): Georgian trustors' profits; col. (3)-(4): Armenian trustees' profits. Independent variable: coded 1 if Armenian trustee signals a Georgian name, 0 otherwise. Control mean: mean profits without signaling a Georgian name. Covariates: gender, age, number of siblings, risk tolerance, and patience. Robust standard errors in parentheses. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Appendix

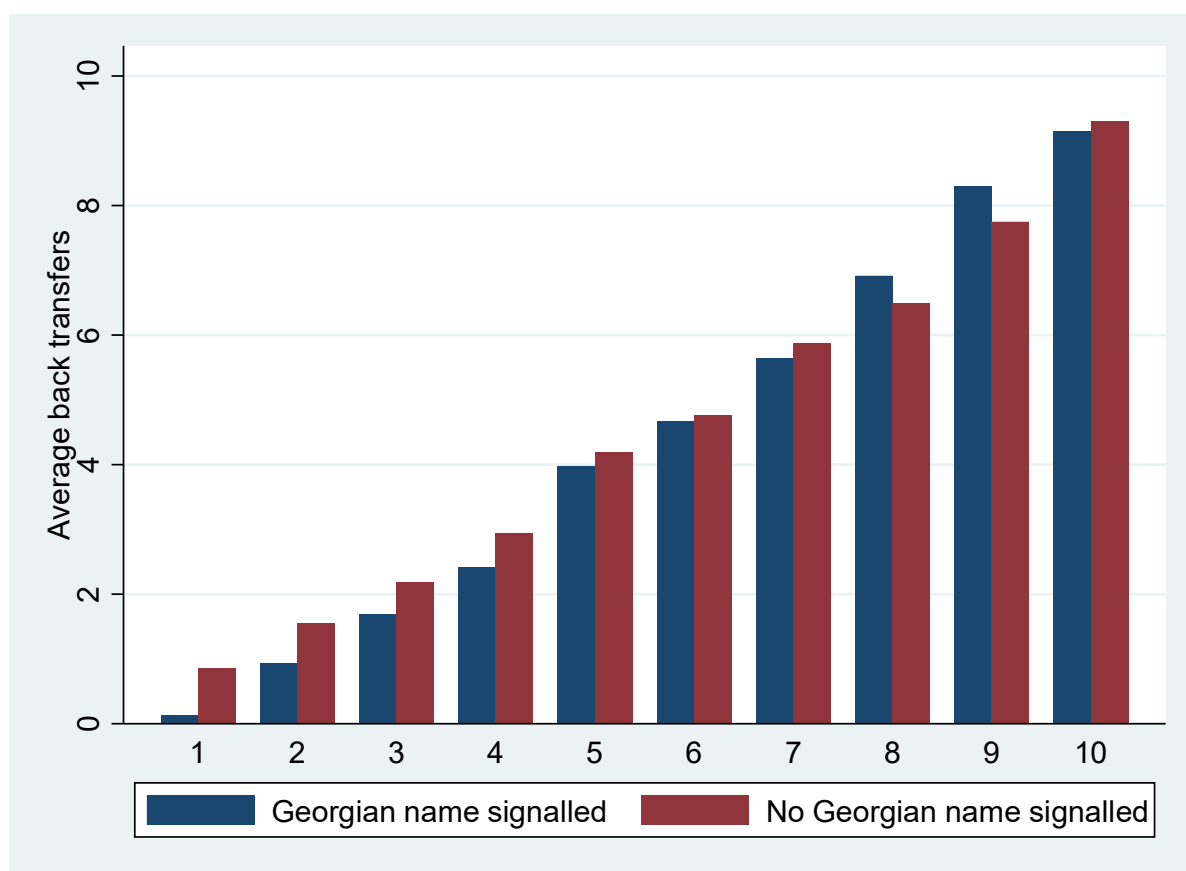
Appendix A: Supplementary figures and tables

Figure A1: General trust within and between ethnicities in our sample



Notes: Survey questions: „Generally speaking, how much do you trust [Georgians/Armenians]“ Answer categories: „No trust at all“, „Little trust“ „Quite a bit of trust“ „A lot of trust“. The figure depicts the share of subjects who trust a lot or a bit.

Figure A2: Armenian' trustees' back transfers with signaling



Notes: The figure shows actual back transfers by Armenian trustees who did and did not signal a Georgian name (blue bars and red bars, respectively) in treatment *G-A Signal*. Each trustee reported a back-transfer decision for each possible trustor transfer (strategy method).

Table A1: Ethnic groups in the country of Georgia (1989-2014)

	Census	Total pop.	Armenians		Azeris	
			Total	% of pop.	Total	% of pop.
	(1)	(2)	(3)	(4)	(5)	(6)
Georgia	1989	5,400,841	437,211	8,1%	307,512	5,69%
	2002	4,371,535	248,929	5,69%	284,761	6.51%
	2014	3,713,804	168,102	4.53%	233,024	6.27%
Tbilisi	1989	1,246,936	150,138	12,04%	17,986	1,44%
	2002	1,081,679	82,586	7.63%	10,942	1,01%
	2014	1,108,717	53,409	4.82%	15,187	1.37%

Notes: Data source: National Statistics Office of Georgia, <https://www.geostat.ge/en/modules/categories/316/population-and-demography> [accessed 5 June 2019].

Table A2: List of Georgian and Armenian first names in our sample

	Georgian first names	Armenian first names
Male	Giorgi, Daviti, Aleksandre, Nikoloz, Nika, Zurab, Luka, Levan, Irakli, Mikheil, Saba, Andria, Teimuraz (Temo), Zaza, Tornike, Mamuka, Lado, Cotne, Gocha, Tamazi, Gela, Lasha, Temuri, Malxazi, Merabi, Gia, Giga, Givi, Nodari, Soso, Shalva, Vano, Shota, Pavle, Vazha, Ilia, Rezo, Guram, Khvicha	Armen, Samvel, Artur, Andranik, Ashot, Karen, Grigor, Xachatur, Ararat, Vladimir, Levon, Mkrtich, Gevorg, Martin, Arman, Ruben, Rafik, Artiom, Hayk, Gor, Tigran, Narek, Erik, Aram, Sargis, Arsen, Hovhanes, Vahe, Vahan, Garik, Hakob, Iura, Sargis, Oganess
Female	Maia, Elene, Nana, Mariami, Mari, Natia, Manana, Nino, Mariam, Tamari, Tako, Teo, Nana, Teona, Meri, Mzia, Lali, Khatuna, Ketevan, Ketii, Eka, Salome, Sofi, Lika, Tea, Nina, Inga, Irma, Lolita, Ana, Lizi, Nia, Gvantsa, Khatia, Kato, Krtistine, Tako, Tamta, Maka, Tekle, Shorena, Ruska	Anahit, Lusine, Narine, Gaiane, Karine, Karina, Susanna, Svetlana, Roza, Ruzanna, Asia, Narineh, Maria, Lilit, Gohar, Yana, Anush, Sona, Emily, Arina, Liana, Monika, Viktoria, Yana, Arevik, Suzanna, Armine, Marianna, Varvara, Diana, Ala

Notes: All participating schools provided us with name lists of the participating classes prior to the experiment.

Table A3: Sample message space of Armenian trustee (treatments *G-A signal* and *A-A signal*)

Option 1	Option 2	Option 3
“My first name is among the names listed below	“My first name is among the names listed below	Send no message
Armen	Daviti	
Samvel	Giorgi	
Artur	Leqso	
Karen	Nikoloz	
Levon	Luka	
Gevorg	Levan	
Erik	Irakli	
Ruben	Lado	
Rafik	Shalva	
Hayk“	Shota”	

Notes: “Option 1” represents the truthful (untruthful) message of signaling Armenian (Georgian) ethnicity. “Option 1” contains the subjects’ true name. The names in the lists were selected with respect to their frequency in our subject pool.

