



KATHOLIEKE  
UNIVERSITEIT  
LEUVEN

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**DISCRIMINATION AND NEPOTISM:  
THE EFFICIENCY OF THE ANONYMITY RULE**

by

**C. FERSHTMAN  
U. GNEEZY  
F. VERBOVEN**

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# **Discrimination and Nepotism:**

## **The Efficiency of the Anonymity Rule**

Chaim Fershtman<sup>\*</sup>, Uri Gneezy<sup>\*\*</sup> and Frank Verboven<sup>\*\*\*</sup>

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**Abstract:** The paper considers two categories of discrimination: “discrimination against” and “discrimination in favor”, which Becker coins “nepotism”. The paper develops an experimental test to distinguish between these two types of discrimination. The experiment compares the behavior towards individuals of different groups with the behavior towards anonymous individuals (those having no clear group affiliation). We illustrate the two attitudes by considering two segmented societies: Belgian society, with its linguistic segmentation between the Flemish and the Walloons, and Israeli society, where we focus on religious versus secular segmentation. In Belgium, we find evidence of discrimination against. 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 ultra-orthodox 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. The distinction between the different types of discrimination is important in evaluating the effectiveness and the efficiency consequences of anti-discriminatory legislations.

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\* The Eitan Berglas School of Economics, Tel Aviv University.

\*\* The University of Chicago Graduate School of Business and Technion.

\*\*\* The Department of Applied Economics, Catholic University of Leuven.

## **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 prohibiting 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.<sup>1</sup> 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.<sup>2</sup> In the USA, for example, *title VII* of the *1964 civil Rights Act* does not prohibit employers from asking questions about race, color, and the like<sup>3</sup>, while equal employment laws enacted by many states explicitly prohibit such

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<sup>1</sup> 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.

<sup>2</sup> This is true in societies in which there are no other forms of group signalling such as names or place of residence.

<sup>3</sup> Such questions may nonetheless serve as evidence for unlawful discrimination.

pre-employment inquiries (see for example *West Virginia law: W. Va. Code section 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) describes the impact of “blind” auditions of musicians by top US orchestras. The paper shows 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) analyzed the effects of such a procedure on the pattern of refereeing on the *American Economic Review*.

The main motivation for fighting discrimination is clearly moral, based on the wish to live in a society in which people are not treated differentially according to their group or ethnic affiliation. But anti-discrimination policies may introduce various equity-efficiency tradeoffs that could depend on the type of the discriminatory behavior.<sup>4</sup> For example, statistical discrimination, as defined by Arrow (1973) and Phelps (1972), is a situation in which the members of different groups are treated differently in response to statistical differences in their characteristics or behavior. In such cases the anonymity rule may be inefficient as it disallows the use of relevant statistical information.<sup>5</sup> Nevertheless,

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<sup>4</sup> Schotter and Weigelt (1992) adopted an experimental approach to consider the efficiency costs of affirmative action and equal opportunity laws. Their main result is that the imposition of such programs may enhance efficiency and not just equity, thus avoiding the equity/efficiency tradeoff.

<sup>5</sup> For example, we would have more efficient insurance schedules if we allowed them to be conditional on all known characteristics of the different groups in a society.

societies are often intolerant of statistical discrimination even if it implies an efficiency loss.<sup>6</sup>

When there is a *taste for discrimination* (see Becker (1957)), ethnic affiliation does not provide any relevant statistical information and discrimination is based entirely on discriminatory preferences. Such preferences may affect market behavior and thus may induce efficiency consequences. The application of anonymity rules thus may eliminate discrimination, but to evaluate their efficiency outcome it is necessary to examine what type of discrimination or group bias is in effect.

The emphasis in the definition of discrimination is on the relative terms. That is, the differential treatment of individuals based on their group membership. If someone treats members of group A better than members of group B then, by definition, she discriminates against members of group B. However in principle one can distinguish between “discriminate against”, which captures the disutility caused by associating with someone, and “discrimination in favor” which implies on non-monetary gains from associating 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*

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<sup>6</sup> For example, most societies do not allow conditioning health insurance on individuals' ethnic origin. But in setting car insurance rates, it is acceptable to use relevant information regarding the driver' age, although it is not acceptable to practice similar statistical discrimination on the basis of other individual characteristics such as gender.

