Discrimination and Nepotism: The Efficiency of the Anonymity Rule

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ABSTRACT

We develop an experimental test to distinguish between discrimination against and nepotism. The experiment compares the behavior toward individuals of different groups with the behavior toward anonymous individuals (those having no clear group affiliation). Not only is the distinction between the different types of discrimination important for the study of social segmentation, but it has interesting policy implications regarding the effectiveness and the efficiency of antidiscriminatory legislation. We study two segmented societies: Belgian (Flemish versus Walloons) and Israeli (religious versus secular). In Belgium, we find evidence of discrimination. Both the Walloons and the Flemish treat people of their own group in the same way as anonymous individuals while discriminating against individuals of the other group. In contrast, the behavior of ultraorthodox religious Jews in Israel can be categorized as nepotism: they favor members of their own group while treating anonymous individuals in the same way as secular individuals.

1. INTRODUCTION

Discrimination is defined as differential treatment of people depending on their group affiliation. Fighting discrimination presents a definite challenge to societies interested in doing so. Whereas legislation pro-

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hibiting differential treatment may be effective in situations in which discrimination is observable and verifiable, it has limited effect whenever the phenomenon cannot be directly observed, for instance, in informal business relationships, when applying for bank loans, or in student-teacher relationships in the classroom.

To restrict the impact of discrimination, societies often adopt different forms of anonymity rules that impose a procedure prohibiting disclosure of group affiliation.[1] Such a rule may imply, for example, that grading of students be performed while maintaining the students' anonymity, that is, without revealing their gender or ethnic background. Different forms of anonymity rules, in which individuals are forbidden to disclose their group affiliation when applying for jobs, loans, school admission, and so forth, are applied in many societies. By avoiding identification of group affiliation, it is assumed that uniform treatment will naturally result.[2] In the United States, for example, title VII of the 1964 Civil Rights Act does not prohibit employers from asking questions about race, color, and the like,[3] while equal employment laws enacted by many states explicitly prohibit such preemployment inquiries (see, for example, West Virginia law: W. Va. Code, sec. 5-11-9(2) (A)).

Anonymity rules or procedures may also be voluntarily adopted by organizations that wish to reduce the impact of discrimination. In a recent article, Goldin and Rouse (2000) describe the impact of "blind" auditions of musicians by top U.S. orchestras. They show that the use of such a procedure greatly enhances the likelihood that a female contestant will be the winner in a final round. The blind-audition procedure is similar to the double-blind refereeing procedure that is adopted by many academic journals. Blank (1991) analyzes the effects of such a procedure on the pattern of refereeing on the *American Economic Review.*

The emphasis in the definition of discrimination is on the differential treatment of individuals on the basis of their group membership. However, in principle, one can distinguish between "discrimination against," which captures the disutility caused by associating with someone, and "discrimination in favor," which implies nonmonetary gains from as-

1. The aim of some policies is to fight discrimination, while other policies are corrective in that they try to overturn the outcome of discrimination without challenging the phenomenon itself.

2. This is true in societies in which there are no other forms of group signaling such as names or place of residence.

3. Such questions may nonetheless serve as evidence for unlawful discrimination.

sociating with an individual of a particular group. Becker (1957, p. 7), who first made this distinction, defines "discrimination in favor" as "nepotism." Becker then argues that the reason we hear so little about nepotism is that it is empirically indistinguishable from discrimination against, and "the social and economic implications of positive prejudice or nepotism are very similar to those of negative prejudice or discrimination" (Becker 1957, p. 7).[4]

The distinction between discrimination and nepotism is part of the experimental design suggested in this paper. We, however, define these concepts in terms of behavior instead of in terms of preferences. We consider the interaction between players of two different groups in two situations: when group identity is fully observable and when one player is an anonymous player whose group affiliation is unknown to the other. By comparing behavior under full observability with behavior under anonymity we distinguish between discrimination against and nepotism.[5] We define "discrimination against" (hereafter, "discrimination") as the behavior displayed when individuals treat anonymous individuals positively, as they would treat members of their own group, and treat members from another group negatively. On the other hand, "discrimination in favor" (hereafter, "nepotism") characterizes situations in which players treat (negatively) anonymous players and members of other groups identically, while treating identified members of their own group favorably.[6]

The distinction between discrimination and nepotism has important policy implications. In particular, while the anonymity rule generally enhances equity, it may either increase or decrease efficiency depending on the specific situation. Consider, for example, a market in which interpersonal trust or cooperation is needed in order to achieve higher overall payoffs. When there is discrimination, players will trust or cooperate with anonymous players as if they were members of their own group. In such a case, the use of an anonymity rule may promote efficiency in addition to equity. However, using the anonymity rule to com-

4. However, considering the two types of discrimination in a labor market context and allowing for entry and exit of firms yields that, in the long run, we find that nepotism survives while discrimination does not; see Becker (1971, p. 44 n.4), and a discussion by Weiss (2001).

5. Becker's definition, which is stated in terms of utility, and our behavioral definition are not equivalent; see the discussion in Section 2.

6. Clearly these are just the two extreme situations. One can conceive of intermediate scenarios in which the differential treatment is the outcome of a combination of discrimination and nepotism.

bat nepotism will promote equity but may also reduce overall trust and cooperation and thereby reduce the overall surplus to be divided between the players. However, when favorable treatment of individuals reduces the overall pie, the above conclusion is reversed. In such situations, the anonymity rule would be desirable under nepotism but involve an equity/efficiency trade-off under discrimination.