Table A4: Summary statistics and balancing tests

	Georgian subjects				Armenian subjects			
	Mean	Difference			Mean	Difference		
	<u>G</u> -G	<u>G</u> -A	<u>G</u> -A Signal	G- <u>G</u>	G- <u>A</u>	G- <u>A</u> Signal	A- <u>A</u> Signal	<u>A</u> -A Signal
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	TRUSTORS			TRUSTEES	TRUSTEES			TRUSTORS
Female	0.429	-0.051	-0.009	-0.190***	0.500	0.054	0.062	-0.025
Age	13.733	-0.050	-0.211	-0.848***	13.829	-0.017	-0.017	0.614***
Siblings	1.533	0.076	-0.060	-0.067	1.439	-0.037	-0.039	0.048
% of Georgian friends	0.945	0.003	-0.004	-0.020	0.212	0.002	-0.046	-0.048
% of Armenian friends	0.005	0.005	0.004	0.011	0.727	0.029	0.031	0.002
Risk tolerance	6.952	0.157	0.021	-1.362***	7.200	-0.352	-0.275	-0.150
Patience	6.192	0.503	0.584	0.008	5.232	-0.357	-0.119	1.381**
Understood instructions	9.419	0.203	0.135	0.286**	9.646	0.059	0.166	0.129
Trusts in receiving presents	0.990	0.010	0.010	0.010	1.000	0.000	0.000	0.000
Likes incentives	1.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
Observations	105	82	112	105	82	112	80	80

Notes: “Difference” displays the difference in means between the reference groups (trustors in treatment *G-G* for Georgian subjects, see column 1; trustees in treatment *G-A* for Armenian subjects, see column 5) and the groups. **Highlighted** letters indicate the role (trustor or trustee) which is represented in the respective column. Significance levels of “Difference” stem from linear regressions of the respective background variable on treatment dummies. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A5: Georgian trustors' beliefs without signaling, by trustor's transfers

	Trustors' beliefs about trustees' back transfers	
	(1)	(2)
<i>Treatment G-A</i>	0.747 (0.553)	1.034 (0.583)
<i>Transfer</i>	1.281*** (0.0711)	1.323*** (0.0631)
<i>Treatment G-A*Transfer</i>	-0.364** (0.150)	-0.402** (0.156)
Covariates	No	Yes
Observations	187	186
R^2	0.651	0.674
Treatment effect for (Wald tests):		
Trustor's transfer = 0	0.747	1.034
Trustor's transfer = 1	0.383	0.632
Trustor's transfer = 2	0.019	0.23
Trustor's transfer = 3	-0.345*	-0.172
Trustor's transfer = 4	-0.709***	-0.574**
Trustor's transfer = 5	-1.073***	-0.976***
Trustor's transfer = 6	-1.437***	-1.378***
Trustor's transfer = 7	-1.801***	-1.78**
Trustor's transfer = 8	-2.165**	-2.182**
Trustor's transfer = 9	-2.529**	-2.584**
Trustor's transfer = 10	-2.893**	-2.986**

Notes: OLS regressions. Dependent variable: Georgian trustors' beliefs about trustees' transfers. The Wald tests test $H_0: \beta_{\text{Treatment G-A}} + \beta_{\text{Treatment G-A*Transfer}} = 0$. Covariates: gender, age, number of siblings, risk tolerance, and patience. Robust standard errors clustered at the class-level in parentheses. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A6: Trustees' back transfers (strategy-method averages)

	Trustees' back-transfers			
	Treatments <i>G-G/G-A</i>		Treatment <i>G-A Signal</i>	
	(1)	(2)	(3)	(4)
<i>Treatment G-A</i>	-1.137** (0.398)	-1.223*** (0.319)		
<i>Signal Georgian name (=1)</i>			-0.208 (0.432)	-0.309 (0.445)
Control mean (<i>G-G</i>)	5.829		n.a.	
Control mean (Not signal Georgian)	n.a.		4.589	
Covariates	No	Yes	No	Yes
Observations	187	185	112	112
R^2	0.055	0.118	0.002	0.074

Notes: OLS regressions. Dependent variable: Trustees' back transfers, averaged across each possible trustor's transfer (strategy-method elicitation). Control mean: Col. (1)-(2): mean back-transfer in treatment *G-G*; col. (3)-(4): mean back-transfer without signaling a Georgian name. Covariates: gender, age, number of siblings, risk tolerance, and patience. Robust standard errors clustered at the class-level in parentheses. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A7: Armenian trustees' expected transfers, by signal

	Expected transfers after sending ...					
	Armenian name		Georgian name		No signal	
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Treatment A-A Signal</i>	2.859*** (0.393)	2.868*** (0.187)	-1.652*** (0.357)	-1.640*** (0.335)	0.114 (0.232)	0.110 (0.216)
Control mean (<i>G-A Signal</i>)	3.116		5.339		3.098	
Covariates	No	Yes	No	Yes	No	Yes
Observations	192	192	192	192	192	192
R^2	0.290	0.356	0.133	0.148	0.001	0.043

Notes: OLS regressions. Dependent variable: Col. (1)-(2): trustees' beliefs about trustors' transfers when signaling an Armenian name; col. (3)-(4): trustees' belief about trustors' transfers when signaling a Georgian name; col. (5)-(6): trustees' belief about trustors' transfers when sending no signal. Control mean: mean of the outcome variables in treatment *G-G Signal*. Covariates: gender, age, number of siblings, risk tolerance, and patience. Robust standard errors clustered at the class-level in parentheses. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A8: Beliefs about Armenian trustees' ethnicity with signaling

Treatment	Beliefs about trustees' ethnicity			
	Georgian trustors' beliefs		Armenian trustees' second-order beliefs	
	Armenian (1)	Georgian (2)	Armenian (3)	Georgian (4)
G-A Signal	56.25%	43.75%	58.33%	41.67%
Armenian name signaled	100.00%	0.00%	100.00%	0.00%
Georgian name signaled	0.00%	100.00%	0.00%	100.00%
A-A Signal	100.00%	0.00%	100.00%	0.00%
Armenian name signaled	100.00%	0.00%	100.00%	0.00%

Notes: Col. (1)-(2): Trustors' beliefs about Armenian trustees' ethnicity, by treatment and name signal received; col (3)-(4): Armenian trustees' second-order beliefs about trustors' beliefs about their ethnicity. Note that the following categories are not shown because of their very low numbers of observations: no signal in treatment *G-A Signal* (N=1), Georgian name signal in treatment *A-A Signal* (N=0), and no signal in Treatment *A-A Signal* (N=1).

Appendix B: Additional background information on the country of Georgia

Armenians and Azeris are the largest ethnic minority groups in Georgia. As Appendix Table A1 shows, they accounted for 4.5 percent and 6.3 percent of the entire country's population in the 2014 census, and for 4.8 percent and 1.4 percent of the population in Tbilisi. Note that the number of Armenians in the country, and the city, have been decreasing sharply from 1989 onwards (see Appendix Table A1).

There were two major waves of Armenian immigration to Georgia in the past two millennia. The first wave was initiated by the Georgian kings who encouraged Armenians to populate remote areas and towns in Georgia in the fifth, eleventh and eighteenth century to increase the Christian population after periods of Arab and Persian dominance. The second wave was a result of the Russo-Turkish wars during which Armenians migrated to Georgia's southern region of Meskhet-Javakheti and Tbilisi between 1828 and 1915. As a result, the Armenian population in Tbilisi increased to 125,000 in the beginning of the twentieth century (see Jones (1996)). After the collapse of the Ottoman and Russian empires in the wake of World War I, both Armenia and Georgia were independent before becoming part of the Soviet Union from 1921 to 1991. The period of independence was not peaceful for both countries. Conflicts culminated in the Georgian-Armenian war in December 1918 when Armenia tried to capture Georgian territories populated by an Armenian majority. The recent phase of the Georgian-Armenian relationship started in 1991, when both countries declared independence from the Soviet Union. The collapse of the Soviet Union was generally followed by the rise of nationalism in the post-soviet countries, exemplified, for instance, by the election of the nationalist party in Georgia in 1990. Reportedly, in the wake of rising nationalism, minorities in Georgia were increasingly considered a threat to national security (Jones (1996)).

