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What's in a surname?

The role of ethnicity in economic decision making

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Abstract

This paper reports results from two experiments that investigate possible incidence of discrimination against people with foreign backgrounds in Sweden. In the first experiment, participants played the trust game and the dictator game with co-players of different ethnic affiliation. The family name of the players was exposed to their co-players. Results for the trust game showed no significant discrimination against co-players with foreign backgrounds. On the other hand, the results for the dictator game showed a statistically significant discriminatory behaviour by men against co-players with non-European backgrounds. The discriminatory behaviour was solely a male phenomenon. In the second experiment, the dictator game was replicated to check the stability of the results in the first experiment. The second experiment also examined whether people with foreign backgrounds discriminate against other people with foreign backgrounds; that is, the purpose was to discover whether discrimination is systematic. The observations in the second experiment underlined the results found in the first experiment: Foreign co-players are discriminated against by Swedish players. However, we did not find that people with foreign backgrounds discriminated against other people with foreign backgrounds.

1 Introduction

“What’s in a name? That which we call a rose

By any other name would smell as sweet”

William Shakespeare, *Romeo and Juliet*, Act 2, Scene 2

The challenging circumstances of people with foreign backgrounds on the labour market in Sweden have initiated a debate on whether people with foreign backgrounds are discriminated against.¹ When faced with observably similar applicants, do employers discriminate by ethnic background? Many will answer “yes”, arguing that most people with foreign-sounding names are excluded in the initial stage of the recruiting process and will never reach the interview stage. The same problem can be expected in other situations (e.g., when people search for apartments). Arai et al. (1999) present results from a survey study on a sample of people with foreign backgrounds that shows that more than 70 percent of the respondents believed that having a foreign-sounding name significantly limited their possibility of getting a job.

In recent years, more and more Swedish people with foreign-sounding surnames have changed their surnames to Swedish-sounding surnames. The proportion of people who changed their foreign-sounding surnames was less than 10 percent in 1999, but that number increased to more than 22 percent in 2004—the proportion has more than doubled.² People may change their names for many reasons, but a reason why this

¹ The same debate could probably be found in many other countries as well. But we discuss the Swedish case since we conducted our experiments in Sweden. Probably, the same argument could be applied to other countries. There are many studies based on registered data that indicate discrimination; for example, see Hammarstedt (2001) and Rooth and Ekberg (2003) for Sweden and Darity, Hamilton, and Dietrich (2002) and Queneau (2005) for the U.S.

²Source: Swedish Patent and Registration Office. In 1999, 1159 individuals in Sweden changed their surnames, 114 of whom changed from a foreign-sounding surname to a Swedish-sounding surname. In 2004, the corresponding figures were 1252 and 276,

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4 proportion may have increased is that people with foreign-sounding names are afraid of
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6 being discriminated against.³ It is thus possible that foreign-sounding names affect the
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8 possibility of obtaining a job or an apartment. Or, perhaps, people only think that. Data
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10 limitations usually make it difficult to empirically test these conjectures.

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13 We present laboratory experiments to circumvent this difficulty. We investigate
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15 whether discrimination takes place in two games of economic decision making where
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17 the surnames of the players are exposed. The first game used is the *trust game*
18
19 introduced by Berg, Dickhaut, and McCabe (1995). In this game, two players receive an
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21 initial amount of money. The first player, *the trustor*, is given a choice of sending all,
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23 some, or none of the money to the other player, *the trustee*. The experimenter triples the
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25 money sent. The trustee then chooses how much, if any, of the tripled money to return
26
27 back to the trustor. This ends the trust game. The second game used is the *dictator game*
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29 introduced by Kahneman, Knetsch, and Thaler (1986). This is a one-stage/two-person
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31 game in which the first player, *the dictator*, must decide how to distribute a sum of
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33 money between her- or himself and a second player, *the recipient*. The recipient must
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35 accept the dictator's decision.
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42 Participants were recruited from two universities, and one of the universities
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44 contained a large number of students with foreign backgrounds. Ethnicity was signalled
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46 by exposing participants' surnames to each other. Thus, the question in focus is how the
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48 information about the co-player's surname, from which the players are assumed to infer
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50 their co-player's ethnic affiliation, affects the behaviour of players in the trust game and
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52 the dictator game. We arrived at the following observations: The findings for the trust
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54
55 respectively. It is reasonable to suspect that individuals who changed their foreign-
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57 sounding surname were overrepresented in 2004, since roughly 10 percent of the
58
59 Swedish populations had a foreign background during these years.