To illustrate the differences between discrimination against and nepotism, we present two experiments that were conducted in Belgium and Israel. In Belgium, we made use of the linguistic segmentation of the Flemish and Walloons, whereas in Israel we focus on the religious versus secular segmentation.[7] In the two societies that we studied, there was an obvious group bias. Players preferred players from their own group. However, our experiment indicated that discrimination in the context of the Walloon-Flemish segmentation in Belgium could be characterized as "discrimination against," while discrimination in the context of ultraorthodox-secular segmentation in Israel can be characterized as "nepotism." To emphasize the policy implications regarding the equity/efficiency trade-off, we demonstrate these results in a trust game (see Berg, Dickhaut, and McCabe 1995). Consequently, our findings imply that the anonymity rule may promote both equity and efficiency in Belgian society, whereas a similar policy in Israel aimed at ultraorthodox decision makers will intensify the equity/efficiency trade-off.

It is important to stress that in many countries discrimination is illegal for firms even if they believe that people from different groups demonstrate different levels of trustworthiness. For example, in credit markets in the United States, the Equal Credit Opportunity Act (sec. 701, as amended in March 1976) states that it "shall be unlawful for any creditor to discriminate against any applicant, with respect to any aspect of the credit transaction . . . on the basis of race, color, religion, national origin, sex or martial status, or age." The law implies that while firms are allowed to differentiate among customers on the basis of characteristics of the customer (for example, credit history) or the product that is linked to the expected return of the transaction (for example, the type of loan), it is illegal to use the customer's membership in a group to distinguish among customers. In other words, firms should make decisions about a customer as if they had no information regarding the customer's race, sex, and so on. This is true regardless of whether race,

7. See Fershtman and Gneezy (2001) for an experimental study on ethnic segmentation in Israeli society.

for example, is a good proxy for risk factors in the credit market (Ladd 1998).

2. DISCRIMINATION VERSUS NEPOTISM

Two related phenomena may explain discriminatory behavior: stereotyping and discriminatory preferences. Group stereotyping is a situation in which there are commonly held beliefs in a population that members of a certain group may have some shared characteristics that affect their behavior or their abilities. Such stereotypes may be correct or incorrect. When group stereotyping is correct, the discriminatory behavior is denoted as statistical discrimination. When this pattern applies, people may be discriminated against because of their ethnicity or race as a result of some common beliefs regarding characteristics or abilities, but no role is played by emotions such as "hate" or "love." That is, discrimination in such cases is not the outcome of discriminatory preferences.[8] Discriminatory preference, denoted by Becker (1957) as a "taste for discrimination," is when people simply like or dislike members of another group. For example, workers with such a preference may "suffer" if they work with workers from the other group and are willing to sacrifice monetary payoffs in order to avoid associating with people from the other group. Note that there is a difference between the phenomena of group stereotyping and taste for discrimination, although both may yield similar behavior. Stereotyping may likewise imply that people are willing to make monetary sacrifices in order not to associate with players of specific groups.[9] This is not because they do not like them but because they have certain beliefs about their characteristics or behavior. Discrimination based on taste does not have to involve stereotypes or beliefs; it can simply reflect a general dislike of certain groups.

Taste for nepotism and discrimination can be defined in terms of liking or disliking members of other groups. Discrimination captures situations in which people do not like to be associated with members of the other group and they are willing to pay in order to avoid contact. In contrast, nepotism refers to situations in which people want to as-

8. Even when a group stereotype is correct, this does not mean that as a society we would allow such discrimination. But the exact rule as to what to allow and what to prohibit clearly depends on a society's culture and moral values.

9. Clearly, positive stereotypes are possible. In such a case, people will be willing to "pay" in order to be associated with members of the positively stereotyped group.

sociate with members of the other group and are thus willing to pay for the opportunity. While these distinctions were made by Becker (1957), they have hardly been used since, as the two phenomena are empirically indistinguishable.[10]

We therefore propose a somewhat weaker distinction between discrimination and nepotism that is based on observed behavior. Our classification is based on behavior toward players with observable group affiliation versus behavior toward anonymous players. Consider a society consisting of two groups of players, A and B. When players of group A treat players of their own group better than they treat players of group B but treat anonymous players in the same way that they treat players of group A, we denote this behavior as discrimination against members of group B. In this case, members of group B are badly treated only when they are identified as such. Alternatively, if players of group A treat anonymous players in the same way that they treat members of group B, we denote this behavior as nepotism. In such a case, players treat members of group A favorably whenever they are able to identify them. Clearly, these are the two extreme cases. One can think of numerous intermediate cases. In such instances, we can determine only if the discrimination is closer to nepotism or to discrimination.

Our behavioral definitions of discrimination and nepotism diverge from Becker's (1957) preference-based definition. Clearly, when players have nepotistic preferences with respect to members of group A, they will treat anonymous players favorably, as they may assume that these players may also be from group A. The degree of favoritism in such a case may depend on their belief regarding the group identity of the anonymous player.[11] A similar argument can be made with respect to discrimination against players. But in such a case, as was argued by Becker, nepotism and discrimination are not empirically distinguishable. We thus adopted a more restrictive definition, requiring that behavior be termed nepotism when players treat other players favorably only

10. As Becker noted in the summary of his book, "[A] theory based on 'hatred' of one group is not easily distinguished empirically from one based on 'love' of the other group" (Becker 1957, p. 129).

11. For players with rational expectations, these beliefs should be identical to the actual distribution of players in the population. We did not ask subjects about their beliefs since elicitation procedures trigger cognitive processes that may bias the reply. It is important to note that in the context of our study, however, it does not matter what triggers the behavior—beliefs or preferences—since we focus on the comparison between behavior toward an anonymous player versus behavior toward players with clear group affiliation. See the discussion in List (2003).

when they clearly identify them as members of group A (the favored group). While this definition seems restrictive, it is consistent with the pattern of discrimination in the two societies that we studied and report in this paper.