Today, Armenians in Georgia live mostly in Tbilisi and the Javakheti region in the country's south. Georgians and Armenians are both Christians, though Georgians are Orthodox, while Armenians are part of the Armenian Apostolic Church. They differ in appearance, although this is not always apparent. Monthly average income from hired full-time employment (full time) is 747 Georgian Lari (app. 311 USD; 2015 exchange rate) among Georgians and 560 Georgian Lari (app. 233 USD; 2015 exchange rate) among Armenians living in Georgia, the college completion rate is 39 percent among Georgians and 31 percent among

Armenians (Bachelor' or Master's degree), and the unemployment rate is 11.6 percent among Georgians and 10 percent among Armenians.⁴⁴ The Armenian language differs widely from the Georgian language, but over 96 percent of the Armenian minority in Tbilisi command the Georgian language. This high level of command of the Georgian language among Armenians in Tbilisi is in contrast to the Armenian minority in the Javakheti region, where only 25 percent know the Georgian language well (Osepashvili (2013)). The Armenian minority in Tbilisi is concentrated in the central districts of the city, but they are not segregated from ethnic Georgians. Tbilisi has a total of 294 schools which are segregated along ethnic lines. Most of the schools are Georgian (and cater to Georgian children), and a small minority of ten schools are Armenian or Russian (and cater to Armenian children). The number of Armenian schools in Tbilisi declined markedly from 60 schools in 2005 to only 10 today (Ministry of Education, Science, Culture and Sports of Georgia, <http://mes.gov.ge/> [accessed 5 June]). In Georgia, each school provides primary, lower secondary and upper secondary education. Except for a small set of private schools (where the instruction language is English or German, for instance), language of instruction in all public schools in is Georgian.

The relationship between Georgians and Armenians living in Georgia is characterized by a long history of distrust and rivalry, which culminated in the Georgian-Armenian war in 1918. According to historical accounts, the economic dominance of Armenian merchants and craftsmen in the early 20th century Tbilisi yielded hostility from the Georgian nobles, and the Georgian newspaper “Droeba” even referred to Armenians as people “who strip our streets and fatten their pockets” in 1923 (Jones (1996)). After the collapse of the Soviet Union, Georgia saw a rise of nationalism, and minorities in Georgia were increasingly considered a threat to national security. The relationship between Georgians and the Armenian minority has improved over the past years. In 1995, the Georgian government gradually started to build democratic institutions and promote equal rights for all citizens irrespective of their ethnicity. Still, minorities remain underrepresented in Georgia's political life, and Georgian politicians are often discredited by alleging them to have Armenian origins (De-

⁴⁴ The State Department for Statistics of Georgia. Integrated Household Survey Databases 2015. Dataset downloaded from <https://www.geostat.ge/en/modules/categories/128/databases-of-2009-2016-integrated-household-survey-and-2017-households-income-and-expenditure-survey> on 2 April 2019.

mocracy & Freedom Watch, 18 October 2015, <https://dfwatch.net/unchallenged-stereotypes-blight-georgian-armenian-relations-38678> [accessed 7 June 2019]). Negative perceptions and mistrust towards Armenians still prevail in the Georgian society today (e.g, Osepashvili (2013)).

Appendix C: Experimental instructions and post-experimental questionnaire (translated from Georgian)

Treatment G-G/G-A: Trustor

Welcome to our game and thank you for participating. My name is **XXX** and I come from the **University of XXX**. The game which we play today will take about one hour (60 min) in total and you can earn money in the game. You are asked to make choices during the game and the amount of money you earn is influenced by your own decisions. For this reason it is very important that you properly understand the rules of the game. Please raise your hand if you have any questions. We will then come to your desk in order to answer your questions privately. It is very important that you do not talk to your desk neighbor or any other participant during the whole game. *(The first time persons don't adhere to this rule, announce that you will deduce one token of the participant for each warning.)* In today's game you can earn these tokens *(show tokens physically)*. Here is what you can do with the tokens: Later, we will set up a shop which has a big selection of different presents such as rubbers, pencils, stickers, etc. *(Importantly, do not comment on what the prices for single items are!)* You can buy these items with the tokens you earn. This is, the tokens work just like money for our shop. The more tokens you earn, the more presents you can buy. You will receive the tokens of this game in a sealed envelope labeled with your anonymized ID-code in **one week**. I will explain your anonymized ID-code later. For the delivery of your presents, we will re-visit your school in **one week** and hand over the envelope personally. At that point in time, we will also set up our shop where you can exchange your tokens for the presents. In the case that you are not present when we re-visit you, we will come again until we find you. You can therefore be assured that you really receive the tokens from today's game and buy presents with it.

Do you have any questions so far? *(If questions come up, answer privately at the workplace of the student).*

In addition to the presents which you will receive later for the tokens earned in the game, you will also receive a present as a Thank You for participating today, right after the game finished. Therefore, I brought a selection of different presents such as **XX**, **YY** and **ZZ** *(show the different items)*. You can choose one present of these presents at the end of today's game.

All decisions in this game are, of course, anonymous. Nobody can connect the decisions you made with you as a person. This is possible because we use anonymized ID-codes. I will now show you how you can create your anonymized ID-code. Therefore, take the sheet "Instruction for ID-code" and build your ID-code. It is very important that you add your ID-code to all sheets which you fill out during the game. Only in this way we can guarantee that you receive the correct payment.

You play this game together with another randomly selected student from another school in Tbilisi who attends the same grade as you. It may be a girl or a boy. You don't know who exactly you are playing with, but it is important to remember that the student attends another school in Tbilisi. The student can also earn tokens in the game which he or she can exchange for presents in the experimental shop. There are two different roles in this game. The role of

Student A (this is your role) and the role of Student B (this is the role of the student you are playing with). Next, I will explain the game in great detail. Do you have any questions so far? *(If questions come up, answer privately at the workplace of the student)*.

The game works as follows:

At the beginning of the game you will receive 10 tokens. Student B will not receive any tokens. The game has two steps.

In the **first step**, you are asked to decide whether you wish to send any amount of the 10 tokens to the student you are matched with and if so, how many. You can send any amount from 0 to 10. We will triple the amount you send and give it to Student B. That is, for every token that you send, Student B will receive 3 tokens.

In the **second step** we will ask Student B to decide if he or she wants to return any of the tokens he or she received (three times what you sent); and if so, how many. This amount will not be tripled. After the second step, the game is concluded.

I brought a poster which illustrates the game (*hang poster onto blackboard/wall so that everybody can see it*). You also find the illustration on your workplace. You are Student A (*point to Student A on poster*) and the other student is Student B (*point to student B on poster*).

(Repeat instructions and point to the relevant parts on the upper part of the poster)

Do you have any questions so far? *(If questions come up, answer privately at the workplace of the student)*.

This is how you calculate the earnings of the game (*point to relevant parts on the lower part of the poster*):

Your earnings: 10 tokens which you receive at the beginning MINUS the number of tokens which you send to Student B (if any) PLUS the number of tokens which Student B returns to you.

Earnings of Student B: The number of tokens which you send to Student B TIMES THREE minus the number of tokens which Student B returns to you.

Let's make some examples now how the earnings are calculated. Therefore, please complete the quiz which I am going to hand you out right now (*hand out quiz*). Please answer each question. When you have finished, please turn the sheet and raise your hand. I will then come and check whether you correctly completed the quiz (*Let participants fill out the quiz; if a participant indicates to be finished, go to her workplace and check (i) whether the ID-code has been entered, and (ii) whether the answers are correct. If the answers are correct: collect the answer sheet; if an answer is not correct, go through the example together with the participant until she understands the game*). Thank you for completing the quiz. Note that these were only examples on how to calculate earnings. These examples do not tell you, of course, which decisions you should take in the game or how the other student might decide.

Do you have any questions so far? *(If questions come up, answer privately at the workplace of the student)*.

Information on Student B:

Before you play the game, we want to inform you about the first name of the student you are matched with. The name of Student B is among the list of names which we hand you out now (*hand out list of names; depending on treatment*). Please have a close look at the list and read each of the names in the list quietly. Please read the list of names carefully now and raise your hand when you are finished (*individuals who finished reading are instructed to wait until the game continues*).

Similarly, Student B you are matched with is informed that you have a Georgian first name. We don't tell Student B your exact name, however.

Do you have any questions so far? (*If questions come up, answer privately at the workplace of the student*).