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³It should also be mentioned that it is presumably a bigger step to change a foreign-
sounding surname to a Swedish-sounding surname than it is to change a Swedish-
sounding surname to another Swedish-sounding surname.

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game showed no significant discrimination against co-players with foreign backgrounds. The results for the dictator game, however, showed a statistically significant discriminatory behaviour by men against co-players with non-European backgrounds.

We also conducted a second dictator game experiment to check the robustness of the results in the first experiment. Another reason for this replication is that we wanted to check if discrimination found in the first experiment was systematic, in the sense that foreigners themselves discriminate against other foreigners. Hence, the question in focus in the replication was whether people with foreign backgrounds discriminated against other people with foreign backgrounds. A difference from the dictator game in the first experiment is that we did not signal ethnicity by exposing participants' surnames. Instead we recruited participants from Swedish for Immigrants (SFI) classes and from social sciences classes at the adult secondary schools in Alvesta and Växjö, where SFI classes obviously only contain foreigners and social science classes contain Swedes. Hence, we did not expose participants' names at all in this experiment. Instead, we exposed which class they belonged to. The results of this replication supported the findings in the first experiment: Foreign recipients received on average significantly lower amounts than Swedish recipients. However, we did not find any systematic tendency of discrimination: Foreign dictators treated foreign and Swedish recipients similarly.

There have been few past studies of ethnic discrimination in economics conducted in a laboratory setting. Anderson et al. (2006) gives an excellent review of studies conducted in economics and social psychology. One study closely related to the present study is Fershtman and Gneezy (2001) who also used the trust game and the

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3
4 dictator game.⁴ The results of their trust game experiment showed that the average
5
6 amount of money sent by male trustors to male trustees of Eastern origin was
7
8 significantly lower than that transferred to male trustees of Ashkenazic origin. The
9
10 transfers of dictators to different ethnic groups in this experiment indicated that the
11
12 distributions were similar.
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16 There are differences between Fershtman and Gneezy (2001) and the present
17
18 study, however. In Fershtman and Gneezy (2001), in the specifications of the trust
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20 game, only trustors received the initial endowment. With such a design, trustors may
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22 have other motives (unconditioned to the expected behaviour of trustees), such as
23
24 altruism and fairness, rather than solely investment motives (conditioned to the
25
26 expected behaviour of trustees) when transferring money to trustees. A well-
27
28 investigated result in experimental economics is that many individuals want to avoid
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30 unequal treatment (Fehr and Schmidt, 1999). In the present study, unconditional
31
32 motives were not triggered for the trustor in the trust game. By giving both players the
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34 same initial amount, the trustor's decision is based on the expected behaviour of trustee.
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36 Another difference in the present study is the use of surnames instead of individuals'
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38 full names when signalling ethnicity. This is done to eliminate any gender effects. Even
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40 if gender effects were controlled, some first names are gender-neutral, which may bias
41
42 the results. A large body of literature suggests that there are systematic differences in
43
44 the behaviour of men and women in economic games.⁵ Finally, we support our results
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46 with a replication study that differs from earlier studies regarding how ethnicity is
47
48 signalled in the experiment.
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55 ⁴Bouckaert and Dhaene (2004) is another study that is related to the present study. They
56
57 conducted a trust game experiment, but in the field instead of the laboratory. They did
58
59 not find any discriminatory behavior.

60 ⁵ See, for example, Holm (2000), Saad and Gill (2001a, 2001b), Solnick (2001), and
Eckel and Grossman (2001). Eckel and Grossman (to be published) gave an excellent
overview of experiments with gender in focus.

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Following this introduction, the next section discusses discrimination in the experimental games used in this study. Sections 3 and 4 present the first and second experiment, respectively, and Section 5 concludes.