When group A is a small minority of the population, players facing an anonymous player can rationally conclude that this anonymous player is most probably from group B and will treat him accordingly. While this pattern of behavior is also interesting, the behavior that we consider in this paper is more general. In order to address this issue, we made the following variation in our experiment. In the experiment that we conducted with ultraorthodox Jews in Israel, we had two treatments. In the first one, we let participants play against anonymous players from the entire population. Because the ultraorthodox group consists of only 9 percent of the population in Israel, the players probably believed that the anonymous player was a secular player. In such a case, their nepotistic behavior was not surprising; they treated the anonymous player as if he were a secular player. In the second treatment, we let the ultraorthodox players play against an anonymous player after stating that there was a 50 percent probability that the anonymous player belonged to their own ultraorthodox group and a 50 percent probability of his being secular. Surprisingly, the nepotistic behavior remained constant in the second treatment, which indicates that our definitions of pure nepotistic or discriminatory behavior are not restricted to situations in which the statistical inference is that the anonymous player most probably belongs to one or another group.

The distinction between discrimination and nepotism is not considered just for the sake of conceptual classification, but the focus is on the efficiency consequences of anonymity rules. To illustrate the equity/efficiency trade-off, we choose to conduct our experiment using the trust game, as in it better treatment of individuals yields a larger overall pie for the two players. In principle, one may choose different types of games and consider the effect of ethnic affiliation on the choice of strategy. While a dictator game may better demonstrate discriminatory preferences, our focus is on policy implications, and therefore we use the trust game (see Berg, Dickhaut, and McCabe 1995), in which there is an interaction between the players and the degree of discrimination directly affects the total surplus to be divided between them; hence, the equity/efficiency trade-off is transparent.

The trust game involves two players, A and B. At the first stage, player A is given a fixed amount of money and is asked to decide whether

to transfer part of it to player B. The amount transferred is automatically tripled, and player B then needs to decide how much he wants to transfer back to player A. The efficient outcome, which maximizes the total pie, would require player A to transfer all his resources to player B (as these resources would then be tripled). The subgame-perfect equilibrium, on the other hand, implies no transfers. The outcomes of the experiment are typically different from this equilibrium. The experiment by Berg, Dickhaut, and McCabe (1995) confirmed that player A typically sends a positive amount of money to player B, who often returns an even larger amount.[12] In such an experiment, the amount that player A transfers to player B serves as an indication of trust or cooperation between them. Thus, whenever a player is more trusted or there is more cooperation between players, the overall pie is larger.

In the trust game, the use of an anonymity rule to eliminate nepotism may promote equity, but it may also reduce overall gains (efficiency). However, one may also consider different classes of games in which favorable treatment reduces overall gains (although it may redistribute those gains between players). In such games, the use of an anonymity rule to eliminate nepotism may introduce the equity/efficiency trade-off, while the use of such a policy to fight discrimination may be both efficient and equity enhancing.

3. DISCRIMINATION AND THE INEFFICIENCY OF THE ANONYMITY RULE

3.1. The Walloons and the Flemish: A Short Background on Ethnic Segmentation in Belgium

The Belgian state may be divided into three different regions: (1) Flanders, located in the north, containing 58 percent of the population, (2) Wallonia, located in the south, containing 33 percent of the population, and (3) Brussels, located in the center, containing 9 percent of the population. For simplicity, one may categorize the Belgian population into two main groups, according to the language spoken: the Flemish (Dutch speaking) populate Flanders and form a minority in Brussels (20 percent); the Walloons (French speaking) live in Wallonia and form the

12. A comparable experimental study was also conducted by Guth, Ockenfels, and Wendel (1994).

majority in Brussels (80 percent).[13]

Established in 1830, the Belgian state has long been governed centrally from its capital, Brussels, with the official language being French. After the First World War, the "Flemish movement" began to play a significant role, first at the cultural level and subsequently at the political and economic levels.[14] For example, in 1932 a law declared Flanders and Wallonia to be essentially unilingual regions, whereas Brussels was officially recognized as bilingual. In 1960, a political federalization process was introduced, granting some political autonomy to the Flemish and the Walloon communities (Beaufays 1998). Because of differences in income and economic growth between the two groups, part of the current debate concentrates on economic issues, such as the power to levy taxes at the regional level and to construct independent social security systems.[15,16]

3.2. Experimental Procedure

The participants in this experiment consisted of 302 Belgian undergraduates students.[17] The participants in the role of student A were recruited in their classes from two Catholic universities: the University of Leuven (a Flemish university) and the University of Louvain-La-Neuve (a Walloon university). The participants in the role of student B were recruited from two other Catholic universities: the University of Antwerp (Flemish) and the University of Namur (Walloon). The experiment was conducted at the beginning of the class and took about 15 minutes. The class instructor introduced the experimenter, who presented a short verbal introduction. In this introduction, the experimenter told the partic-

13. Using the language criterion, some 60 percent of the population may thus be categorized as Flemish, whereas some 40 percent of the population may be categorized as Walloon. Note that there is also a small German-speaking minority in the east of Belgium (in the region of Wallonia, amounting to about .6 percent of the population).

14. There has not been a parallel Walloon movement with the same influence; see, for example, Van Dam (1998).

15. The debate follows from the different economic conditions, which have resulted in transfers from Flanders to Wallonia. For example, income per employed person is some 7 percent higher in Flanders than in Wallonia, whereas income per capita is some 13 percent higher. These figures reflect differences in participation and unemployment rates.

16. Research on group identity conducted by Maddens, Beerten, and Billiet (1997) indicates that while the Flemish strongly identify with their region, the Walloons tend to feel strong affiliation with the Belgian state.