... nepotism are very similar to those of negative prejudice or discrimination" (Becker 1957, p.7).<sup>7</sup>

The distinction between discrimination against and nepotism is part of the experimental design suggested in this paper. Before turning to a description of our experiment, we need to redefine these concepts in terms of behavior rather than 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, it is possible to distinguish between discrimination against and nepotism.<sup>8</sup> We define "*discrimination against*" 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, "*nepotism*" characterizes situations where players treat identically (and negatively) anonymous players and members of other groups, while favorably treating identified members of their own group.<sup>9</sup>

The distinction between discrimination and nepotism has important policy implications. Consider for example a market in which interpersonal trust or cooperation is needed in order to achieve higher overall payoffs. When there is discrimination against, players will trust or cooperate with an anonymous player as if he were a member of their

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<sup>7</sup> 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 nepotism survives while discrimination does not, see Becker second edition (1971, ft 4, page 44) and a discussion in Weiss (2001).

<sup>8</sup> Becker's definition, which is stated in terms of utility, and our behavioral definition are not equivalent; see the discussion in the next section.

<sup>9</sup> 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 against and nepotism.

own group. In such a case, use of the anonymity rule, may promote efficiency in addition to equity. However, using the anonymity rule to combat nepotism will promote equity, but may also reduce overall trust and cooperation and thereby reduce the overall surplus to be divided between the players. On the other hand when favorable treatment reduces the overall pie the above conclusion is reversed and the use of an anonymity rule in situations of discrimination against will be subject to an equity/efficiency tradeoff.

To illustrate the differences between discrimination against and nepotism we present two experiments that were conducted in Belgium and Israel. We use the trust game (see Berg, Dickhaut, and McCabe (1995)) because in this game, discrimination directly affects the total surplus to be divided between the players; hence, the equity-efficiency tradeoff is transparent.

Belgian society is linguistically segmented between Flemish and Walloons, whereas in Israel we focus on the religious versus secular segmentation.<sup>10</sup> Specifically, Belgian society is divided between the Walloon (33%) and the Flemish (58%) communities. The division is also geographic, with most universities, for example, affiliated with one group or the other. In order to conduct the experiment, we chose four universities: two Flemish and two Walloon. We let players from a Walloon university play the trust game with players from another Walloon university and with players of a Flemish university. In some of the forms in the experiment we revealed the group identity of the opponent (his/her university), while in other forms we did not reveal this information (anonymity). We repeated this procedure with players from one of the

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<sup>10</sup> See Fershtman and Gneezy (2001) for an experimental study on ethnic segmentation in the Israeli society.

Flemish universities. We then compared the players' strategies in order to examine the effect of group affiliation and the anonymity rule on the players' actions.

A similar experimental design was adopted in the experiment we conducted in Israel. Approximately 9% of the Jewish population in Israel is ultra-orthodox.<sup>11</sup> Since the ultra-orthodox Jewish population has a completely separate education system, schooling is a perfect signal for group affiliation. We let players from a religious (ultra-orthodox) college play the trust game with players from another religious (ultra-orthodox) college, with players from a secular school, and with "anonymous" players. We then compared their actions in the three different cases.<sup>12</sup>

In the two societies that we studied, players' basic behavior reflected a similar pattern: each player preferred players from his/her own group. However, our experiment indicated that discrimination in the context of the Walloon/Flemish segmentation in Belgium can be characterized as "discrimination against" while discrimination in the context of ultra orthodox/secular segmentation in Israel can be characterized as "nepotism." Consequently, while the anonymity rule may promote both equity and efficiency in the Belgian society, a similar policy in Israel will intensify the equity-efficiency tradeoff.

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<sup>11</sup> The ultra-orthodox Jewish group is fragmented into groups with complex, sometimes rivalries, relations.

<sup>12</sup> Since the small percentage of ultra-orthodox in the population may affect their perception about the identity of anonymous players, we conducted two versions of this experiment. In the first one, we did not reveal group identity; in such a case beliefs may coincide with the sectoral distribution in the population. In the second, we stated that the probability of an anonymous player being from either of the two schools was 50%.



