Fairness and Ethnicity in the Aftermath of Ethnic Conflict:
The Dictator Game in Bosnia-Herzegovina

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This study considers the effects of ethnic violence on norms of fairness. Once violence is a foregone conclusion, will cooperative norms ever (re-)emerge beyond ethnic boundaries? We use an experiment that measures how fairly individuals in a post-conflict setting treat their own in-group in comparison to the out-groups - in this case, examining the behavior of Muslims, Croats, and Serbs in post-war Bosnia-Herzegovina. To assess fairness, we use the dictator game wherein subjects make decisions about how to allocate a sum of money between themselves and an anonymous counterpart of varying ethnicity. In total, 681 subjects took part in the experiment in locations across Bosnia. We find that the effects of ethnicity on decision-making are captured by our experiments. Although results indicate preferential in-group treatment, the incidence and magnitude of out-group bias is much less than expected for a post-war environment. We conclude that norms of fairness across ethnicity are remarkably strong in Bosnia, and we take this to be a positive sign for reconciliation after violent conflict.

Introduction

Once a multi-ethnic society has emerged from a period of violent conflict, civil war and even genocide, can those who survive adopt norms capable of sustaining peace with former ethnic rivals and adversaries? While post-conflict societies remain largely untapped by behav©ioral researchers, recent literature underscores the importance of conducting field work in conditions of social conflict (Gibson 2002; Gibson and Gouws 2000). For example, Gibson (2004) examines how attitudes concerning tolerance in South Africa aided the pursuit of truth and reconciliation after decades of social repression under apartheid. Our research adds insight into the question of whether multi-ethnic societies overcome a legacy of violent conflict.

Our approach considers how fairness survives as a social norm following a recent history of violence. We focus on the way people treat their in-group and how they treat the out-group. We measure this norm behaviorally by observing how much money people choose to keep for themselves and how much they send to an anonymous, but ethnically identifiable, counterpart. We use a stratified random sample of subjects who reside in Bosnia-Herzegovina and who are making their choices eight years removed from a bloody civil war.

Our results show that a norm of fairness has survived (or rejuvenated) in Bosnia. Similar to results in other countries, subjects behave fairly toward a counterpart. Although we find that there is a distinct out-group effect, a norm of fairness persists. This gives us pause to consider that the sources of violence are rooted in larger institutional and entrepreneurial circumstances. We speculate that regular citizens quickly return to social norms once the fighting is over.

Motivation.

Can fairness persist or re-emerge in a multi-ethnic society following a bloody

civil war? We are unable to answer the question whether a norm of fairness was in place

prior to the Bosnian Civil War, whether it disappeared during the conflict or whether it

has re-appeared.[1] However, we can look at a cross section of time in which memories of

the conflict are vivid. We can draw inferences about the current state of intra-ethnic and

inter-ethnic relations concerning fairness and from that extrapolate whether healing has

occurred.

The process of healing may be particularly problematic when violent conflict

assumes ethnic dimensions. Hegre (2004) and Fearon (2004) point out that conflicts

involving ethnic cleavages are likely to last much longer than other forms of conflict.

Walter (2004) finds that conflicts involving ethnic cleavages are also more likely to recur.

Several explanations of the persistence and intractability of ethnic conflict have been

offered in the literature. First, the importance of ethnicity as a social marker has been

emphasized by a good deal of research (Hale 2004; Monroe, et al. 2000; Sanders 2002).

In a post-conflict environment, ethnicity is likely to remain the most credible marker

separating individuals. In societies where ethnicity is a highly salient maker, it can divide

people and lead them to behave positively toward their own in-group and negatively

toward an out-group (Horowitz 1985). Fearon and Latin (1996), however, point out that

ethnicity need not encourage violence if ethnic groups self-police and provide clear

expectations to those outside the group (but see also Bhavnani and Backer 2000). Relying

on ethnic self-policing, however, is generally considered to be unstable in the long-run, and post-conflict environments are clear examples of where self-policing has demonstrably failed to prevent violence at least once.