17. It is interesting to note that Bouckaert and Dhaene (2002) did not find discrimination in a trust game experiment with Turkish-origin and Belgian-origin small-business managers in Belgium.

ipants that they were being asked to participate in a short experiment that would take about 15 minutes and that they would be paid according to the instructions given. After that, the experiment's instructions were distributed (see Appendix A for an English translation of the instructions).

In the instructions, the participants in the role of student A were told that the experiment was conducted in pairs and that they would be matched with a student B from another university. The name of the other university was our experimental treatment. One-third of the students were told that the other participant was from the University of Antwerp (a Flemish university), another third was told that the other participant was from the University of Namur (a Walloon university), and the rest were told that the other participant was from a different Belgian university. Student A was informed that he or she would receive BEF 2,000[18] and that his or her partner (student B) would not receive any money. Student A was then asked to decide if he or she wanted to transfer any portion of the BEF 2,000 to student B and, if so, how much. The players were told that the amount transferred would automatically be tripled by the experimenters and that student B, with whom they were matched, would be informed of all details pertaining to the game, including the amount that student A transferred to him or her, within a few days. Student B would then be asked to decide whether he or she wanted to send any portion of the money he or she had received back to student A. The students were told that this last transfer concluded the experiment and that we would come to their classes 1 week later to pay them. They were also advised that only one out of 50 students would be paid and that this student would be chosen at random.[19] Each student A was then asked to write down his or her name and the amount he or she wanted to transfer to student B.

After the students had filled in their choices, we collected the forms and distributed a questionnaire. After we had collected the questionnaires, we thanked the students and repeated that we would return next week to pay them.

In the second stage of the experiment, we similarly approached the

18. At the time of the experiment, $1 = BEF 43.5.

19. We chose to pay only one out of 50 students because we wanted the amounts of money to be substantial. See, for example, Bolle (1990) for the argument that paying large amounts of money with low probability is better than paying small amounts of money for certain (see also Gneezy and Rustichini 2000a, 2000b). It is important to note that the use of probabilistic payment cannot explain the findings we present later.

Table 1. Number of Matched Couples When the Type of University Is Known

	Student B	
Student A	Flemish	Walloon
Flemish	23	28
Walloon	29	22

Table 2. Number of Matched Couples When the Type of University Is Unknown

	Student B	
Student A	Flemish	Walloon
Flemish	13	12
Walloon	12	12

students taking the role of student B from the University of Antwerp and the University of Namur. The same type of verbal introductions was given to the students, and then the instructions were handed to them (see Appendix A for the English translation of the instructions). The students were provided with exactly the same description of the experiment. They were also informed of the university of the student A with whom they were matched (apart from the "Belgian" group), as well as of the sum he or she had decided to forward to them. After filling in the questionnaires, one out of 50 students was paid confidentially and in cash.[20] Table 1 presents the number of pairs that were matched according to their attendance at a Flemish or Walloon university.

The third group comprises the students who were told that they were matched with a Belgian counterpart. Table 2 presents the number of pairs in which the students (student A and student B) were not told which Belgian university his or her counterpart attends. (Note that they were also told that this student was not from their own university.)

20. The same experimenter conducted all parts of the experiment. We purposefully chose a non-Belgian experimenter in order not to bias the results in any direction. For that reason, the verbal introductions were given in English at all sites. The written instructions were, however, translated into the local languages: Dutch for the Flemish students and French for the Walloon students. This was done because some students may have insufficient knowledge of English, especially in the Walloon universities. The translation was completed by people who know all three languages (English, French, and Dutch) and speak the local language as their mother tongue.

3.3. Results: Discrimination

The outcome of the experiment is described in the first two figures. Figure 1 displays the distribution of money transfers by Flemish students, who were assigned as students A, to Flemish, Walloon, and anonymous players with whom they were matched. Figure 2 displays the distribution of transfers given by Walloon students (student A) to Flemish, Walloon, and anonymous students. These distributions provide direct evidence for the degree of ethnic segmentation in Belgian society. In particular, note that more than 40 percent of the Walloon students sent the full amount of BEF 2,000 when they played with Walloon students. They thus achieved an efficient transfer and maximized the size of the pie. However, fewer than 10 percent of the Walloon students chose this strategy when they played with a Flemish student. Similarly, about 13 percent of the Flemish students sent the full amount when they played with Flemish students, whereas only 4 percent of the Flemish students sent the full amount when they played with the Walloon students. Consequently, the overall pie divided between the players was greater when the players are of the same ethnic group.

Observation 1: Group Bias. Belgian society is characterized by significant group bias. Both Walloon and Flemish students transferred significantly larger amounts to players of their own ethnic group. The average transfer of Flemish students to other Flemish students was BEF 1,009, while the average transfer to Walloon students was BEF 536. The average transfer of Walloon students to Walloon students was BEF 1,200, while the average transfer to Flemish students was BEF 745 (see Appendix B for statistical tests).[21]

We now compare the transfers made to the anonymous players to the transfers made to players with identified ethnic affiliations.

Observation 2: Discrimination. The ethnic discrimination in Belgium can be characterized as discrimination against members of the different group:

1. The transfers made by Flemish players to anonymous players (av-

21. An analysis of variance shows that the differences are significant ($F(1, 51) = 10.85$, $P = .002$ in the first case and $F(1, 51) = 5.85$, $P = .019$ in the second case). We report the analysis of variance test results, which is the standard analysis based on the normality assumption. In Appendix B, we also report the Mann-Whitney *U*-test results, which is a nonparametric test based on rank. The results of the tests are similar in all cases.