Decision of Student A:

Now I ask you to take your decision about how many out of your 10 tokens you wish to send to Player B. Note that your decision is anonymous and don't forget to put your ID-Code on the decision sheet (*hand out decision sheet*). When you have taken your decision, turn the decision sheet and wait for further instructions. (*At this stage, it is very important that subjects don't communicate. After decisions have been made, collect decision sheets. At the experimenter's desk, check that (i) each participant made a decision and (ii) that each decision sheet contains an ID-code. Do not check this in front of the participant (anonymity!). If (i) or (ii) is missing, go back to the participant and ask her to fill out the sheet correctly; if the sheet is completed, archive it into the provided folder.*)

Beliefs of Student A about Student B:

(*Continue when all decision sheets are collected. Hand out belief sheets.*) Thank you for your decision. I handed out a new sheet in which I ask you to state your guess about the following question: How many tokens do you think Student B sends you back? If your guess is correct, you will receive **two extra tokens**. If your guess is almost correct (one or two tokens above or below the true number of tokens sent back), you will receive **one extra token**. Thus, the better your guess is, the more likely it is that you receive extra tokens. Do you have any questions so far? (*If questions come up, answer privately at the workplace of the student*).

When you completed the sheet, turn the sheet and wait for further instructions. (*At this stage, it is very important that subjects don't communicate. After belief sheets are completed, collect belief sheets. At the experimenter's desk, check that (i) each participant completed the belief sheet, (ii) that the answers are readable, and (iii) that each decision sheet contains an ID-code. Do not check this in front of the participant (anonymity!). If (i), (ii), or (iii) does not apply, go back to the participant and ask her to fill out the sheet correctly; if the sheet is completed, archive it into the provided folder.*)

Survey and end of session:

(*Continue when all decision sheets are collected. Hand out survey.*) Thank you for your guesses. We are not at the end of the game. I handed out a survey which I ask you to complete. Please put your ID-Code on the survey and complete the survey carefully. After you completed the survey, please step forward to the experimenter's desk with your completed survey and all remaining sheets which are on your workplace. Make sure that you have your ID-Code on all sheets. After you handed in the sheets, you can pick one of the presents as a Thank You for your participation today. There are enough presents from each kind for all of you. You will receive the tokens and the presents you earned in the game when we re-visit you in **one week**.

Treatment G-G/G-A: Trustee

Welcome to our game and thank you for participating. My name is **XXX** and I come from the **University of XXX**. The game which we play today will take about one hour (60 min) in total and you can earn money in the game. You are asked to make choices during the game and the amount of money you earn is influenced by your own decisions. For this reason it is very important that you properly understand the rules of the game. Please raise your hand if you have any questions. We will then come to your desk in order to answer your questions privately. It is very important that you do not talk to your desk neighbor or any other participant during the whole game. (*The first time persons don't adhere to this rule, announce that you will deduce one token of the participant for each warning.*) In today's game you can earn these tokens (*show tokens physically*). Here is what you can do with the tokens: Later, we will set up a shop which has a big selection of different presents such as rubbers, pencils, stickers, etc. (*Importantly, do not comment on what the prices for single items are!*) You can buy these items with the tokens you earn. This is, the tokens work just like money for our shop. The more tokens you earn, the more presents you can buy. You will receive the tokens of this game in a sealed envelope labeled with your anonymized ID-code in **one week**. I will explain your anonymized ID-code later. For the delivery of your presents, we will re-visit your school in **one week** and hand over the envelope personally. At that point in time, we will also set up our shop where you can exchange your tokens for the presents. In the case that you are not present when we re-visit you, we will come again until we find you. You can therefore be assured that you really receive the tokens from today's game and buy presents with it.

Do you have any questions so far? (*If questions come up, answer privately at the workplace of the student*).

In addition to the presents which you will receive later for the tokens earned in the game, you will also receive a present as a Thank You for participating today, right after the game finished. Therefore, I brought a selection of different presents such as **XX**, **YY** and **ZZ** (*show the different items*). You can choose one present of these presents at the end of today's game.

All decisions in this game are, of course, anonymous. Nobody can connect the decisions you made with you as a person. This is possible because we use anonymized ID-codes. I will now show you how you can create your anonymized ID-code. Therefore, take the sheet "Instruction for ID-code" and build your ID-code. It is very important that you add your ID-code to all sheets which you fill out during the game. Only in this way we can guarantee that you receive the correct payment.

You play this game together with another randomly selected student from another school in Tbilisi who attends the same grade as you. It may be a girl or a boy. You don't know who exactly you are playing with, but it is important to remember that the student attends another school in Tbilisi. The student can also earn tokens in the game which he or she can exchange for presents in the experimental shop. There are two different roles in this game. The role of Student A (this is the role of the student you are playing with) and the role of Student B (this is your role). Next, I will explain the game in great detail. Do you have any questions so far? *(If questions come up, answer privately at the workplace of the student).*

The game works as follows:

At the beginning of the game Student A will receive 10 tokens. You will not receive any tokens. The game has two steps.

In the **first step**, Student A is asked to decide whether he or she wishes to send any amount of the 10 tokens to you and if so, how many. Student A can send any amount from 0 to 10. We will triple the amount Student A sends and give it to you. That is, for every token that Student A sends, you will receive 3 tokens.

In the **second step** we will ask you to decide if you want to return any of the tokens which you received; and if so, how many. This amount will not be tripled. After the second step, the game is concluded.

I brought a poster which illustrates the game (*hang poster onto blackboard/wall so that everybody can see it*). You also find the illustration on your workplace. You are Student B (*point to Student B on poster*) and the other student is Student A (*point to student A on poster*). *(Repeat instructions and point to the relevant parts on the upper part of the poster)*

Do you have any questions so far? *(If questions come up, answer privately at the workplace of the student).*

This is how you calculate the earnings of the game (*point to relevant parts on the lower part of the poster*):

Your earnings: The number of tokens which you receive from Student A (i.e., the number of tokens sent by Student B TIMES THREE) minus the number of tokens which you return to Student B.

Earnings of Student A: 10 tokens which he or she receives at the beginning MINUS the number of tokens which he or she sends to you PLUS the number of tokens which you return to Student B.

Let's make some examples now how the earnings are calculated. Therefore, please complete the quiz which I am going to hand you out right now (*hand out quiz*). Please answer each question. When you have finished, please turn the sheet and raise your hand. I will then come and check whether you correctly completed the quiz (*Let participants fill out the quiz; if a participant indicates to be finished, go to her workplace and check (i) whether the ID-code has been entered, and (ii) whether the answers are correct. If the answers are correct: collect the answer sheet; if an answer is not correct, go through the example together with the participant until she understands the game*). Thank you for completing the quiz. Note that these

were only examples on how to calculate earnings. These examples do not tell you, of course, which decisions you should take in the game or how the other student might decide.

Do you have any questions so far? (*If questions come up, answer privately at the workplace of the student*).

Information on Student A:

Before you play the game, we want to inform you about the first name of the student you are matched with. Student A has a Georgian first name.

Student A you are matched with receives information about your first name through a name list before making his or her decision. The list contains ten first names. One of the names on the list is your first name, the other names are similar Georgian/Armenian (*depending on treatment*) first names. Student A is told that the first name of the student he or she is matched with (this is you) is on the list. However, we don't tell Student A which exact name on the list is yours. We now hand out the list which Player A will receive from us. Please read the list of names carefully now and make sure that your name is on the list. Raise your hand when you are finished (*important: here we need personalized lists; every student needs to receive a list where his name is on. If this fails for some reason, tell Players B that the list will be corrected to contain their names; individuals who finished reading are instructed to wait until the game continues*). Do you have any questions so far? (*If questions come up, answer privately at the workplace of the student*).

Decision of Student B:

Now I ask you to take your decision about how many tokens you wish to return to Player A. Importantly, we don't know yet how many tokens Student A sends you. Therefore, we ask you to tell us how many tokens you would return to Student A for each possible number of tokens which he or she might send you. I will explain this more explicitly on the decision sheet which I hand out now (*hand out decision sheet*). Importantly, do not write anything on the decision sheet before I finished my explanation.