A second barrier to healing is posed by high levels of fear and uncertainty in post-conflict environments. Research indicates that fear and uncertainty are likely to increase distrust, competition, fears of victimization, and threat perceptions among ethnic groups which can lead to recurrent conflict (Bhavnani and Backer 2000; Hwang and Burgers 1999; Pearson 2001; Posen 1993; Roe 1999; Vanhanen 1999; Weingast 1998). Even if conflict does not recur, conditions of fear and uncertainty pose problems for rebuilding ethnic tolerance and norms of fairness. Threat perceptions, in particular, have been linked to intolerance in multi-ethnic societies (Gibson and Gouws 2001). Threat perceptions may also prohibit both associational and 'everyday' forms of civic engagement that can reduce tensions across ethnicity (Varshney 2001). In post-conflict environments, the salience of ethnicity as a social marker should be particularly strong, threat-perceptions are likely to be high, and fraternization across ethnic lines should be largely discouraged.

Why Fairness?

Given the explosiveness of ethnicity, why turn to understanding a social norm like fairness? On the one hand, social norms provide "common knowledge" in which everyone understands and anticipates the actions of others (Chwe 2001). As such social norms smooth everyday transactions. A shared norm that is widely held in the population

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[1] While we have no equivalent data collected prior to the outbreak of the Civil War, there is some attitudinal data showing that intolerance and prejudice was not widespread. In particular see (Burg and Berbaum 1989) and (Hodson, et al. 1994).

can defuse conflicts that might arise in daily life. Treating others fairly, even if they are

disliked, is one path to healing.

Unfortunately social norms can also serve to differentiate between the in-group

and the out-group. Norms practiced by one group can serve as a barrier to entry for

another group. Specialized ethnic norms serve both as a badge marking group

membership and as a course of action directed toward an out-group. If different ethnic

groups hold different norms or call for different behaviors for in- and out-groups, this is a

receipe for resuming conflict. Fearon and Laitin (1996) propose that even different norms

can lead to a degree of stability since all groups can easily predict behavior of others and

each group has incentives to enforce those norms.

This study asks a very simple question. Do ethnic groups from Bosnia exhibit

norms of fairness that are different for their own in-group than for an out-group? What is

of particular interest here is whether in-group members are treated differently from out-

group members. That is, do in-group members apply one norm to themselves and change

that norm when dealing with members of a salient out-group?   On its face, we expect

that deep-seeded hatred, rooted in ethnic violence and genocide, should be obvious. It

should show up in the ways in which individuals differentiate between norms for those

within and those outside their group.

Background.

The consequences of ethnic violence in Bosnia were devastating. In terms of

human costs, an estimated 250,000 civilians and combatants were killed in the course of

the war. At the end of 1995, over 2 million people - over half the population of a pre-war

population of 4.4 million based on the 1991 census - had been uprooted by the war and

were either living abroad as refugees or internally displaced across Bosnia.[2] Following

the nearly four year conflict, most ethnic Serbs, Croats, and Bosnjaks (Bosnian Muslims),

who were not living as refugees abroad, had settled behind their respective lines of

combat, and once multi-ethnic communities were effectively 'cleansed' by the conflict[3].

The current population of Bosnia-Herzegovina is approximately 4.4 million, of

which ethnic Bosnjaks constitute 48% of the population, Serbs represent 37.1 %, and

Croats 14.3%. Today, Bosnia is a multi-ethnic state, a federation, comprised of two sub-

state "entities"[4]: a Bosnjak-Croat Federation (hereafter: the Federation) and the Serb

Republic. The territorial boundaries of the two entities were carved out of the front lines

at the time of the Dayton Peace Agreement. While Bosnjaks and Croats share power

within the Federation, most municipalities are largely homogeneous. Although progress

is being made on the return of Bosnjak and Croat refugees, the Serb Republic is

homogeneously Serbian for all practical political purposes.

The past decade has produced a great deal of scholarship on Bosnia, most of

which has dealt with the origins of the conflict (Andreas 2004; Burg 1999; Campbell

1998; Gagnon 2004; Velikonja 2003; Woodward 1995) and the problems of

reconstruction in the postwar period (Bieber 2001; Bose 2002; Chandler 2000; Friedman

2004; McMahon 2004; Woodward 1999). Much of the scholarship consists of historical

narratives, chronicles of the conflict, elite profiling, and the enumeration of institutional

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[2] Estimates of war casualties and displaced persons vary widely. These are estimates cited by (Bisogno and Chong 2002). See (Tabeau and Bijak 2005) regarding the problem of estimating war-related deaths.