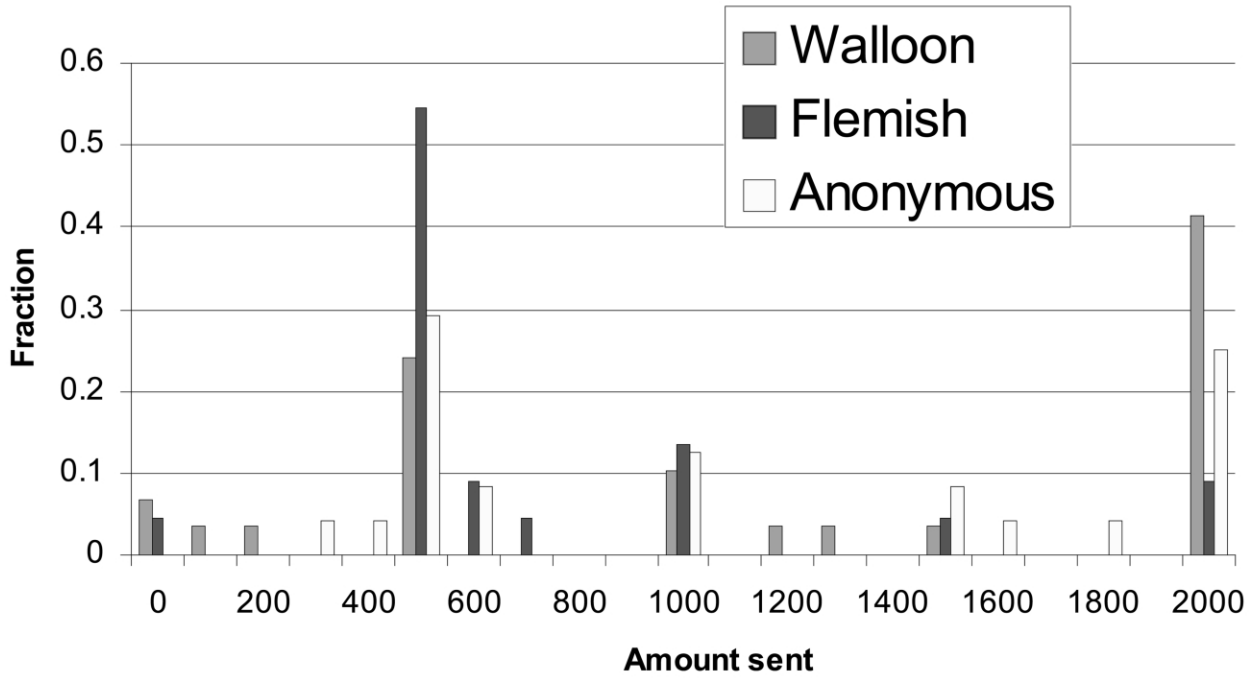

Figure 1. Amounts sent by students A from a Flemish university to students B

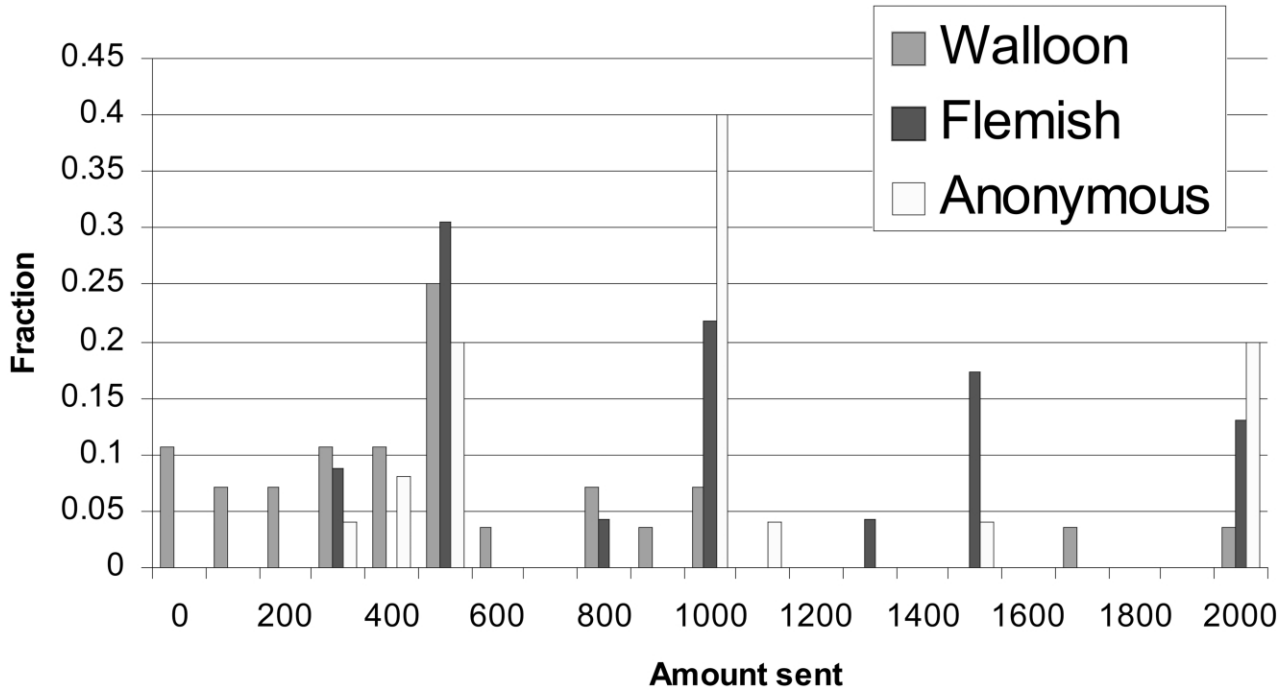

Figure 2. Amounts sent by students A from a Walloon university to students B

erage transfer of BEF 1,050) were not significantly different from the transfers they made to Flemish players (average transfer of BEF 1,010; $F(1, 48) = .06$, $P = .810$).