2 Discrimination in the trust game and in the dictator game

Discrimination can be the outcome of various causes. In economics, there are commonly two given. Discrimination can occur if economic agents have tastes of discrimination (Becker, 1957). For example, employers on the labour market with specific tastes—for example, preferring people with Swedish backgrounds or disliking people with foreign backgrounds—will primarily hire people with Swedish backgrounds in an employment decision, even if they know that both groups are equally qualified. Discrimination can also be an outcome of stereotypes that, for example, involve employers using the ethnicity of employees to make statistical inferences about the expected productivity (Phelps, 1972). The outcome of the stereotypes will be discrimination, even if discrimination is not the intention, because the employment decision will not be based on the employee's individual productivity but on the expected productivity of the group to which the applicant is supposed to belong.

In the trust game, because trustors are uncertain of trustees' expected behaviour (their reciprocity or inequality aversion), uncertainty is likely to play an important role. Discriminatory behaviour may arise if trustors have negative stereotypes of trustees with foreign-sounding surnames (believing that foreigners are less trustworthy than natives, for example). Taste-based discrimination, on the other hand, involves people simply disliking or preferring members of one group over another. This can also be a reason for discriminatory behaviour in the trust game: Trustors do not send any money because they do not want to benefit trustees with foreign backgrounds. In the dictator

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4 game, however, significantly lower amounts sent to recipients with foreign backgrounds
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6 are an outcome of tastes, since recipients do not have any strategic role in this game.
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9 With this setup, the causes of discrimination can be identified. If discrimination
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11 is found only in the trust game, then the discrimination is an outcome of stereotypes. If
12
13 discrimination is found only in the dictator game, then the discrimination is an outcome
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15 of tastes. If discrimination is found in both games, however, the answer will be
16
17 inconclusive.
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20 21 22 3 The first experiment 23

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25 The first experiment compared the strategic behaviour towards people of two groups
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27 with foreign backgrounds⁶—non-European⁷ and European⁸—and one Swedish group in
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29 two games—the trust and the dictator game. We conducted sessions in which the
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31 participants learned the family name of their counterpart, from which they were able to
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33 deduce their co-players' ethnic affiliations.⁹
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39 3.1 Recruitment, participant pool, and matching 40

41 The participants were recruited from various summer courses at Växjö University and
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43 the University College of Södertörn during the first week of June 2003, and the
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45 experiment was carried out in the following two weeks. The main reason for selecting
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47 participants from the University College of Södertörn in addition to Växjö University
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54 _____
55 ⁶Individuals with foreign backgrounds were individuals who immigrated to Sweden or
56 individuals born in Sweden with parents who immigrated to Sweden.

57 ⁷Includes individuals with non-European backgrounds, except individuals with North
58 American and Australian backgrounds.

59 ⁸Includes individuals with European (except Swedes), North American, and Australian
60 backgrounds.

⁹The written directions and decision sheets are available upon request.

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4 was that the former university contains a high rate of foreigners. Thus, it was possible to
5
6 conduct an experiment with actual matching of players with different ethnic affiliations.
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9 The participants from Växjö University were assigned the role of trustors, and
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11 participants from University College of Södertörn were given the role of trustees in the
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13 trust game. In the dictator game, participants from Växjö University were assigned the
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15 role of the dictators, and participants from University College of Södertörn were given
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17 the role of the recipients. Hence, each participant from Växjö University played the role
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19 of both trustor and dictator, whereas each participant at University College of Södertörn
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21 played the role of both trustee and recipient. The matching in the dictator game was
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23 different from that of the trust game.
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27 The recruitment was mostly carried out through course e-mailing, phone lists,
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29 and class announcements, but also with flyers posted and handed out around the
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31 campuses. In announcing the experiment, students were promised a participation fee of
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33 SEK100.¹⁰ Moreover, they were informed that they would have the possibility to earn
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35 additional money. Those students who wanted to participate in the experiment were
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37 scheduled in a session. In order to participate, students had to register themselves either
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39 directly to the experimenter or through e-mail or phone. Each participant then obtained
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41 confirmation through telephone or e-mail with information about the time, date, and
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43 place of their session.
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48 The recruiting process of participants was first completed at Växjö University. A
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50 total of 93 students signed up for the experiment, which bounded the total number of
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52 students that could be recruited at the University College of Södertörn. Hence, the total
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54 number of pairs was 93; however, two participants did not show up (both at Växjö
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56 University). Among the remaining 91 participants from Växjö University, 44 were men,
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¹⁰Which was equivalent to 11, or \$12.50, at that time.