[3] The Dayton Agreement provides refugees with the right of return. The UNHCR provides annual reports on the resettlement of refugees. Although progress on resettlement has been made since the end of the war, most of Bosnia's regions are more characteristic of ethnic enclaves than mixed regions.

[4] In addition to the two entities, a special district around Brčko was created under the Bosnian constitution in 1999.

and social challenges facing post-war Bosnia. While a number of social scientists have

examined ethnic relations in Bosnia with data collected before the war (Burg and

Berbaum 1989; Hodson, et al. 1994; Kunovich and Hodson 2002; Sekulic, et al. 1994)[5],

less has been done to tap the attitudes and behavior of average citizens in the post-war

period. Exceptions to this point include Caspersen (2004) who finds that support for

nationalist parties in Bosnia has declined since the end of the war. Likewise Pickering

(2006), suggests that ethnic relations have improved in Bosnia because of new

institutions that have been put into place.   We expand on this scholarship, not only by

examining attitudes but also by bringing a well-known experimental design out of the

laboratory and into the field.

Experimental Design

One means for understanding the strength of ethnic divisions is to examine

whether different ethnic groups apply the same behavioral norm within their group and

outside their group. The problem with norms is that they are difficult to measure.

Camerer and Fehr (2004) discuss a variety of measurement instruments to test for social

norms. We turn to a somewhat novel method to measure a norm of fairness by

conducting an experiment on subjects who are paid for their behavior. This study uses an

experiment known commonly as a 'dictator game' to measure norms of fairness. The

experiment is also conducted "in the field" in locations convenient for the subjects.

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[5] Data collected before the war generally shows that nationalism, intolerance, prejudice was not widespread in Bosnian society, especially in ethnically mixed, urban areas. The main problem areas were generally rural ethnic enclaves and characteristic to all three groups.

The dictator game is commonly used in the field of behavioral economics and dates from the early 1980s.[6] The game is thought to tap altruistic behavior, although it also has been used to measure fairness in the allocation of resources. The dictator game is a one-stage game in which a subject (Player A) decides how to allocate a sum of money between him/herself and a second subject (Player B). The game derives its name because Player A can "dictate" the outcome of the game risk-free. Based on pure self-interest, Player A should keep all money, transferring nothing to Player B. However, considerable research finds that subjects generally transfer a nontrivial sum of money to the corresponding Player B under a wide variety of experimental conditions.[7] Whereas dictator experiments originated as a method of evaluating other-regarding behavior, they are increasingly used to measure perceptions of fairness as well as 'tastes for discrimination.'

Dictator games have been used to capture effects of ethnicity on norms of fairness. For example, Fershtman and Gneezy (2001) use it to calibrate concepts of fairness when analyzing trust behavior between ethnically mixed Israeli students. Bahry and Wilson (2004) use the dictator game to calibrate commitments to norms by different ethnic groups in Russia. Finally Habyarima et al. (2004) use it to examine ethnicity among students in Southern California, although they find mixed results.

Given that so many have conducted dictator game experiments, why go to Bosnia? First, most experiments have been run on homogeneous groups – a.k.a. student populations. Experiments run on populations are rare, although some work is notable.

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[6] Some of the first dictator game experiments were conducted by Kahneman et al. (1986). Dictator games are a simple adaptation of an ultimatum game proposed by Guth (1982).

One study, conducted by a large research team of anthropologists in 15 different

societies, demonstrated the diversity of norms when confronting a common set of

experimental games (see Henrich et al. 2004). For example Marlowe (2004) uses the

dictator game to replicate what is thought to be a norm of fairness in food sharing among

the Hadza, a hunter-gatherer tribe from Tanzania. Similar experiments have appeared in

political science. Duch (2004) embedded an experiment in a mass survey Benin in order

to tap a commitment to property rights norms. Bahry and Wilson (2006) examine

generational differences in two Russian Republics using a population sample and relying

on both survey research as well as laboratory experiments.