2. The transfers made by Walloon players to anonymous players (average transfer of BEF 1,120) were not significantly different from the transfers they made to other Walloon players (average transfer of BEF 1,200; $F(1, 53) = .18$, $P = .677$; see Appendix B for statistical tests).

A direct implication of this observation is that in such interactions, the anonymity rule introduces both equity and efficiency. Whenever the interaction is of the same type as the trust game, introducing an anonymity rule will result in a larger overall surplus.

Larger transfers, indicating trust, increase the overall pie to be divided between the players, while mistrust reduces the total surplus. But such mistrust can be consistent with payoff maximization if student A believes that student B will not share his or her gains. In order to consider this possibility, we examined the returns of students B to students A, depending on the players' ethnic affiliation. That is, were the returns of Walloon (Flemish) players back to Flemish (Walloon) players sufficiently low to justify the low transfers received in the first stage of the game? If these transfers were sufficiently small, that is, if they were less than the original amount transferred from student A to student B, then we can indeed say that the discrimination practiced by students A is consistent with payoff maximization.

Observation 3. Students had, on average, a positive return on the transfers they made to other students, including those to students from other groups. Specifically, considering the returns to students who had sent at least BEF 1,500 to their partner, we find that Flemish students obtained an average return of 19 percent on the amount they had transferred to other Flemish students and a return of 54 percent on the amount transferred to Walloon students. Similarly, Walloon students received an average return of 17 percent on amounts transferred to Flemish students and an average return of 48 percent on amounts sent to other Walloon students.

This observation indicates that players of both groups indeed received a positive return on their transfers. However, one can argue that these are only realizations of behavior and that it is possible that players mistakenly believe that the returns from one group is greater than the returns from another group or even that the return from one of the groups will be negative. In such a case, reducing the transfer to such a

Table 3. Overall Payoffs to Students A and B

	Student B (Receiver)		
Student A	Flemish	Walloon	Weighted Average
Flemish	4,017	3,071	3,498
Walloon	3,491	4,400	4,008
Weighted Average	3,760	3,747	3,753

Note. The minimum payoff is BEF 2,000; the maximum is BEF 6,000.

group is consistent with rational behavior. However, in such a case, our definition of nepotistic or discriminatory behavior continues to hold, but it may be supported by nepotistic (or discriminatory) beliefs rather than preferences.

The direct economic implication of such discrimination is a smaller overall surplus for the two players. In Table 3, we describe the overall payoffs of both players, depending on the player's type. It is easy to observe that the overall surplus is maximized when both players are of the same ethnic group.

While our main concern in this experiment was to ascertain the effect of anonymity, we were surprised to observe a systematic difference between the amounts transferred by students of the two ethnic groups.

Observation 4.

1. Flemish players transferred significantly smaller amounts than did Walloon players. The average transfer by Flemish players to Flemish and Walloon players was BEF 749. In comparison, the average transferred by Walloon players to Flemish and Walloon players was BEF 1,004. The difference is significant ($F(1, 102) = 4.16$, $P = .044$).

2. The economic consequence of such behavior is transparent (see Table 3). When student A was Flemish, the overall payoffs of both players were, on average, BEF 3,498, while when student A was Walloon, the overall payoffs of both players was BEF 4,008 (see Appendix B for statistical tests).

4. NEPOTISM

We now move to consider the (ultraorthodox) religious/secular segmentation in Israel. As will be shown, the discriminatory behavior expressed by the ultraorthodox minority in Israel is quite different in character.

4.1. A Short Background on (Jewish) Religious/Secular Segmentation in Israel

The ultraorthodox Jewish population is a rather small and relatively isolated group consisting of approximately 9 percent of the Israeli population. Most members of this group reside in segregated neighborhoods in the country's main cities but are concentrated in Jerusalem and Bnei-Brak (a city close to Tel Aviv and the only city in Israel having an ultraorthodox Jewish majority). Ultraorthodox Jews do not participate in the Zionist movements; they maintain their own political parties that send representatives to Israel's parliament. Although there are some exceptions, the ultraorthodox do not serve in the Israeli army and attempt to avoid compulsory military service. This behavior has become a major political issue and a source of resentment and tension between secular and religious groups. As a community, ultraorthodox Jews are divided into different subgroups that reflect their members' geographic origin in the Diaspora, the rabbis, the theological schools they follow, and so forth. We ignore these distinctions in this work despite their occasionally meaningful effects on intracommunal relations.

Part of the system of segregation between the ultraorthodox and the secular Jewish population is their separate school system, extending from nursery school to college. This segregation enables us to use schools as a signaling devise in our experiment.

4.2. Experimental Procedure

The participants in this experiment were Israeli undergraduate students. The participants in the role of student A were recruited in their classes at an ultraorthodox college in Jerusalem. The participants in the role of student B were recruited from two other colleges in Israel: the Academic College of Tel-Aviv (a secular institution) and the ultraorthodox Haredi Center for Technological Studies in Ashdod. The experiment was conducted during a class and took about 15 minutes. After the instructor introduced the experimenter, the experimenter gave a short verbal introduction. The introduction and instruction were identical to those given in Belgium except for minor locally determined details such as the sums that were given. The instructions for the experiment were then distributed (see Appendix A for an English translation of the instructions). Payoffs were in shekels, with student A offered NIS 200, then equivalent to about BEF 2,000.