## **2. Discrimination Against vs. Nepotism.**

Two related phenomena may explain discriminatory behavior. The first is group stereotyping, situations 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 the group stereotyping is correct the discriminatory behavior is denoted as statistical discrimination. When this pattern applies, people may be discriminated against due to 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.<sup>13</sup> The second explanation for discriminatory behavior involves discriminatory preferences, denoted by Becker (1957) as a “taste for discrimination”. In this type of discrimination, 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 they both may yield similar behavior. Stereotyping may likewise imply that people will be willing to make monetary sacrifices in order not to be associated with members of specific groups.<sup>14</sup> But this is not because they do not like them but because they have certain beliefs about their characteristics or behavior. Discrimination based on taste

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<sup>13</sup> 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.

<sup>14</sup> Clearly, positive stereotypes are possible. In such a case, people will be willing to “pay” in order to be associated with members of the positive stereotyped group.

does not have to involve stereotypes or beliefs, it can simply reflect a general dislike of certain groups.

Taste for discrimination can be defined in terms limiting to liking or disliking members of other groups. Discrimination against captures situations where 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 where people want to associate 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. 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).

The definitions of discrimination against and nepotism that we propose in this paper are based on observed behavior. Classification is based on behavior towards players with observable group affiliation versus behavior towards 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 only determine if the discrimination is closer to nepotism or to discrimination against.

Our behavioral definitions of discrimination against 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.<sup>15</sup> A similar argument can be made with respect to discrimination against. But in such a case, as was argued by Becker, nepotism and discrimination against are not empirically distinguishable. We thus adopted a more restrictive definition, requiring that behavior be termed nepotism when players treat other players favorably only 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 ultra-orthodox Jews in Israel, we had two treatments. In the first one, we let participants

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<sup>15</sup> 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

play against anonymous players from the entire population. Because the ultra-orthodox group consists of only 9% 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 is a secular player. In the second treatment, we let the ultra-orthodox players play against an anonymous player after stating that there was a 50% probability that the anonymous player belonged to their own ultra-orthodox group, and a 50% probability of 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 groups.

The distinction between discrimination against and nepotism is not considered just for the sake of conceptual classification as it may have policy implications. The focus in this paper is on the efficiency consequences of an anonymity rule. To illustrate the equity/efficiency tradeoff, we choose to conduct our experiment using the trust game as in this game, “better treatment” of individuals yields a larger overall pie for the two players.

The trust game was introduced by Berg, Dickhaut, and McCabe (1995). The 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

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between behavior towards an anonymous player versus behavior towards players with clear group affiliation.

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. Berg et al.'s experiment confirmed that Player A typically sends a positive amount of money to Player B, who often returns an even larger amount.<sup>16</sup> The amount that player A transfers to player B serves, in such an experiment, as an indication of trust or cooperation between the two players. Thus whenever a player is more trusted or whenever 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 tradeoff, while the use of such a policy to fight discrimination against may be both efficient and equity enhancing.

### **3. “Discrimination Against” 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:

- Flanders, located in the North, containing 58% of the population;

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<sup>16</sup> A similar, less stylized procedure was used by Fehr, Kirchsteiger, and Riedel (1993) and by Fehr, Gächter, and Kirchsteiger (1997). A comparable experimental study was also conducted by Guth, Ockenfels, and Wendel (1994).

- Wallonia, located in the South, containing 33% of the population
- Brussels, located in the center, containing 9% 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%); the Walloons (French speaking) live in Wallonia and form the majority in Brussels (80%).<sup>17</sup>

Established in 1830, the Belgian State has long been governed centrally from its capital Brussels, 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 level.<sup>18</sup> For example, in 1932 a law declared Flanders and Wallonia as essentially uni-lingual regions, whereas Brussels was officially recognized as bi-lingual. In 1960, a political federalization process was introduced, granting some political autonomy to the Flemish and the Walloon communities (Beaufays, 1998). Due to 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.<sup>19</sup>

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<sup>17</sup> Using the language criterion, some 60% of the population may thus be categorised as Flemish, whereas some 40% of the population may be categorised 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 0.6% of the population)

<sup>18</sup> There has not been a parallel Walloon movement with the same influence, see e.g. Van Dam (1998).

<sup>19</sup> 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% higher (Dexia, 2001). These figures reflect differences in participation and unemployment rates.

Research on group identity conducted by Maddens et al. (1997) indicates that while the Flemish strongly identify with their region, the Walloons tend to feel strong affiliation with the Belgian State.