Second, researchers using behavioral experiment have rarely focused on ethnic

rivalry. This is not to ignore the substantial literature on in-group/out-group behavior.

Much of that literature focuses on racial relations in the United States although there is an

extensive literature from Europe that treats ethnic minorities and how the majority

regards them.[8] That ethnicity might trigger discrimination has not gone unnoticed by a

handful of social scientists using behavioral experiments with financial stakes. For

example, Glaeser et al. (2000) find differences between African-Americans and

Caucasians in trust propensities using a variation of the investment game. Fershtman and

Gneezy (2001), using Eastern and Ashkenazi Jews in Israel find decreased trust (at least

among males) when cued by an ethnic name. A similar finding emerges when South

African high school students are cued with a photograph of their counterpart and mixed

by racial groups (Burns 2003). Barr (2003) finds that trust varies between resettled and

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[7] See Roth (1995), Camerer (1997) and Camerer (2003) for comprehensive reviews of early and most recent empirical literature using dictator games. Also see Eckel and Grossman (1996), Hoffman et al. (1996) and (Fowler 2006) for a range of experimental conditions.
[8] See for example reviews by Duckitt (2003), Fiske (1998), Fiske (2000) and Brewer and Brown (1998).

traditional communities in rural Zimbabwe. The latter are marked by denser kinship relations and exhibit higher levels of trust in an investment game than do the more heterogeneous settlement communities. Eckel and Wilson (2004) find, among American students, that skin color is an important marker for initiating trust, with subjects much more likely to initiate a trust relationship with a lighter-skinned partner. Finally, Gil-White (2004) oddly finds that offers in an ultimatum game are higher for the out-group than the in-group. While this might be due to the difficulties in carrying out a complicated experiment in Mongolia, these results echo those found by Dawes et al. (1988) among students in the United States. By and large these findings support the extensive research from social psychology: in-group favoritism is the norm and out-group members are treated less favorably.

Third, this study is unique in that it looks at behavior in a highly charged environment. Not quite a decade ago, Bosnia's ethnic groups were fighting each other in a brutal war. To end the war, Muslims, Croats, and Serbs agreed to share power in the framework of an independent, multi-ethnic state. Common knowledge about postwar Bosnia suggests that ethnic politics have been more strained and contentious than cooperative, yet there has been little systematic attempt to examine the extent to which ethnic divisions run deep in the daily life of postwar Bosnian society.

Sampling and Design.

The dictator games used in this experimental design are part of an extensive study conducted in Bosnia by the first author from September 2003 through January 2004. We briefly detail the design of that study and point to how the dictator game fits into the

overall study. A private entity, Mareco Index Bosnia, recruited participants for this project.[9] The firm carried out a multi-stage, stratified random sampling method for recruiting subjects. The sampling plan called for relatively equal numbers of Bosnjaks, Croats, and Serbs to participate in the study. Additional quotas were included for each sample point to ensure sufficient distribution by gender, education, and age. Recruiters followed a specified selection mechanism for participants until a sufficient number were obtained to fulfill the quota requirements for each experiment session. All subjects were recruited within one week prior to the date of the designated group session. Sessions in the experiment were conducted in groups of 18 to 29 participants and sessions took place in hotels, local cultural centers, or schools.

Each session was directed by a local experimenter and assisted by the first author. As subjects arrived for the experiment, they were verified by their "invitation letter," randomly seated and given a "Consent Form" to read. Anyone who did not wish to participate in the experiments at this point was paid a show-up fee of 10KM ($5.50 USD) and asked to leave. Those subjects who consented to participate in the research project were given a unique identification number that was used in the session.

At the beginning of each session, subjects were greeted by the experimenter, who read from a standard script. The experimenter at this point publicly destroyed the materials used to verify the identities of those who had been recruited. This made it clear that there was no information that could be used to personally identify participants in the research – only a randomly assigned identification number.

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[9] Mareco Index Bosnia is a member of the World Association of Public Opinion (WAPOR), the European Society for Opinion and Marketing Research (ESOMAR), and the American Marketing Association (AMA). The firm conducted the last World Values Survey in Bosnia and is experienced in conducting both academic as well as marketing research.