In the instructions, the participants in the role of student A were

Table 4. Number of Matched Couples According to the Type of College Attended by Student B

	Student B			
Student A	Ultraorthodox	Secular	Anonymous	Anonymous 50:50
Ultraorthodox	28	22	26	28

likewise told that the experiment would be conducted in pairs and that they would be matched with a student B, from another college. Although the name of the other college was our experimental treatment, some variation was introduced. In the first treatment, we told the students that the other participant was from the Academic College of Tel-Aviv. To another group, we stated that the other participant was from the ultraorthodox college in Ashdod. The third group was told that student B was either from the ultraorthodox college in Ashdod or from the Academic College of Tel-Aviv, each with a 50 percent probability. Finally, the participants in the fourth group were told that their counterparts were from another college in Israel. The rest of the procedure was identical to that of Belgian experiment. Table 4 presents the number of pairs that were matched according to the college of student B.

4.3. Results

Figure 3 shows the distribution of the amounts transferred by ultraorthodox players.

Observation 5. The behavior of the ultraorthodox Jews can be characterized as nepotistic. The average amount of NIS 94.1 that they transferred to secular players does not differ significantly from the average amount of NIS 95 transferred to anonymous players ($F(1, 48) = .00$, $P = .965$) or from the average amount of NIS 99.6 transferred to anonymous players displaying a 50 percent probability of being another ultraorthodox student ($F(1, 50) = .08$, $P = .779$). At the same time, the amount they transferred to other ultraorthodox students (which averaged 133.2) was significantly higher ($F(1, 50) = 4.30$, $P = .044$).

The roughly equal average transfers to secular and anonymous players and the significantly higher average transfers to ultraorthodox players might still be attributed to the fact that secular players represent the majority of Jewish society, so the probability of an anonymous player being secular is high. On the basis of this alone, one can conclude only

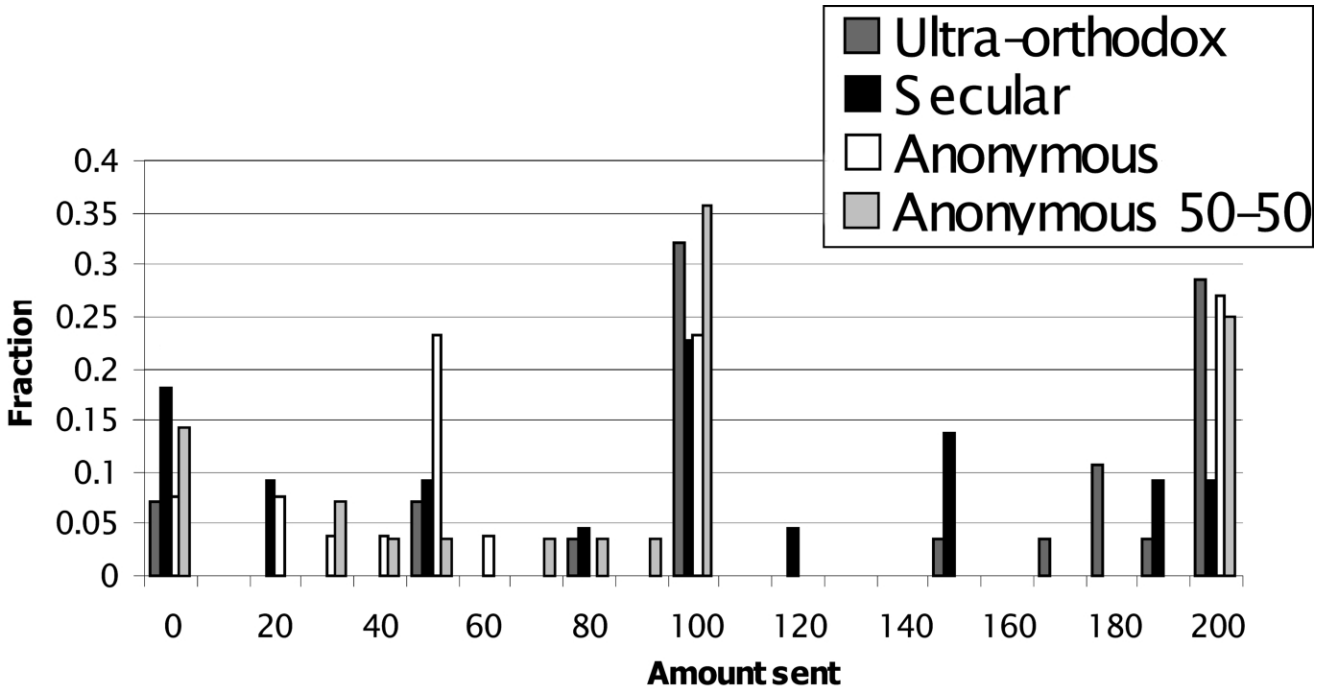

Figure 3. Amounts sent by students A from an ultraorthodox college to students B

that some form of discrimination is operating, without being clear whether it is discrimination against or nepotism. However, in the treatment in which the anonymous player is secular with only a 50 percent probability, transfers were insignificantly different from the transfers to the secular players. This implies that the discrimination of students A is clearly nepotistic, favoring their own ultraorthodox group.[22]

Similar to the Belgian experiment, we tested whether the transferred sums returned by ultraorthodox students B to ultraorthodox students A are sufficiently large relative to the returns of secular players to justify the larger transfers received by the ultraorthodox in the first stage of the game.

Observation 6. Considering the returns to students who transferred at least NIS 150, we find that ultraorthodox students obtained an average return of 40 percent on the amount they transferred to other ultraorthodox students and a return of 29 percent on the amount transferred to secular students. This difference is not significant. We can thus conclude that, in our experiment, the mistrust and the low amount of transfers to secular students are not consistent with payoff maximization and reflect nepotistic behavior.