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4 39 of whom were Swedish, 4 European, and 1 non-European; 47 were women, of whom
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6 45 were Swedish, 2 European, and none non-European. The participants at University
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8 College of Södertörn consisted of 48 women, 26 of whom were Swedish, 11 European,
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10 and 11 non-European, and of 43 men, of whom 18 were Swedish, 10 European, and 15
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12 non-European. The average participant at Växjö University was 25 years old with 2.6
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14 years of higher education, and the average participant at University College of
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16 Södertörn was also 25 years old but with 2.7 years of higher education.
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20 Using the name lists of participants from Växjö University and the University
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22 College of Södertörn, generated during the recruiting process, each student was
23
24 randomly matched with a student from the other university.
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27 28 29 3.2 Experimental procedure

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31 Fourteen sessions were conducted at the University College of Södertörn and eight
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33 sessions at Växjö University. Each session lasted approximately twenty minutes, and a
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35 single experimenter conducted all sessions. Participants were recognized and registered
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37 on arrival. They received a show-up receipt worth SEK100, and were directed to
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39 assigned seats. Participants were first briefly instructed orally about the tasks to be
40
41 performed, and then they received written information and instructions. The instructions
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43 included a short statement of purpose: “An experiment of economic decision making”.
44
45 After stating the purpose, the instructions continued with describing the procedure and
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47 the rules of the experiment. Every matched pair of students was provided with exactly
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49 the same description of the experiment. All players were informed that they had been
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51 matched with a student from the other university. The family name of the person with
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53 whom they were matched was written in ink on the decision page.
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For practical and administrative reasons, the trust game experiment was conducted in a reverse manner; that is, first the trustees were approached and then the trustors. This was possible since the strategy method was used.¹¹ Therefore, in the first stage of the experiment, the participants at the University College of Södertörn were approached. Participants were told that they had been matched with a student at Växjö University, and they both received SEK100 for participating in the experiment. Further, trustees were told that while they could pocket their money, their counterparts, trustors, had the opportunity to decide whether or not they wanted to transfer any portion of their money to them. Trustees were told that the experimenter would triple the amount trustors transferred to them. So, if the trustor chose to send SEK90, he or she would receive an amount equal to SEK270. At the time, it was not yet known how much trustors would transfer. Therefore, trustees were asked to decide how much of the tripled amount, if anything at all, they would like to send back to the trustor for each and every possible sum transferred by the trustor. Given that the sum of money the trustor could transfer was restricted to multiples of 10, trustees were asked to decide how much, if anything at all, they would like return to the trustor in ten conceivable cases. Trustees were told that their transaction would end the trust game and that they would be paid on the scheduled day when the trustors' decisions are gathered and payoffs are calculated. When trustees had made their decisions, they were told that they would be participating in another game, the dictator game, but their role in this game would be passive.

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¹¹This method was first proposed by Selten (1967). Rather than observing the participant's behavior in only those nodes a player reaches, the strategy method asks for a decision of the participant in every node of the game. There are both advantages and disadvantages of the strategy method; see Roth (1995). Most importantly, the advantage was the possibility of observing participants' entire strategies, while a drawback is that participants were forced to think about behavior in each node which could lead to different outcomes than if the game had been played in an ordinary manner. To avoid potential misunderstandings, extensive written and oral information was provided.