The experimenter first guided the subjects through a fifty-item questionnaire. Special assistance was provided to participants who had difficulty or required more time to answer questions. All spoken and written materials used by participants were translated into Serbo-Croatian. Serbs from the Serb Republic were provided with materials in the Cyrillic alphabet.

Once the survey was completed and collected the experiment was run. Five different variations of dictator games were used. The first two provide baseline measures of fairness norms within the same ethnic group. The remaining three tasks involved similar decisions with selective variation over ethnicity.

The focus of this paper is with two of the dictator games. In the first dictator game, referred to hereafter as D-1, Player A (i.e., the "Allocator") and Player B (the "Recipient") are of the same ethnicity and reside in the same federal entity of Bosnia: either the Federation or the Serb Republic[10]. The subject is given 10 Bosnian Convertible Marks (KM) and 10 blank slips of paper that were the same size as the bank notes. Subjects decided how to allocate the money and the blank slips between themselves and an anonymous recipient. The recipient is not physically present in the session; instead, information about the Recipient's ethnicity (Bosnjak, Croat, or Serb) and entity of residence (Federation or Serb Republic) is presented to the subject on an envelope marked "SEND." Subjects are instructed to place 10 items in both the KEEP and SEND envelopes. Whatever is put in the KEEP envelope is taken home. Whatever is placed in the SEND envelope is given to a recipient whose ethnicity is specified on the envelope at a subsequent experimental session.

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[10] It was possible to determine the ethnicity of each subject based on the screening survey used in the sampling process. Subjects were not asked their ethnic affiliation during the experimental session.

The second dictator game, hereafter referred to as D-2, is similar to D-1, except that in this game, the anonymous recipient is ethnically different from the subject. Subjects are again asked to allocate 10KM and 10 blank slips of paper between KEEP and SEND envelopes. The SEND envelopes are marked as going to an individual of a specific ethnicity and place of residence. Subjects are told the recipient will participate in a future experiment. In both D-1 and D-2 the SEND envelopes were given to the appropriate recipient at a different session.

This experimental design allows a within-subject comparison of D-1 and D-2. Differences in the amount sent in D-1 and D-2 measure the effect of ethnicity. For example, a subject may chose to transfer nothing to a corresponding recipient in both games, in which case it is unlikely that ethnicity plays a role. Likewise there is no evidence of ethnic bias if the subject transfers the same amount in both D-1 and D-2. However, if the subject transfers more to the recipient of same ethnicity in D-1 than to a recipient of another ethnicity in D-2, then the difference between D-2 and D-1 constitutes a measure of ethnic bias. In keeping with much of the literature on out-group bias we expect subjects to send more money to co-ethnics in D-1 than to those of a different ethnicity in D-2.

Overview of the Data

Data were collected in September 2003 and January 2004. A total of 681 subjects participated in 30 sessions[11]. Of this number 338 participated in 15 sessions in the September round and the remaining 343 subjects took part in 15 sessions in the January

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[11] Sessions were held in the following areas in Bosnia: Sarajevo, Mostar, Tuzla, Banja Luka, Zenica, Travnik, Novi Travnik, Livno, Capljina, Siroki Brijeg, Doboj, Gorazde, Prijedor, Pale, Bijeljina, and Brcko

round. In each period a total of 390 respondents were contacted, completed a screening survey and agreed to participate in the experiment. The turnout rate in September was 86.7% (338 out of 390) and 87.9% (343 out of 390) in January. Subjects who participated earned an average of $13.80 USD from their decision-making in the experiments (st. dev = $2.40, max = $16.60, min = $5.50). This is a considerable sum because daily wages in Bosnia at the time averaged between $5 and $10.

Quotas on ethnicity, gender, age, education, and urban-rural residence enabled us to obtain a remarkably heterogeneous sample population. Although Croats constitute only 15% of Bosnia's population, the quota ensured equal numbers of Bosnjaks, Croats, and Serbs in the study. The study includes an almost equal percentage of male and female subjects. The initial quota under sampled older subjects, due to a concern that the instruments might be too complicated. This proved not to be the case and older subjects were solicited at equivalent population rates in the latter half of the research. The distribution in education is consistent with that of the Bosnian population and the high percentage of unemployed persons in the study (28.1%) is also characteristic of the unemployment situation in the country. Finally, there are more urban participants in this study than rural because sessions were located either in the centers of major cities or small towns for a number of practical reasons. Generally the sampling quota provides a broadly heterogeneous sample of the population.