On the decision sheet there are 11 decision lines in total (*Point to column "Decision Line"*). In each decision line, you are asked how many tokens you want to return to Student A in case he or she sends you zero, one, two, three, four, five, six, seven, eight, nine, or all ten of her tokens (*point to each line when saying the numbers*). As an example, look at Decision Line 3. In this case, Student A sends you two of his or her tokens (*show number "2" at decision sheet*). In this case, how many tokens do you receive from Student A (*ask people in the classroom; correct answer is 6*)? Correct, it is 6 tokens because we triple each token sent by Student A. Decision Line 3 therefore asks you how many of these six tokens you want to return (*point at figure "6" in decision row "Decision 3", column 3 of decision sheet*). This is, of course, also the maximal number of tokens you can return. Now look at Decision Line 8. How many token does Student A send you in this case? (*correct answer: 7*) Correct, it is seven (*point at respective figure in the decision sheet*). And how many tokens do you receive in this case from Student A? (*correct answer: 21*) Correct, it is 21. Therefore, in

Decision Line 8, you are asked how many out of 21 tokens you return (*point at respective figure in third column*). For each possible decision of Student A, you need to decide how many tokens you return to Student A.

Do you have any questions so far? (*If questions come up, answer privately at the workplace of the student*).

There is one very important question: What Decision Line do we use for calculating your earnings? The rule is as follows: The relevant Decision Line is determined by the decision of Student A. For example, if Student A sends you two tokens, your choice in Decision Line 3 is relevant and earnings are calculated accordingly (*point at respective line in decision sheet*). Your other decisions don't count. As another example, if Student A sends you 7 tokens, what Decision Line is used? (*correct: decision 8*) Correct, your choice in Decision Line 8 is used for calculating earnings, all other decisions are relevant.

Do you have any questions so far? (*If questions come up, answer privately at the workplace of the student*).

It is important that you provide a choice in all 11 Decision Lines, because you don't know yet how many tokens Student A will send you (i.e., what line will be relevant for calculating earnings). If you don't provide a choice in the Decision Line which is used for calculating earnings, you receive no payment. Therefore, you need to provide a choice in each Decision Line.

Importantly, Player A does not know your choices when he or she decides how many tokens to send you.

Do you have any questions so far? (*If questions come up, answer privately at the workplace of the student*).

If there are no more questions, you can now fill out your decision sheet. Note that your decision is anonymous and don't forget to put your ID-Code on the decision sheet. Also, don't forget to provide a choice in each Decision Line. Please write as clearly as possible, since you receive no earnings if we can't read what your choices are. When you have taken your decision, turn the decision sheet and wait for further instructions. (*At this stage, it is very important that subjects don't communicate. After decisions have been made, collect decision sheets. At the experimenter's desk, check that (i) each participant made a decision in each decision line, (ii) that all decisions are readable, and (iii) that each decision sheet contains an ID-code. Do not check this in front of the participant (anonymity!). If (i), (ii) or (iii) does not apply, go back to the participant and ask her to fill out the sheet correctly; if the sheet is completed, archive it into the provided folder.*)

Beliefs of Student B about Student A:

(*Continue when all decision sheets are collected. Hand out belief sheets.*) Thank you for your decision. I handed out a new sheet in which I ask you to state your guess about the following question: How many of Student A's 10 tokens do you think will Student A send you? Please state your guess as number of tokens before they are tripled! If your guess is correct, you will receive **two extra tokens**. If your guess is almost correct (one or two tokens

above or below the true number of tokens sent back), you will receive **one extra token**. Thus, the better your guess is, the more likely it is that you receive extra tokens.

Do you have any questions so far? (*If questions come up, answer privately at the workplace of the student*).

When you completed the sheet, turn the sheet and wait for further instructions. (*At this stage, it is very important that subjects don't communicate. After belief sheets are completed, collect belief sheets. At the experimenter's desk, check that (i) each participant completed the belief sheet, (ii) that the answers are readable, and (iii) that each decision sheet contains an ID-code. Do not check this in front of the participant (anonymity!). If (i), (ii), or (iii) does not apply, go back to the participant and ask her to fill out the sheet correctly; if the sheet is completed, archive it into the provided folder.*)

Survey and end of session:

(*Continue when all decision sheets are collected. Hand out survey.*) Thank you for your guesses. We are not at the end of the game. I handed out a survey which I ask you to complete. Please put your ID-Code on the survey and complete the survey carefully. After you completed the survey, please step forward to the experimenter's desk with your completed survey and all remaining sheets which are on your workplace. Make sure that you have your ID-Code on all sheets. After you handed in the sheets, you can pick one of the presents as a Thank You for your participation today. There are enough presents from each kind for all of you. You will receive the tokens and the presents you earned in the game when we re-visit you in **one week**.

Treatment G-A Signal/A-A Signal: Trustor

Welcome to our game and thank you for participating. My name is **XXX** and I come from the **University of XXX**. The game which we play today will take about one hour (60 min) in total and you can earn money in the game. You are asked to make choices during the game and the amount of money you earn is influenced by your own decisions. For this reason it is very important that you properly understand the rules of the game. Please raise your hand if you have any questions. We will then come to your desk in order to answer your questions privately. It is very important that you do not talk to your desk neighbor or any other participant during the whole game. (*The first time persons don't adhere to this rule, announce that you will deduce one token of the participant for each warning.*) In today's game you can earn these tokens (*show tokens physically*). Here is what you can do with the tokens: Later, we will set up a shop which has a big selection of different presents such as rubbers, pencils, stickers, etc. (*Importantly, do not comment on what the prices for single items are!*) You can buy these items with the tokens you earn. This is, the tokens work just like money for our shop. The more tokens you earn, the more presents you can buy. You will receive the tokens of this game in a sealed envelope labeled with your anonymized ID-code in **one week**. I will explain your anonymized ID-code later. For the delivery of your presents, we will re-visit your school in **one week** and hand over the envelope personally. At that point in time, we will also set up our shop where you can exchange your tokens for the presents. In the case that you are not present when we re-visit you, we will come again until we find you. You can therefore be assured that you really receive the tokens from today's game and buy presents with it.

Do you have any questions so far? (*If questions come up, answer privately at the workplace of the student*).

In addition to the presents which you will receive later for the tokens earned in the game, you will also receive a present as a Thank You for participating today, right after the game finished. Therefore, I brought a selection of different presents such as **XX**, **YY** and **ZZ** (*show the different items*). You can choose one present of these presents at the end of today's game.

All decisions in this game are, of course, anonymous. Nobody can connect the decisions you made with you as a person. This is possible because we use anonymized ID-codes. I will now show you how you can create your anonymized ID-code. Therefore, take the sheet "Instruction for ID-code" and build your ID-code. It is very important that you add your ID-code to all sheets which you fill out during the game. Only in this way we can guarantee that you receive the correct payment.

You play this game together with another randomly selected student from another school in Tbilisi who attends the same grade as you. It may be a girl or a boy. You don't know who exactly you are playing with, but it is important to remember that the student attends another school in Tbilisi. The student can also earn tokens in the game which he or she can exchange for presents in the experimental shop. There are two different roles in this game. The role of Student A (this is your role) and the role of Student B (this is the role of the student you are playing with). Next, I will explain the game in great detail. Do you have any questions so far? (*If questions come up, answer privately at the workplace of the student*).

The game works as follows:

At the beginning of the game you will receive 10 tokens. Student B will not receive any tokens. The game has two steps.

In the **first step**, you are asked to decide whether you wish to send any amount of the 10 tokens to the student you are matched with and if so, how many. You can send any amount from 0 to 10. We will triple the amount you send and give it to Student B. That is, for every token that you send, Student B will receive 3 tokens.

In the **second step** we will ask Student B to decide if he or she wants to return any of the tokens he or she received (three times what you sent); and if so, how many. This amount will not be tripled. After the second step, the game is concluded.

I brought a poster which illustrates the game (*hang poster onto blackboard/wall so that everybody can see it*). You also find the illustration on your workplace. You are Student A (*point to Student A on poster*) and the other student is Student B (*point to student B on poster*).

(*Repeat instructions and point to the relevant parts on the upper part of the poster*)

Do you have any questions so far? (*If questions come up, answer privately at the workplace of the student*).

This is how you calculate the earnings of the game (*point to relevant parts on the lower part of the poster*):

Your earnings: 10 tokens which you receive at the beginning MINUS the number of tokens which you send to Student B (if any) PLUS the number of tokens which Student B returns to you.