### **3.2. Experimental Procedure**

The participants in this experiment consisted of 302 Belgian undergraduates students.<sup>20</sup> 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. After the class instructor had introduced the experimenter, the experimenter presented a short verbal introduction. In this introduction the experimenter told the participants 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 1 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

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<sup>20</sup> It is interesting to note that Bouckaert and Dhaene (2002) did not find discrimination in a trust game experiment with Turkish origin and Belgium origin small business managers in Belgium.

Antwerp (a Flemish university); another third was told that the other participant was from the University of Namur (a Walloon university); the rest were told that the other participant was from a different Belgian university. Player A was informed that (s)he would receive BEF 2,000<sup>21</sup> and that his/her partner (Player B) would not receive any money. Player A was then asked to decide if (s)he wanted to transfer any portion of the BEF 2,000 to Player B and if so, how much. The players were told that the amount transferred would automatically be tripled by the experimenters and that Player B, with whom they were matched, would be informed about all details pertaining to the game, including the amount that Player A transferred to him/her within a few days. Player B would then be asked to decide whether (s)he wanted to send any portion of the money (s)he had received back to Player A. The students were told that this last transfer concluded the experiment and that we would come to their classes one week later to pay them. They were also advised that only 1 out of 50 students will be paid, and that this student will be chosen at random.<sup>22</sup> Each player A was then asked to write down his (her) name and the amount (s)he wanted to transfer to Player 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 will return next week to pay them.

In the second stage of the experiment, we similarly approached the students taking the role of player 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

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<sup>21</sup> At the time of the experiment, \$1= BEF 43.5.



were handed to the students (see Appendix 1 for the English translation of the instructions to Player B). The students were provided with exactly the same description of the experiment. They were also informed of the university of Player A, with whom they were matched (apart from the “Belgium” group), as well as of the sum (s)he had decided to forward to them. After filling in the questionnaires, 1 out of 50 students was paid confidentially and in cash.<sup>23</sup>

Table 1 presents the number of pairs that were matched according to their origin from a Flemish or Walloon university.

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

Table 1: The number of matched couples according to the University of Player A and of Player B.

The third group represents 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 in which Belgian university his/her counterpart

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<sup>22</sup> We chose to pay only 1 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.

<sup>23</sup> 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

studies (note that they were also told that this student was NOT from their own university).

|           |         | Student B |         |
|-----------|---------|-----------|---------|
|           |         | Flemish   | Walloon |
| Student A | Flemish | 13        | 12      |
|           | Walloon | 12        | 12      |

**Table 2:** The number of matched couples according to the university of Player A and of Player B. Note: these students did not know the university of their counterpart but only that (s)he was from another university in Belgium.

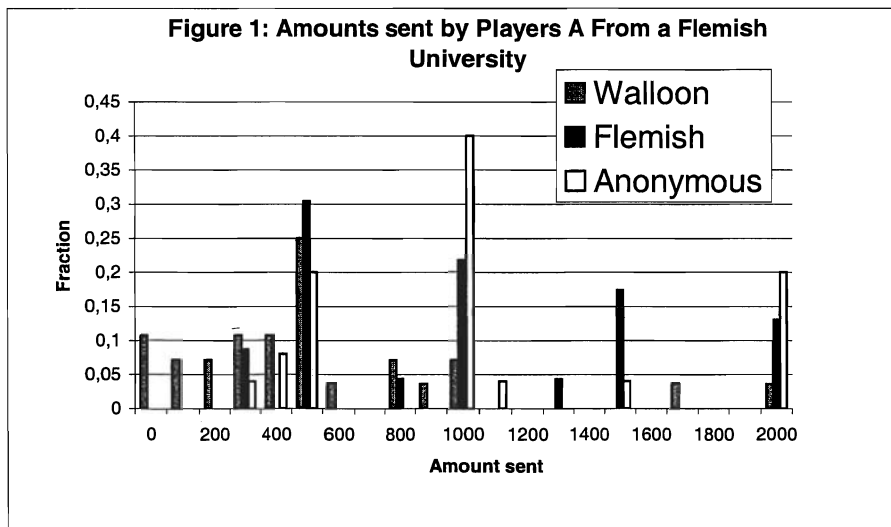
### **3.3. Results: Discrimination Against**