Analysis

The data analysis consists of three parts. The first part examines cooperative norms within the same ethnic group. The second part considers whether behavior changes

when ethnicity is varied in the second task. Finally, to be certain that subjects responded to the treatment, individual differences are examined with a multivariate model.

Cooperative Norms within the Ethnic Group

In the first experiment, D-1, subjects decide how to allocate 10 Bosnian Convertible Marks (10KM) and 10 blank slips of paper between themselves and someone of the same ethnicity and who lives in the same entity of Bosnia-Herzegovina. The average amount of money sent in D-1 to recipients of the same ethnicity was 2.90KM (sd = 2.35). Most participants (65.5%) sent non-trivial amounts of money in D-1 (2KM or greater) to a member of the same ethnic group. While these figures may seem high, they are in line with results reported in many other countries among student populations.[12] Only 19.4% of participants chose to keep all 10KM and (25.3%) split the amount, keeping 5KM for themselves and sending 5KM to the recipient. Finally, 2.8% of subjects behaved as pure "altruists", sending all 10KM to the recipient. Figure 1 gives the distribution broken out by ethnicity of the recipient.

<Figure 1 About Here>

The figure shows that the between ethnic distributions are different. This is supported by a test for the difference in distributions between the groups (Kruskal-Wallis χ^2= 12.19, p = 0.002). On average Bosnjaks sent the most and Croats the least. Without over-interpreting the differences among the three ethnic groups, Croat subjects appear more 'socially distant' from their own in-group than Bosnjaks and Serbs.

The purpose of the first decision was to establish a baseline measure of a norm of intra-ethnic fairness. While there is considerable within group heterogeneity (and

between ethnic group differences), the amount sent provides us a measure of fairness within the ethnic group. Overall the modal response is to split the money.

Fairness Across Ethnicity

In the second decision the ethnicity of the recipient is manipulated. Each subject decides how to allocate 10KM and 10 blank slips of paper between him/herself and someone of another ethnicity in Bosnia. The ethnicity of the out-group recipient was randomly assigned. As noted in a prior section we expect an out-group effect. Moreover because of the recency of inter-ethnic hostility we expect this out-group effect to be magnified. We expect little to nothing to be sent to the out-group.

There are four important results from this decision. First, there is a good deal sent to non-co-ethnics (those in the out-group). Second, less is sent in the second decision than in the first. Third, there is variation among the ethnic groups as to what is sent. Fourth, there is a great deal of individual heterogeneity in decisions. Figure 2 provides the distribution of choices for both the first decision and the second decision, aggregated across all ethnic groups. As can be seen from figure 2 subjects send non-zero amounts to their out-group counterpart. On average 2.23 KM is sent, with slightly over 18 percent of the subjects splitting the amount in half. This is not what is expected if ethnic groups persist in their hatred of one another.

<Figure 2 About Here>

However, it is not the case that the out-group is treated the same way as the in-group. This too can be seen from figure 2. One point that is clear is that the percentage

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[12] In a meta survey by Camerer (2003) the average amount sent in equivalent experiments is around 30% of the endowment.

of subjects sending nothing increases. At the same time the percentage of equal splits decreases markedly. What is clear from the figure is that less is sent in the second decision. There is no doubt that subjects differ in what they think is fair for their co-ethnics and an out-group and this is simple to show. Because we have a within subjects design, a paired t-test of what was sent in the first and second decision indicates that the difference is significant and in the expected direction (t=11.08, df=679, p<.001).[13]

Third, we again find differences between Bosnjaks, Croats and Serbs as to what they send. This decision mirrors the first in that Croats send the least when compared with either Bosnjaks or Serbs. A non-parametric Kruskal-Wallis test of the distributions shows that the three ethnic groups differ in what they send ($\chi^2(2)$= 5.84, p = .05). The right half of table 1 provides the means and standard deviations for what is sent. On the left half of the table are the pairings of the subjects (including the first task in which subjects are paired with same ethnic counterparts). The table points out that Croat subjects sent less money to others than Bosnjaks or Serbs. However, Croats also sent less to members of their own ethnic group in D-1 on average than Bosnjaks and Serbs. Consequently we do not conclude that Croats are necessarily more discriminating than Bosnjaks or Serbs.