5. CONCLUDING REMARKS

We have presented an experimental test to distinguish between the two extreme cases of discrimination in segmented societies: nepotism and discrimination against individuals in a group. We found evidence of nepotism in Israeli society and of discrimination in Belgian society. Our results have implications for the efficiency of antidiscrimination measures and the application of the anonymity rule in particular. In our setting, cooperation is desirable; hence, discrimination should be discouraged through anonymity rules and nepotism encouraged, as it increases the total surplus. It should be clear, however, that in a reverse situation in which cooperation is socially harmful (for example, collusion between agents in organizations), nepotism should be discouraged through anonymity rules rather than encouraged.

An important question is why we have such different patterns of

22. It is still possible that although we corrected the probabilities of the two groups in our experimental design, the players' perceptions or automatic behavior are affected by the real distribution in the population. This may provide an explanation for such behavior, yet the real-life consequence of such an attitude is identical to that of nepotistic behavior.

discrimination in different societies. Since we put the students in both experiments in an identical situation, the experiment itself does not provide an answer as to why nepotism appears in one society and discrimination in the other. However, there are two important differences between the two societies that may explain our findings (other than the obvious cultural and geographical differences). In the Belgian example, people from each group live within a more or less homogeneous territory (with the exception of the Brussels area), while in Israel, there is more geographical dispersion. Moreover, in Belgium, the two groups are roughly of the same size, while in Israel the ultraorthodox group is a small minority. Although in the experiment itself the students were in an identical situation, their conceptual frameworks might be different. It is possible that because of these differences, the Belgian student accepts the possibility that an anonymous person belongs to his own linguistic group, while the ultraorthodox Jewish student rejects the possibility of similarity and assumes that the anonymous other is probably a secular person. Although the experiment corrected for such a bias by introducing a treatment in which the probability of an anonymous player being secular player is only 50 percent, the students' perceptions and their behavior may still have been affected by their daily life experiences.

APPENDIX A

Instructions for Student A

Welcome to this experiment in decision making. The interaction in the experiment will be in pairs of students. You are student A and the student you are matched with is student B.

The participants in the role of student B are from the University of XXX.

At the beginning of the experiment you will receive BEF 2,000 but student B will not receive any money. You are being asked to decide whether you want to send any of the amount given to you to the student you are matched with and, if so, how much would you want to send (this amount must be in multiples of BEF 100). We will triple the amount you send and give it to student B; that is, for every BEF 100 that you send, student B will receive BEF 300.

In a few days from now, we will ask student B to decide if he or she wants to send back to you any amount of the money he or she has received (which will be three times the amount you sent) and, if so, how much. This amount must be in multiples of 100 BEF and will not be tripled.

Student B's decision will end the experiment. We will then randomly choose

one pair of students out of every 50 pairs. This pair will be paid during the next class according to the payment schedule described above.

Your name: _____

The amount of money you want to send to student B: _____ (Please remember that this amount should be between BEF 0 and BEF 2,000.)

Instructions for Student B

Welcome to this experiment in decision making. The interaction in the experiment will be conducted by pairs of students. You are student B and the student you are matched with is student A.

The participants in the role of student A are from the University of XXX.

A few days ago, student A, with whom you are matched, has received BEF 2,000. Then he or she was asked to decide whether he or she wants to send any amount out of this sum to you and, if so, how much he or she wanted to send (this amount must be in multiples of BEF 100). We told student A that the amount sent would be tripled and given to you; that is, for every BEF 100 that student A sent, you will receive BEF 300.

We now ask you to decide if you want to send back to the student A you are matched with any amount out of the sum you received (which is three times the amount student A sent) and, if so, how much. This amount must be in multiples of BEF 100 and will not be tripled.

Your decision will end the experiment. We will then randomly choose one pair of students out of every 50 pairs. This pair will be paid during the next class according to the above description.

Your name: _____

The amount of money you received (what student A sent you multiplied by 3): _____

The amount of money you want to send back to student A: _____ (Please remember that this amount should be between BEF 0 and the amount you received.)

APPENDIX B: STATISTICAL TESTS

Table B1. Differences between Transfers for Various Treatments: Averages and Significance Tests

Relating to Observation	Transfer 1		Transfer 2		Average Transfer Difference	ANOVA *t*-Test		Mann-Whitney *U*-Test	
	From	To	From	To		*F*-Test	*P*	*Z*-Test	*P*
1	F	F	F	W	473	$F(1,51) = 10.85$	.002	3.260	.001
1	W	W	W	F	455	$F(1, 51) = 5.85$	.019	1.878	.060
2	F	F	F	An	−39	$F(1, 48) = .06$	.810	−.223	.824
2	W	W	W	An	83	$F(1, 53) = .18$	.677	.424	.672
4	F	F, W	W	F, W	−255	$F(1, 102) = 4.16$	.044	−2.068	.039
5	U	S	U	U	−39.1	$F(1, 50) = 4.30$	.044	−1.938	.053
5	U	S	U	An	−.9	$F(1, 102) = .00$	.965	−.126	.900
5	U	S	U	An50%	−5.5	$F(1, 102) = .08$	.779	−.249	.803

Note. The comparison is between transfer 1 and transfer 2 and follows the order of the discussion in the text. For observations 1–4, the averages refer to Belgian francs. For observation 5, the averages refer to shekels. F = Flemish, W = Walloon, An = anonymous, U = ultraorthodox Jew, S = secular Jew, and An50% = anonymous with a 50% specification. ANOVA = analysis of variance.

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