The outcome of the experiment is described in the following two figures. Figure 1 displays the distribution of money transfers by Flemish students, who were assigned as players A, to Flemish, Walloons and anonymous players with whom they were matched. Figure 2 displays the distribution of transfers given by Walloon students (player A) to Flemish, Walloons and anonymous students. These distributions provide direct evidence for the degree of ethnic segmentation in Belgian society. In particular, note that more than 40% of the Walloon students sent the full amount of BEF 2000 when they played with Walloon students. They thus achieved an efficient transfer and maximized the size of the pie. However, less than 10% of the Walloon students chose this strategy when they played with a Flemish student. Similarly, about 13% of the Flemish students sent the full amount when they played with Flemish students, whereas only 4% of the Flemish

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completed by people who know all three languages (English, French and Dutch) and speak the local

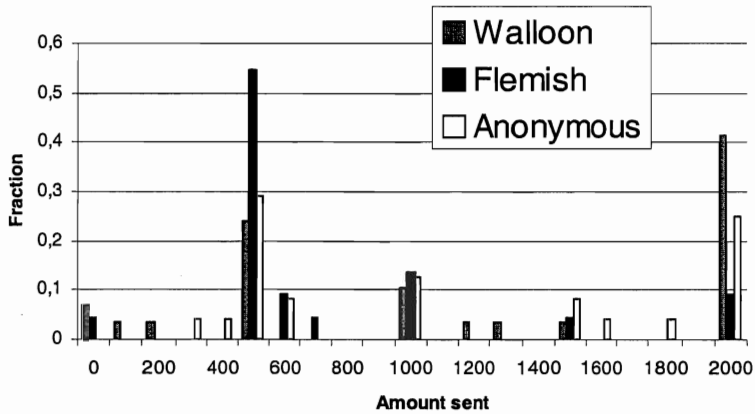
students sent the full amount when they played with the Walloon students. Consequently, the overall pie divided between the players is greater when the players are of the same ethnic group.




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language as their mother tongue.

**Figure 2: Amounts sent by Players A From a Walloon University**



**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 1009 while the average transfer to Walloon students was BEF 536. The average transfer of Walloon students to Walloon students was BEF 1200, while the average transfer to Flemish students was BEF 745. An analysis of variance shows that the differences are significant ( $F(1,51)=10.85$ ,  $P=0.002$  in the first case; and  $F(1,51)=5.85$ ,  $P=0.019$  in the second case).<sup>24</sup>

<sup>24</sup> We report the ANOVA test results, which is the standard analysis based on the normality assumption. In Appendix 2, 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.

In order to classify the type of discrimination found in Belgian society, we now compare the transfers made to the anonymous players to the transfers made to players with identified ethnic affiliations.

**Observation 2 (Discrimination Against):** The transfers made by Flemish players to anonymous players (average transfer of BEF 1050) were not significantly different from the transfers they made to Flemish players (average transfer of BEF 1010) ( $F(1,48)=.06$ ,  $P=0.810$ ). Similarly, the transfers made by Walloon players to anonymous players (average transfer of BEF 1120) were not significantly different from the transfers they made to the Walloon players (average transfer of BEF 1200) ( $F(1,53)=.18$ ,  $P=0.677$ ). Thus, the ethnic discrimination in Belgium can be characterized as “**discrimination against**” members of the different group.

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 player A believes that Player B will not share her gains. In order to consider this possibility, we examined the returns of Players B to Players 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 are sufficiently small, that is, they are less than the original amount transferred from Player A to Player B, then we can indeed say that the discrimination practiced by Players A is consistent with payoff maximization. In this analysis, we only consider the returns on sufficiently large transfers;

smaller transfers may be associated with a lack of trust and thus may lead to negative payoffs.

**Observation 3:** Considering the returns to students who had sent at least BEF 1500 to their partner, we find that Flemish students obtained an average returns of 19% on the amount they had transferred to other Flemish students, and a return of 54% on the amount transferred to Walloon students. Similarly, Walloon students received an average return of 17% on amounts transferred to Flemish students, and an average return of 48% on amounts sent to other Walloon students. Thus students had on the average a positive return on the transfers they made to other students including to students from other groups. We thus can conclude that within the context of our experiment, mistrust and small transfers reflect a taste for discrimination.