Earnings of Student B: The number of tokens which you send to Student B TIMES THREE minus the number of tokens which Student B returns to you.

Let's make some examples now how the earnings are calculated. Therefore, please complete the quiz which I am going to hand you out right now (*hand out quiz*). Please answer each question. When you have finished, please turn the sheet and raise your hand. I will then come and check whether you correctly completed the quiz (*Let participants fill out the quiz; if a participant indicates to be finished, go to her workplace and check (i) whether the ID-code has been entered, and (ii) whether the answers are correct. If the answers are correct: collect the answer sheet; if an answer is not correct, go through the example together with the participant until she understands the game*). Thank you for completing the quiz. Note that these were only examples on how to calculate earnings. These examples do not tell you, of course, which decisions you should take in the game or how the other student might decide.

Do you have any questions so far? (*If questions come up, answer privately at the workplace of the student*).

Information on Student B:

Before you play the game, we want to inform you that the student you are matched with had the option to send you a message about his or her first name. We now hand out the message sheets which Student B sent you (*hand out message sheets*). Please first put your ID-Code on the message sheet you received. Have a close look at the message and read through it quietly and carefully. Please raise your hand when you are finished (*individuals who finished reading are instructed to wait until the game continues*).

Student B you are matched with is informed that you have a Georgian first name. We don't tell Student B your exact name, however.

Do you have any questions so far? (*If questions come up, answer privately at the workplace of the student*).

Decision of Student A:

Now I ask you to take your decision about how many out of your 10 tokens you wish to send to Player B. Note that your decision is anonymous and don't forget to put your ID-Code on the decision sheet (*hand out decision sheet*). When you have taken your decision, turn the decision sheet and wait for further instructions. (*At this stage, it is very important that subjects don't communicate. After decisions have been made, collect decision sheets and message sheet. At the experimenter's desk, check that (i) each participant made a decision and (ii) that each decision sheet contains an ID-code. Do not check this in front of the participant (anonymity!). If (i) or (ii) is missing, go back to the participant and ask her to fill out the sheet correctly; if the sheet is completed, archive it into the provided folder.*)

Beliefs of Student A about Student B:

(*Continue when all decision sheets are collected. Hand out belief sheets.*) Thank you for your decision. I handed out a new sheet in which I ask you to state your guess about the following question: How many tokens do you think Student B sends you back? If your guess is correct, you will receive **two extra tokens**. If your guess is almost correct (one or two tokens above or below the true number of tokens sent back), you will receive **one extra token**. Thus, the better your guess is, the more likely it is that you receive extra tokens. Do you have any questions so far? (*If questions come up, answer privately at the workplace of the student*).

When you completed the sheet, turn the sheet and wait for further instructions. (*At this stage, it is very important that subjects don't communicate. After belief sheets are completed, collect belief sheets. At the experimenter's desk, check that (i) each participant completed the belief sheet, (ii) that the answers are readable, and (iii) that each decision sheet contains an ID-code. Do not check this in front of the participant (anonymity!). If (i), (ii), or (iii) does not apply, go back to the participant and ask her to fill out the sheet correctly; if the sheet is completed, archive it into the provided folder.*)

Survey and end of session:

(*Continue when all decision sheets are collected. Hand out survey.*) Thank you for your guesses. We are not at the end of the game. I handed out a survey which I ask you to complete. Please put your ID-Code on the survey and complete the survey carefully. After you completed the survey, please step forward to the experimenter's desk with your completed survey and all remaining sheets which are on your workplace. Make sure that you have your ID-Code on all sheets. After you handed in the sheets, you can pick one of the presents as a Thank You for your participation today. There are enough presents from each kind for all of you. You will receive the tokens and the presents you earned in the game when we re-visit you in **one week**.

Treatment G-A Signal/A-A Signal: Trustee

Welcome to our game and thank you for participating. My name is **XXX** and I come from the **University of XXX**. The game which we play today will take about one hour (60 min) in total and you can earn money in the game. You are asked to make choices during the game and the amount of money you earn is influenced by your own decisions. For this reason it is very important that you properly understand the rules of the game. Please raise your hand if you have any questions. We will then come to your desk in order to answer your questions privately. It is very important that you do not talk to your desk neighbor or any other participant during the whole game. (*The first time persons don't adhere to this rule, announce that you will deduce one token of the participant for each warning.*) In today's game you can earn these tokens (*show tokens physically*). Here is what you can do with the tokens: Later, we will set up a shop which has a big selection of different presents such as rubbers, pencils, stickers, etc. (*Importantly, do not comment on what the prices for single items are!*) You can buy these items with the tokens you earn. This is, the tokens work just like money for our shop. The more tokens you earn, the more presents you can buy. You will receive the tokens of this game in a sealed envelope labeled with your anonymized ID-code in **one week**. I will explain your anonymized ID-code later. For the delivery of your presents, we will re-visit your school in **one week** and hand over the envelope personally. At that point in time, we will also set up our shop where you can exchange your tokens for the presents. In the case that you are not present when we re-visit you, we will come again until we find you. You can therefore be assured that you really receive the tokens from today's game and buy presents with it.

Do you have any questions so far? (*If questions come up, answer privately at the workplace of the student*).

In addition to the presents which you will receive later for the tokens earned in the game, you will also receive a present as a Thank You for participating today, right after the game finished. Therefore, I brought a selection of different presents such as **XX**, **YY** and **ZZ** (*show the different items*). You can choose one present of these presents at the end of today's game.

All decisions in this game are, of course, anonymous. Nobody can connect the decisions you made with you as a person. This is possible because we use anonymized ID-codes. I will now show you how you can create your anonymized ID-code. Therefore, take the sheet "Instruction for ID-code" and build your ID-code. It is very important that you add your ID-code to all sheets which you fill out during the game. Only in this way we can guarantee that you receive the correct payment.

You play this game together with another randomly selected student from another school in Tbilisi who attends the same grade as you. It may be a girl or a boy. You don't know who exactly you are playing with, but it is important to remember that the student attends another

school in Tbilisi. The student can also earn tokens in the game which he or she can exchange for presents in the experimental shop. There are two different roles in this game. The role of Student A (this is the role of the student you are playing with) and the role of Student B (this is your role). Next, I will explain the game in great detail. Do you have any questions so far? *(If questions come up, answer privately at the workplace of the student).*

The game works as follows:

At the beginning of the game Student A will receive 10 tokens. You will not receive any tokens. The game has two steps.

In the **first step**, Student A is asked to decide whether he or she wishes to send any amount of the 10 tokens to you and if so, how many. Student A can send any amount from 0 to 10. We will triple the amount Student A sends and give it to you. That is, for every token that Student A sends, you will receive 3 tokens.

In the **second step** we will ask you to decide if you want to return any of the tokens which you received; and if so, how many. This amount will not be tripled. After the second step, the game is concluded.

I brought a poster which illustrates the game (*hang poster onto blackboard/wall so that everybody can see it*). You also find the illustration on your workplace. You are Student B (*point to Student B on poster*) and the other student is Student A (*point to student A on poster*).

(Repeat instructions and point to the relevant parts on the upper part of the poster)

Do you have any questions so far? *(If questions come up, answer privately at the workplace of the student).*

This is how you calculate the earnings of the game (*point to relevant parts on the lower part of the poster*):

Your earnings: The number of tokens which you receive from Student A (i.e., the number of tokens sent by Student B TIMES THREE) minus the number of tokens which you return to Student B.

Earnings of Student A: 10 tokens which he or she receives at the beginning MINUS the number of tokens which he or she sends to you PLUS the number of tokens which you return to Student B.

Let's make some examples now how the earnings are calculated. Therefore, please complete the quiz which I am going to hand you out right now (*hand out quiz*). Please answer each question. When you have finished, please turn the sheet and raise your hand. I will then come and check whether you correctly completed the quiz (*Let participants fill out the quiz; if a participant indicates to be finished, go to her workplace and check (i) whether the ID-code has been entered, and (ii) whether the answers are correct. If the answers are correct: collect the answer sheet; if an answer is not correct, go through the example together with the participant until she understands the game*). Thank you for completing the quiz. Note that these were only examples on how to calculate earnings. These examples do not tell you, of course, which decisions you should take in the game or how the other student might decide.