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4 Next, students at Växjö University who had the role of trustor were approached.
5
6 They were provided with the same information and same description of the trust game
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8 as the trustees. According to the game, they were asked to decide whether or not they
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10 would like to transfer any amount to the trustees. When the trustors' decisions were
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12 made for the trust game experiment and transfer forms had been collected, decision
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14 pages for the dictator game were distributed. In the dictator game experiment, dictators
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16 were randomly assigned to a different person than in trust game. This experiment
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18 consisted of only one stage in which dictators were told that the experiment was being
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20 conducted, again in pairs, and that they were already matched with another student. The
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22 name of the person with whom they were matched was written in ink on the transfer
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24 form. The participants were then asked to send some, all, or none of their additional
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26 SEK100 to their counterpart.
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32 At both universities, after the decisions were made and forms were collected, all
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34 participants completed a questionnaire containing demographic questions, including the
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36 players' gender, age, years in school, major area of study, and most importantly, their
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38 foreign background, from which we categorized different ethnic groups.
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41 Cash was the only incentive offered. The counterparts to the missing players
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43 received the average payoffs of the total population.
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46 47 48 3.3 Results

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50 We summarized the results by considering separately the decisions made by trustors,
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52 trustees, and dictators. As mentioned in the previous section, seven trustors from Växjö
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54 University had non-Swedish backgrounds. These are excluded in the statistical analysis
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56 below. The analysis is, therefore, based on the remaining 84 pairs of players. However,
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4 it is important to add the fact that the results and conclusions of the experiment do not
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6 radically change by including the (excluded) seven participants.
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9 Exact randomization technique was employed to test the differences in mean.
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11 The Fisher exact probability test was used for 2×2 contingency tables to analyze
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13 differences in proportions. For measures of association, Spearman's rank-order
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15 correlation test based on 10,000 Monte Carlo samples was used. All *p*-values were
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17 reported for two-sided tests.¹²
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20 We first start by discussing the behaviour of the trustors presented in Table 1.
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22 The transferred amounts are out of SEK100; therefore, the numbers in the tables can
23
24 also be interpreted as the average percentage transferred. Rows in both tables identify
25
26 trustors' gender and the columns indicate the trustees' ethnic type. The average transfer
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28 by trustors was 59 percent of the total amount. Men transferred on average 55 percent
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30 and women 62 percent of the total amount. The main question is whether or not co-
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32 players with foreign backgrounds received significantly lower transfers than Swedish
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34 co-players. If so, then the following null hypothesis should be rejected: Swedish trustees
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36 and trustees with foreign backgrounds receive, on average, equal transfers from trustors.
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43 [Table 1 about here]
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 The average amount sent appears to be affected by the ethnic affiliation of the
trustee, mostly when coming from male trustors. In particular, men transferred on
average 64 percent to Swedish trustees and only 48 percent to European trustees. The
corresponding average percentage of money transferred by men to non-European
trustees was 50 percent. For female trustors, the transferred amounts averaged 65, 57,

¹²See Siegel and Castellan, Jr. (1988) for an overview of these tests.

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4 and 62 percent, when trustees had a Swedish, European, or non-European name,
5
6 respectively. The results showed that it was primarily the males who tended to
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8 discriminate between different groups. Even though the differences in average transfers
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10 indicated a discriminatory behaviour against participants with foreign backgrounds, the
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12 distribution in different treatments was not significantly different. Hence, the null
13
14 hypothesis cannot be rejected. In total, transfers to Swedish trustees averaged 64, while
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16 transfers to European and non-European B-players averaged 51 and 57, respectively.
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18 The average transfers in different treatments are not significantly different at
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20 conventional levels of significance.¹³
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27 [Table 2 about here]
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32 Trustworthiness is measured as the proportion returned by the trustee of the
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34 tripled amount received from the trustors. The proportions returned by trustees who
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36 received strictly positive amounts from trustors are tabulated in Table 2. Rows in this
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38 table identify the B-players' genders, and the columns indicate their ethnic type.
39
40 Looking at the whole sample of trustees, the average return to trustors was 40 percent of
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42 the amount received. The question in this part of the game is whether or not different
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44 ethnic groups differ in their strategic behaviour. The null hypothesis is that average
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46 proportions from trustees back to trustors did not depend on the trustees' ethnic
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48 backgrounds.
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56 ¹³In the post-experimental questionnaire, trustors were asked to state the amount of
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58 money they expected their counterpart to send back. There were no significant
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60 differences in expectations between different groups. However, it is important to point
out that this analysis was done on individuals who had sent positive amounts. Of course,
those players who did not send anything did not expect anything in return.