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

|                    |         | Student B (receiver) |         |                          |
|--------------------|---------|----------------------|---------|--------------------------|
|                    |         | Flemish              | Walloon | Total (weighted average) |
| Student A (sender) | Flemish | 4017                 | 3071    | 3498                     |
|                    | Walloon | 3491                 | 4400    | 4008                     |
|                    | Total   | 3760                 | 3747    | 3753                     |

Table 3: Average total payoffs to Players A and B (minimum payoff is BEF 2000; maximum is BEF 6000).

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:** (i) 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 1004. The difference is significant ( $F(1,102)=4.16, P=0.044$ ).

(ii) The economic consequence of such behavior is transparent (see Table 3). When Player A was Flemish the overall payoffs of both players were on the average BEF 3498 while when player A was Walloon the overall payoffs of both players was BEF 4008.

#### **4. Nepotism.**

We now move to consider the (ultra-orthodox) religious – secular segmentation in Israel. As will be shown the discriminatory behavior expressed by the ultra-orthodox minority in Israel is quite different in character.

#### **4.1 A Short Background on (Jewish) Religious-Secular Segmentation in Israel**

The ultra-orthodox Jewish population is a rather small and relatively isolated group consisting of approximately 9% 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 ultra-orthodox Jewish majority). Ultra-orthodox 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 ultra-orthodox 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, ultra-orthodox Jews are divided among themselves into different subgroups that reflect their members' geographic origin in the Diaspora, the rabbis and the theological schools they follow etc. We ignore these distinctions in this work despite their occasionally meaningful effects on intra-communal relations.

Part of the system of segregation between the ultra-orthodox 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 device 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 from an ultra-orthodox college in Jerusalem. The participants in the role of Player B were recruited from two other colleges in Israel: The Academic College of Tel-Aviv (a secular institution), and the ultra-orthodox college 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 the Belgian treatment except for minor locally determined details such as the sums that were given. After that the instructions for the experiment were distributed (see Appendix 1 for an English translation of the instructions. Payoffs were in NIS, with player A offered NIS 200, then equivalent to about BEF 2,000).

In the instructions, the participants in the role of Student A were 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 ultra-orthodox college in Ashdod. The third group was told that Player B was either from the ultra-orthodox college in Ashdod or from the Academic College of Tel-Aviv, each with a 50% 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 Belgium experiment.

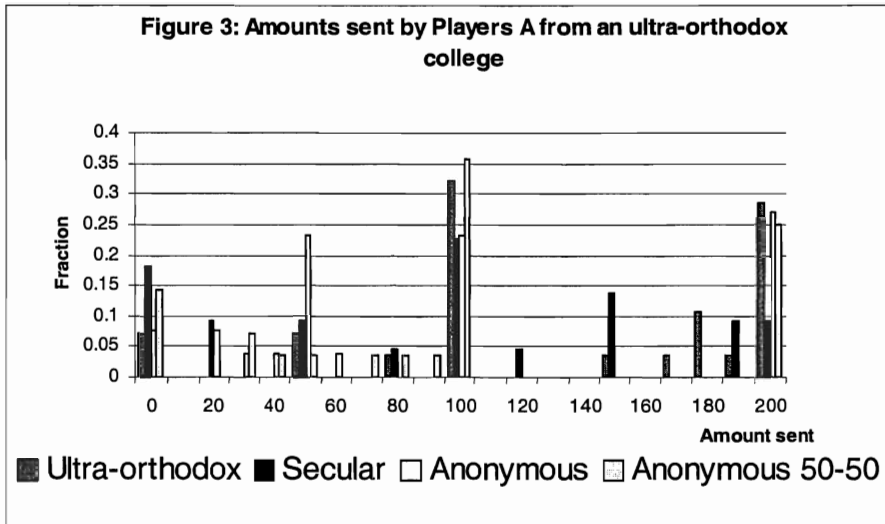
Table 4 presents the number of pairs that were matched according to the origin of player B.

|           |                 | Student B      |         |           |                 |
|-----------|-----------------|----------------|---------|-----------|-----------------|
|           |                 | Ultra-orthodox | Secular | Anonymous | Anonymous 50:50 |
| Student A | Ultra- orthodox | 28             | 22      | 26        | 28              |

**Table 4:** The number of matched couples according to the type of college attended by Player B and the information given about him to Player A.