Do you have any questions so far? (*If questions come up, answer privately at the workplace of the student*).

Information on Student A:

Before you play the game, we want to inform you about the first name of the student you are matched with. Student A has a Georgian/Armenian (*depending on treatment*) first name.

There is yet one important step in the game. Student A did not take his or her decision yet. You have the option to send Student A you are matched with a message about your first name. Student A will receive this information before he or she takes her decision.

I will explain the messages you can send more explicitly on the message sheet which I hand out now (*hand out decision sheet*). Importantly, do not write anything on the decision sheet before I finished my explanation.

On the message sheet, you have three options. Option 1 is to tell Student A that your name is among the list of names provided in the first column (*show this option*). Please now read the name list of Option 1 carefully (*give some time for reading*). Option 2 is to tell Student A that your name is among the list of names provided in the second column (*show this option*). Please now read the name list of Option 2 carefully (*give some time for reading*). Option 3 is not to send either of the messages.

Importantly, we will only show the Option you selected to Student A before he or she makes her decisions. This is, we will cut out the respective message and give it to him or her. Thus, Student A will, of course, also not see your code! The message you select is the only information Student A will receive about your name. He or she will never know whether the message you sent is correct or incorrect.

Do you have any questions so far? (*If questions come up, answer privately at the workplace of the student*).

If there are no more questions, you can now fill out your message sheet. Note that your decision is anonymous and don't forget to put your ID-Code on the decision sheet. When you have taken your decision, turn the message sheet and wait for further instructions. (*At this stage, it is very important that subjects don't communicate. After decisions have been made, collect message sheets. At the experimenter's desk, check that (i) each participant ticked one box, and (ii) that each message sheet contains an ID-code. Do not check this in front of the participant (anonymity!). If (i), or (ii) does not apply, go back to the participant and ask her to fill out the sheet correctly; if the sheet is completed, archive it into the provided folder.*)

Decision of Student B:

Now I ask you to take your decision about how many tokens you wish to return to Player A. Importantly, we don't know yet how many tokens Student A sends you. Therefore, we ask you to tell us how many tokens you would return to Student A for each possible number of tokens which he or she might send you. I will explain this more explicitly on the decision

sheet which I hand out now (*hand out decision sheet*). Importantly, do not write anything on the decision sheet before I finished my explanation.

On the decision sheet there are 11 decision lines in total (*Point to column "Decision Line"*). In each decision line, you are asked how many tokens you want to return to Student A in case he or she sends you zero, one, two, three, four, five, six, seven, eight, nine, or all ten of her tokens (*point to each line when saying the numbers*). As an example, look at Decision Line 3. In this case, Student A sends you two of his or her tokens (*show number "2" at decision sheet*). In this case, how many tokens do you receive from Student A (*ask people in the classroom; correct answer is 6*)? Correct, it is 6 tokens because we triple each token sent by Student A. Decision Line 3 therefore asks you how many of these six tokens you want to return (*point at figure "6" in decision row "Decision 3", column 3 of decision sheet*). This is, of course, also the maximal number of tokens you can return. Now look at Decision Line 8. How many token does Student A send you in this case? (*correct answer: 7*) Correct, it is seven (*point at respective figure in the decision sheet*). And how many tokens do you receive in this case from Student A? (*correct answer: 21*) Correct, it is 21. Therefore, in Decision Line 8, you are asked how many out of 21 tokens you return (*point at respective figure in third column*). For each possible decision of Student A, you need to decide how many tokens you return to Student A.

Do you have any questions so far? (*If questions come up, answer privately at the workplace of the student*).

There is one very important question: What Decision Line do we use for calculating your earnings? The rule is as follows: The relevant Decision Line is determined by the decision of Student A. For example, if Student A sends you two tokens, your choice in Decision Line 3 is relevant and earnings are calculated accordingly (*point at respective line in decision sheet*). Your other decisions don't count. As another example, if Student A sends you 7 tokens, what Decision Line is used? (*correct: decision 8*) Correct, your choice in Decision Line 8 is used for calculating earnings, all other decisions are relevant.

Do you have any questions so far? (*If questions come up, answer privately at the workplace of the student*).

It is important that you provide a choice in all 11 Decision Lines, because you don't know yet how many tokens Student A will send you (i.e., what line will be relevant for calculating earnings). If you don't provide a choice in the Decision Line which is used for calculating earnings, you receive no payment. Therefore, you need to provide a choice in each Decision Line.

Importantly, Player A does not know your choices when he or she decides how many tokens to send you.

Do you have any questions so far? (*If questions come up, answer privately at the workplace of the student*).

If there are no more questions, you can now fill out your decision sheet. Note that your decision is anonymous and don't forget to put your ID-Code on the decision sheet. Also, don't forget to provide a choice in each Decision Line. Please write as clearly as possible,

since you receive no earnings if we can't read what your choices are. When you have taken your decision, turn the decision sheet and wait for further instructions. *(At this stage, it is very important that subjects don't communicate. After decisions have been made, collect decision sheets. At the experimenter's desk, check that (i) each participant made a decision in each decision line, (ii) that all decisions are readable, and (iii) that each decision sheet contains an ID-code. Do not check this in front of the participant (anonymity!). If (i), (ii) or (iii) does not apply, go back to the participant and ask her to fill out the sheet correctly; if the sheet is completed, archive it into the provided folder.)*

Beliefs of Student B about Student A:

(Continue when all decision sheets are collected. Hand out belief sheets.) Thank you for your decision. I handed out a new sheet in which I ask you to state your guesses about the following question: How many of Student A's 10 tokens do you think will Student A send you? Please state your guess as number of tokens before they are tripled! If your guess is correct, you will receive **two extra tokens**. If your guess is almost correct (one or two tokens above or below the true number of tokens sent back), you will receive **one extra token**. Thus, the better your guess is, the more likely it is that you receive extra tokens.

Do you have any questions so far? *(If questions come up, answer privately at the workplace of the student).*

We would like to know your guesses for each of the three messages possible messages (Options 1, 2 and 3). On the sheet, please first state the message that you actually sent (*point to respective part of decision sheet*). Then, we would like to know your guesses about how many tokens Student A sends you if you sent message OPTION 1 (*point to first box on the decision sheet*), OPTION 2 (*point to second box on the decision sheet*), and OPTION 3 (*point to the third box on the decision sheet*). Importantly, you need to give your best guess in each of the three boxes, independent of the message you actually sent. When calculating your earnings, we will randomly select one of the three guessing questions to be relevant for your payment. To determine whether your guess is correct in the randomly selected box (and thus, whether you receive extra tokens for your guess), we will compare your guess to the average number of tokens which students in the role of Student A send if they receive the message of Option 1, Option 2, and Option 3, respectively. Thus, it is important that you give your best guess in all three questions.

Do you have any questions so far? *(If questions come up, answer privately at the workplace of the student).*

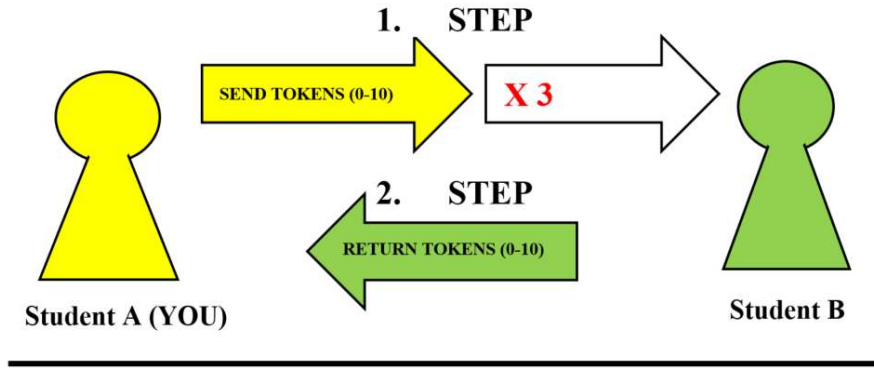
When you completed the sheet, turn the sheet and wait for further instructions. (*At this stage, it is very important that subjects don't communicate. After belief sheets are completed, collect belief sheets. At the experimenter's desk, check that (i) each participant completed the belief sheet, (ii) that the answers are readable, and (iii) that each decision sheet contains an ID-code. Do not check this in front of the participant (anonymity!). If (i), (ii), or (iii) does not apply, go back to the participant and ask her to fill out the sheet correctly; if the sheet is completed, archive it into the provided folder.*)

Survey and end of session:

(*Continue when all decision sheets are collected. Hand out survey.*) Thank you for your guesses. We are not at the end of the game. I handed out a survey which I ask you to complete. Please put your ID-Code on the survey and complete the survey carefully. After you completed the survey, please step forward to the experimenter's desk with your completed survey and all remaining sheets which are on your workplace. Make sure that you have your ID-Code on all sheets. After you handed in the sheets, you can pick one of the presents as a Thank You for your participation today. There are enough presents from each kind for all of you. You will receive the tokens and the presents you earned in the game when we re-visit you in **one week**.