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Table 2 shows that Swedish female trustees who received strictly positive amounts from trustors returned, on average, 37 percent of the amount received. The average proportion returned by European and non-European female trustees, respectively, was 39 and 46 percent. Swedish men returned on average 41 percent, while European and non-European men, respectively, returned 46 and 36 percent. The highest proportion returned, 46 percent, was by European men and non-European women. All differences between various pair-wise comparisons were not statistically significant. Hence, the null hypothesis that the distribution of transfers from trustees to trustors was independent of the trustees' ethnic backgrounds cannot be rejected.¹⁴

Let's turn to the results for the dictator game. Since trustors in the trust game also played the role of dictators in the dictator game, we first tested whether there were any significant relationship between the amounts sent by players in the trust game and the amounts sent in the dictator game. The Spearman's correlation test found a slightly positive relationship between the amounts sent. The correlation coefficient is $r = 0.1727$, but the coefficient is not statistically significant.

[Table 3 about here]

The results for the dictator game are presented in Table 3. Rows in Table 3 identify the dictators' gender, and columns indicate the recipients' ethnic type. Looking at the whole sample of participating participants, the average transfer was 27 percent of the total amount.

¹⁴Trustees were also asked to state the amount of money they expected their counterpart to send them. There were no significant differences in expectations among different groups.

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4 The question is whether or not recipients with foreign backgrounds received
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6 lower amounts than Swedish recipients from the dictators. In that case, the null
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8 hypothesis that recipients with different ethnic affiliations received the same amount is
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10 rejected. The results show that the average transfer from male dictators was 26 percent
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12 when the counterpart had a Swedish name and 27 percent when the counterpart had a
13
14 European name, while the corresponding amount to a recipient with a non-European
15
16 name was only 9 percent. The amount received by recipients with non-European names
17
18 was significantly lower than the amount received by recipients with Swedish names ($p =$
19
20 0.0732), and recipients with European names ($p = 0.0329$). On the other hand, female
21
22 dictators transferred similar amounts in different treatments: on average, 35 percent to
23
24 Swedish, 29 percent to European, and 29 percent to non-European counterparts. The
25
26 slight difference between amounts received by Swedish and non-Swedish recipients
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28 from female dictators is not significant.
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34 The average transfer from all dictators to Swedish recipients was 31 percent,
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36 while the average transfer to European and non-European recipients was 28 percent and
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38 20 percent, respectively. Non-European recipients received, on average, a significantly
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40 lower amount than Swedish recipients ($p = 0.0789$).
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45 4 The second experiment

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47 In the following experiment, we replicated the dictator game. We had two purposes with
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49 this: First, to investigate to the robustness of the result found in the previous dictator
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51 game experiment, as the difference between the amount donated to Swedish and non-
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53 European participants was significant but only on a 10 percent level of significance.
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55 Second, we wanted to investigate whether the discrimination found in the dictator game
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4 was systematic in the sense that not only Swedish people discriminate against foreign
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6 people but also foreign people themselves discriminate against other foreign people.
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10 11 4.1 Experimental design

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13 The design in the following experiment is slightly different from the design in the first
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15 experiment. As an alternative of focusing on specific ethnicity, we only signalled
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17 whether a co-player was foreign or not. We did this by recruiting participants from
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19 Swedish for Immigrants (SFI) classes and from social sciences classes at the adult
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21 secondary schools in Alvesta and Växjö. Hence, we did not expose participants' names
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23 at all. Instead, we exposed only to which class they belonged. We will, from now on,
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25 refer to participants from SFI as foreign participants and to participants in social
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27 sciences classes as Swedish participants. The experiment was conducted on different
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29 occasions in 2006. Both Swedish and foreign participants were assigned the role of the
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31 dictator, and both types of participant were paired with either a Swedish or a foreign
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33 participant.
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39 The recruitment was carried out directly in classes before a scheduled lecture.
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41 Students were informed that they had the possibility of participating in a study
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43 immediately after their lecture, and to appreciate their participation they would be
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45 treated with a cup of coffee (actually they received SEK10 that they could use to buy
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47 coffee or whatever they liked). Additionally, they were told that they had the possibility
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49 of earning up to SEK100 in the experiment. Those students who wanted to participate in
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51 the experiment simply stayed after their lecture.
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55 A total number of 236 students participated in the experiment: 116 were foreign
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57 and 56 of these were men, and 120 were Swedish and 49 of these were men. The
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59 average age of foreign and Swedish participants was 28 and 27 years, respectively.
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Four sessions were conducted with foreign participants, and four sessions were conducted with Swedish participants. Each session lasted approximately ten minutes, and a single experimenter conducted all sessions. Participants were first briefly instructed orally about the tasks to be performed and then they received written information and instructions. The instructions included a short statement of purpose, which stated: “An experiment of economic decision making”.