### **4.3 Results**

The distribution of the sums transferred by ultra-orthodox players is provided in Figure 3. The four columns describe the four different types of students who took the role of player B. The first column describes the transfers to other ultra- orthodox players, the second the transfers to the secular players, the third to anonymous players from the general population, while the fourth column refers to transfers to anonymous players who were either from the ultra-orthodox college or from the Tel Aviv secular college (implying a 50% probability of belonging to the ultra-orthodox community).



**Observation 5:** The behavior of the ultra-orthodox Jews can be characterized as **nepotistic behavior**. The average amount of NIS 94.1 they transferred to secular players does not differ significantly from the average amount of NIS 95 transferred to anonymous players ( $F(1,48)=.00, P=0.965$ ) or from the average amount of NIS 99.6 transferred to anonymous players displaying a 50% probability of being another ultra-orthodox student ( $F(1,50)=.08, P=0.779$ ). At the same time, the amount they transferred to other ultra-orthodox students (which averaged 133.2) was significantly higher ( $F(1,50)=4.30, P=0.044$ ).

The roughly equal average transfers to secular and anonymous players and the significantly higher average transfers to ultra-orthodox players might still be attributed to the fact that secular players represent the majority of Jewish society, so that the

probability of an anonymous player being secular is high. Based on this alone, one can only conclude that some form of discrimination is operating, without being clear whether it concerns discrimination against or nepotism. However, in the treatment where the anonymous player is secular with only a 50% probability, transfers were insignificantly different from the transfers to the secular players. This implies that the discrimination is clearly of the nepotistic, favoring their own ultra-orthodox group.

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

**Observation 6:** Considering the returns to students who sent at least NIS 150, we find that ultra-orthodox students obtained an average return of 40% on the amount they transferred to other ultra-orthodox students, and a return of 29% 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 transfers to secular students are not consistent with payoff maximization and reflect nepotistic preferences.

## **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. We found evidence of nepotism in the Israeli society, and of discrimination against in the

Belgian society. Our results have implications for the efficiency of anti-discrimination measures, application of the anonymity rule in particular. In our setting cooperation is desirable; hence, discrimination against 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 where cooperation is socially harmful (e.g., 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 discrimination in different societies. The paper does not provide any answer to this question. Since we put the students in both experiments in an identical situation, the experiment itself does not provide any clue as to why nepotism appears in one society and discrimination against 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 ultra-orthodox 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 the above differences, the Belgian student accepts the possibility that an anonymous person belongs to his own linguistic group, while the ultra orthodox Jewish student's 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 where the probabilities of an anonymous player

being secular player is only 50%, the students' perceptions and their behaviour may still have been affected by their daily life experiences.

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## Appendix 1: **Instructions for Player 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 (s)he wants to send back to you any amount of the money (s)he 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 100 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 BEF0 and BEF2,000.)

**Instructions for Player 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 (s)he was asked to decide whether (s)he wants to send any amount out of this sum to you; and if so, how much (s)he 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 100 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 2. Statistical 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 | z=3.260             | .001 |
| 1                       | W          | W    | W          | F     | 455                         | F(1,51)=5.85  | .019 | z=1.878             | .060 |
| 2                       | F          | F    | F          | An    | -39                         | F(1,48)=.06   | .810 | z=-.223             | .824 |
| 2                       | W          | W    | W          | An    | 83                          | F(1,53)=.18   | .677 | z=.424              | .672 |
| 4                       | F          | F, W | W          | F, W  | -255                        | F(1,102)=4.16 | .044 | z=-2.068            | .039 |
| 5                       | U          | S    | U          | U     | -39.1                       | F(1,50)=4.30  | .044 | z=-1.938            | .053 |
| 5                       | U          | S    | U          | An    | -0.9                        | F(1,102)=.00  | .965 | z=-.126             | .900 |
| 5                       | U          | S    | U          | An50% | -5.5                        | F(1,102)=.08  | .779 | z=-.249             | .803 |

Notes: 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 BEFs. For Observation 5, the averages refer to NIS.

F=Flemish, W=Walloon, An=Anonymous, U=Ultra-orthodox Jew, S=Secular Jew, An50%=Anonymous with a 50% specification.