Visual illustration of the trust game: Trustor

ILLUSTRATION OF THE GAME



EARNINGS

10 TOKENS

- SENT TOKENS
+ RETURNED TOKENS

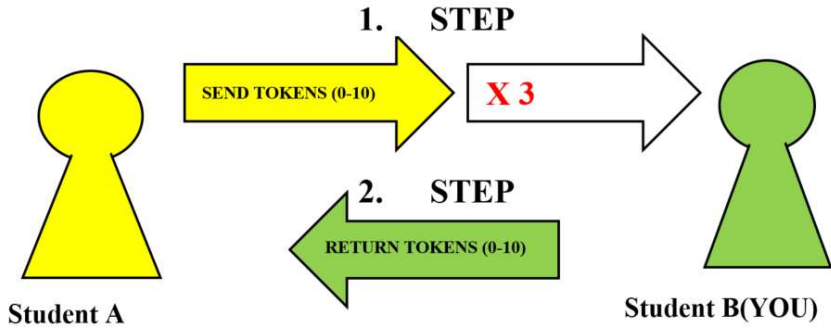
YOUR EARNINGS

SENT TOKENS X 3
- RETURNED TOKENS

STUDENT B'S EARNINGS

Visual illustration of the trust game: Trustee

ILLUSTRATION OF THE GAME



EARNINGS

10 TOKENS

- SENT TOKENS

+ RETURNED TOKENS

STUDENT A'S EARNINGS

SENT TOKENS X 3

- RETURNED TOKENS

YOUR EARNINGS

11.1	<p>Remember that you had the option to send a message to Student A - only for the second movers in G-A signal and A-A signal.</p> <p>What is your best guess, what does student A/B think about your ethnicity?</p> <p><input type="checkbox"/> I think Student A/B thinks that I am Georgian</p> <p><input type="checkbox"/> I think Student A/B thinks that I am Armenian</p> <p><input type="checkbox"/> I think Student A/B thinks that I am _____</p>		
11.2	<p>How sure are you about your guess being correct (close to correct)?</p> <p>“Very unsure” “Very sure”</p> <p>0 1 2 3 4 5 6 7</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/></p>		
12.	<p>What is the ethnicity of your parents?</p> <p><input type="checkbox"/> Georgian</p> <p><input type="checkbox"/> Armenian</p> <p><input type="checkbox"/> Other</p>		
13.	<p>How proud are you to be Georgian/Armenian (Armenian - if the player is Armenian)?</p> <p><input type="checkbox"/> Not at all proud <input type="checkbox"/> Not very proud <input type="checkbox"/> Neither nor <input type="checkbox"/> Quite proud <input type="checkbox"/> Very proud</p>		
14.	<p>Some people say that the following things are important for being truly Georgian. Others say they are not important.</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <p><i>How important do you think it is to be able to speak Georgian?</i></p> <p><input type="checkbox"/> Very important</p> <p><input type="checkbox"/> Important</p> <p><input type="checkbox"/> Neither important nor unimportant</p> <p><input type="checkbox"/> Unimportant</p> <p><input type="checkbox"/> Very unimportant</p> </td> <td style="width: 50%; vertical-align: top;"> <p><i>How important do you think is to have a Georgian name?</i></p> <p><input type="checkbox"/> Very important</p> <p><input type="checkbox"/> Important</p> <p><input type="checkbox"/> Neither important nor unimportant</p> <p><input type="checkbox"/> Unimportant</p> <p><input type="checkbox"/> Very unimportant</p> </td> </tr> </table>	<p><i>How important do you think it is to be able to speak Georgian?</i></p> <p><input type="checkbox"/> Very important</p> <p><input type="checkbox"/> Important</p> <p><input type="checkbox"/> Neither important nor unimportant</p> <p><input type="checkbox"/> Unimportant</p> <p><input type="checkbox"/> Very unimportant</p>	<p><i>How important do you think is to have a Georgian name?</i></p> <p><input type="checkbox"/> Very important</p> <p><input type="checkbox"/> Important</p> <p><input type="checkbox"/> Neither important nor unimportant</p> <p><input type="checkbox"/> Unimportant</p> <p><input type="checkbox"/> Very unimportant</p>
<p><i>How important do you think it is to be able to speak Georgian?</i></p> <p><input type="checkbox"/> Very important</p> <p><input type="checkbox"/> Important</p> <p><input type="checkbox"/> Neither important nor unimportant</p> <p><input type="checkbox"/> Unimportant</p> <p><input type="checkbox"/> Very unimportant</p>	<p><i>How important do you think is to have a Georgian name?</i></p> <p><input type="checkbox"/> Very important</p> <p><input type="checkbox"/> Important</p> <p><input type="checkbox"/> Neither important nor unimportant</p> <p><input type="checkbox"/> Unimportant</p> <p><input type="checkbox"/> Very unimportant</p>		
15.	<p>In comparison to others, are you a person who is generally willing to give up something today in order to benefit from that in the future or are you not willing to do so?</p> <p><i>Please use a scale from 0 to 10, where a 0 means you are “completely unwilling to give up something today” and a 10 means you are “very willing to give up something today”. You can also use the values in-between to indicate where you fall on the scale</i></p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <p>0=“Completely unwilling to give up something today”</p> <p>0 1 2 3 4 5 6 7</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/></p> </td> <td style="width: 50%; vertical-align: top;"> <p>10=“Very willing to give up something today”</p> <p>8 9 10</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/></p> </td> </tr> </table>	<p>0=“Completely unwilling to give up something today”</p> <p>0 1 2 3 4 5 6 7</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/></p>	<p>10=“Very willing to give up something today”</p> <p>8 9 10</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/></p>
<p>0=“Completely unwilling to give up something today”</p> <p>0 1 2 3 4 5 6 7</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/></p>	<p>10=“Very willing to give up something today”</p> <p>8 9 10</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/></p>		

16.	<p>How do you see yourself: are you a person who is generally willing to take risks, or do you try to avoid risks? <i>Please use a scale from 0 to 10, where a 0 means you are “completely unwilling to take risks” and a 10 means you are “very willing to take risks”. You can also use the values in-between to indicate where you fall on the scale.</i></p> <p>0=“Completely unwilling to take risks” 10=“Very willing to take risks”</p> <p>0 1 2 3 4 5 6 7 8 9 10</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/></p>
17.	<p>Generally speaking, how much do you trust Georgians?</p> <p><input type="checkbox"/> No trust at all <input type="checkbox"/> Little trust <input type="checkbox"/> Quite a bit of trust <input type="checkbox"/> A lot of trust</p>
18.	<p>Generally speaking, how much do you trust Armenians?</p> <p><input type="checkbox"/> No trust at all <input type="checkbox"/> Little trust <input type="checkbox"/> Quite a bit of trust <input type="checkbox"/> A lot of trust</p>
19.	<p>Please consider the following situation: You have to decide how to split 10 Lari between two strangers. One stranger is Georgian, the other is Armenian. How would you split the money?</p> <p>On the following scale, the first number always refers to the amount for the Georgian, the second number always refers to the amount for the Armenian. <i>You can also use the values in between to indicate where you fall on the scale.</i></p> <p>0/10=“0 for the Georgian, 10 for the Armenian” 10/0=“10 for the Georgian, 0 for the Armenian”</p> <p>0/10 1/9 2/8 3/7 4/6 5/5 6/4 7/3 8/2 9/1 10/0</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/></p>