After stating the purpose, the instructions continued by describing the procedure and the rules of the experiment. All participants were informed that they would be matched with another person. Participants were told that they had to decide how to divide SEK100 between themselves and their co-player. Participants were told to carefully think about their decision since one person in each session would be randomly selected and be paid according to his or her decision. The participants were then asked how much of SEK100 they would like to give their counterpart. After the decisions were made, the forms were collected. The forms also included questions about participants' genders and ages. After collecting the decision forms, one person in each session was randomly selected to realize the experimental outcome.

Participants were in one of two treatments. In the first treatment group, participants were told that they had been matched with another person in an SFI class. In the second treatment group, participants were told that they had been matched with another person in a social science class. This information was given both in the written instructions and orally. Other than this, all other information was identical in both treatments.

4.2 Results

The results for the replication are presented in Tables 4 and 5. Table 4 tabulates the results for Swedish dictators and Table 5 the results for foreign dictators. Rows in the tables identify dictators' genders and the columns identify the recipients' ethnic type. Let's start by studying the behaviour of Swedish dictators. Looking at the whole sample of Swedish dictators, the average transfer was 18 percent of the total amount.

[Table 4 about here]

The first question is whether or not foreign recipients received lower amounts than Swedish recipients from the dictators. In that case, the null hypothesis that foreign and Swedish recipients received the same amount is rejected. The average transfer from all Swedish dictators to Swedish recipients was 23 percent, while the average transfer to foreign recipients was only 14 percent of the total amount. Hence, foreign recipients received almost nine percentage points less than Swedish recipients, a difference that is statistically significant ($p = 0.003$).

A closer look shows that the average transfer from Swedish male dictators was 21 percent when the recipient was Swedish and only 9 percent when the when the recipient was foreign. The amount received by foreign recipients was significantly lower than the amount received by Swedish recipients ($p = 0.007$). Swedish female dictators transferred 24 percent to Swedish recipients and 17 percent to foreign recipients. This difference is only weakly significant ($p = 0.120$). Hence, as in the previous experiment, discrimination seems to be concentrated among males, even though there is an indication that Swedish female dictators also discriminated against foreign recipients.

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Next, the question is whether foreign dictators themselves discriminate against foreign recipients, or if foreign dictators discriminate against Swedish recipients. If this were the case, the null hypothesis that Swedish recipients and foreign recipients would receive equal amounts from foreign recipients is rejected.

[Table 5 about here]

Table 5 shows that, overall, foreign dictators gave on average 9 and 8 percent of the total amount to Swedish and foreign recipients, respectively. Thus, it seems like there is a systematic discrimination against foreigners. However, the small difference is not statistically significant. A closer look at the gender level reveals that there are some minor differences in amounts received by foreign and Swedish recipients. However, all these differences are statistically insignificant.

5 General discussion

The purpose of this study was to study ethnic discrimination by using laboratory experiments. First, the study investigated how the information about co-players' surnames affected the behaviour of players in two games: the trust game and the dictator game. So how important are the characteristics that indicate that an individual has a foreign background? How did the information about co-players' surnames affect players' behaviour? What is in a surname?

At the first sight, the average amount sent by trustors to trustees seems to be affected by trustees' backgrounds in the trust game. However, the differences were not statistically significant. Hence, the conclusion is that information about trustees' surnames did not influence the behaviour of trustors in the trust game. The result of

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4 trustworthiness was measured as the proportion returned by trustees of the tripled
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6 amount received from the trustor. The results indicated that there were no considerable
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8 differences between different groups of trustees. In the dictator game, similar amounts
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10 were sent by female dictators to different groups of recipients. However, male dictators
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12 sent a significantly lower amount to recipients with non-European backgrounds
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14 compared with recipients with a Swedish backgrounds and European backgrounds.
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18 Let us compare the results of the first experiment with Fershtman and Gneezy
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20 (2001). In contrast to Fershtman and Gneezy, who found very strong evidence for
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22 discrimination in the trust game, this study found no significant discrimination in this
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24 game. In another contrast with Fershtman and Gneezy (2001), the present study found
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26 discriminatory behaviour in the dictator game. Yet an interesting observation by both
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28 Fershtman and Gneezy (2001) and the present study is that discrimination was a male
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30 phenomenon. It was only men who discriminated in these experiments.
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34 A limitation of the first experiment is that it only studied the behaviour of
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36 dictators with Swedish backgrounds with recipients of different ethnic affiliations. Even
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38 if this case were the most interesting to study, since foreigners still are a small minority
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40 in Sweden, it motivated the second experiment that investigated the behaviour of
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42 individuals with foreign backgrounds toward other individuals with foreign
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44 backgrounds. This type of investigation gave us the possibility of studying whether
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46 discrimination is systematic or not (i.e., whether individuals with foreign backgrounds
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48 themselves discriminate against other individuals with foreign backgrounds). Also, the
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50 dictator game results of discrimination in the first experiment called for a replication.
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52 The results of the replication study supported the first experiment; that is, recipients
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54 with foreign backgrounds received, on average, lower amounts than Swedish recipients.
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Also, the gender effect was also found in the second experiment. However, we found no evidence pointing at systematic discrimination of individuals with foreign backgrounds.

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Table 1: The average amount sent by trustors

Gender of trustor	Type of trustee			Total
	Swedish	European	Non-European	
Female	64.76 (21)	56.67 (9)	62.00 (15)	62.22 (45)
Male	63.53 (17)	47.50 (12)	50.00 (10)	55.13 (39)
Total	64.21 (38)	51.43 (21)	57.20 (25)	58.93 (84)

Note: Amounts sent are out of SEK100. Number of participants in each cell is given in parenthesis.

Table 2: The average proportion returned by trustees

Gender of trustee	Type of trustee			Total
	Swedish	European	Non-European	
Female	36.68 (19)	39.42 (9)	45.88 (9)	39.58 (37)
Male	40.81 (15)	45.83 (8)	35.65 (14)	39.95 (37)
Total	38.50 (34)	42.44 (17)	39.65 (23)	39.76 (74)

Note: Number of participants in each cell is given in parenthesis. The proportion is calculated as the amount trustees returned divided by three times the amount trustors sent. Since ten trustors sent zero amounts to their counterparts, the total number of trustees who received strictly positive amounts is 74.

Table 3: The average amount sent by dictators

Gender of dictator	Type of recipient			Total
	Swedish	European	Non-European	
Female	34.76 (21)	29.00 (10)	29.29 (14)	31.78 (45)
Male	25.56 (18)	27.00 (10)	9.09 (11)	21.28 (39)
Total	30.51 (39)	28.00 (20)	20.40 (25)	26.91 (84)

Note: Amounts sent are out of SEK100. Number of participants in each cell is given in parenthesis.

Table 4: The average amount sent by Swedish dictators

Gender of dictator	Type of recipient		
	Swedish	Foreign	Total
Female	23.51 (37)	17.06 (34)	20.42 (71)
Male	21.20 (25)	8.75 (24)	15.10 (49)
Total	22.58 (62)	13.62 (58)	18.25 (120)

Note: Amounts sent are out of SEK100. Number of participants in each cell is given in parenthesis.

Table 5: The average amount sent by foreign dictators

Gender of dictator	Type of recipient		
	Swedish	Foreign	Total
Female	10.00 (30)	8.00 (30)	9.00 (60)
Male	8.51 (27)	7.93 (29)	8.21 (56)
Total	9.30 (57)	7.66 (59)	8.62 (116)

Note: Amounts sent are out of SEK100. Number of participants in each cell is given in parenthesis.