<Table 1 About Here>

It may be that the means mask differences in the distributions. Figure 3 provides a box and whisker plot of the amounts sent.[14] Overall, the plots point to a great deal of

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[13] A more appropriate test is a nonparametric Wilcoxon matched-pairs test. Using that test we reach the same conclusion: what subjects do in the first decision is different than what they do in the second decision. Here z=12.12, p<.001.

[14] A box and whiskers plot illustrates several properties of a distribution. The "box" spans the interquartile range (from 25% to 75% of the distribution) while the line in the box is the median of the distribution. The "whiskers" represent the lower extreme (left) and upper extreme (right) of the data. The absence of a

variation in the amount sent both within and across the different ethnic groups. For Bosnjaks and Serbs, the amount sent to the in-group is clearly higher. The medians are larger and the distributions are broader. Both groups send less to individuals who are Croats than to one another, at least when comparing the medians. For Croats the pattern is different. The medians are clearly the same for in-group and out-group members. However, the variance is larger for Croats sending to other Croats.

<Figure 3 About Here>

Finally, it is clear that subjects are not simply making a rote choice. That is subjects understand the task and they are making systematic adjustments in their choice. If subjects simply did not think about the tasks then the first and second decisions ought to look the same. While 55 percent of the subjects do exactly the same thing in both decisions,[15] the remaining 45 percent of the subjects shift between the first and second decision. Figure 4 provides box and whiskers plots of the difference between the second and first decision broken out by the ethnicity of the target for all subjects. This figure illustrates that there is substantial within subject variation in choices. The median in all cases is at zero, but as can be seen from the plots, the bulk of the distribution is negative. In other words, most subjects are giving less to their non-ethnic counterpart than they gave to co-ethnics.

<Figure 4 About Here>

Patterns of Ethnic Discrimination

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whisker on the right side in Figure 3 indicates that the lower extreme and lower quartile are the same. Dots to the left of the box plot indicate single data points that fall far enough out of the range of other values that they are treated as outliers.

[15] Of this group 31.3 percent send nothing in both decisions and 26.5 percent always send exactly half.

What we have found so far is unexpected. We find considerable fairness both within and between ethnic groups. It may be that this is merely an effect of the instrument that we use. The dictator game may be a poor measure of a fairness norm. If so, then there should be no individual correlates linking differences in the first and second decision task. That is, people who strongly dislike non-co-ethnics ought to be no different than those who have no antipathy toward non-co-ethnics when making allocation decisions. In this section we test the robustness of the dictator game in light of individual characteristics.

In the analysis detailed below we use multivariate models to look at individual characteristics for the decision to give more, less or the same to others. The dependent variable is the difference between what was sent in D-2 and D-1. The dependent variable ranges from a minimum value of −10 (where subjects sent 0KM to the out-group recipient and 10 KM to the co-ethnic) to a maximum value of +10 (0KM to the co-ethnic and 10KM to the out-group recipient). A value of zero in the dependent variable signifies that subjects sent the same amount to out-group recipients and co-ethnics. Hence, the dependent variable ranges from extreme in-group over out-group bias (-10) to equal treatment (0) to extreme out-group over in-group bias (+10).

On the right hand side of the equations we first include three control variables. The first is the amount sent in the first decision. This obviously has an impact on the estimates. For example, those subjects who sent nothing in the first decision are unable to send less to their counterpart in the second. We expect that what was sent in the first decision has an impact on what is done in the second. We also control for the age of the subject. In related research, Bahry and Wilson (2006) show there is a strong relationship

between age and what people send.[16] Finally, others, particularly in the United States,

have found that the gender of the counterpart matters (c.f., Eckel and Grossman 1998).

Females typically send more than males in the dictator game. We include a dummy

variable for whether the counterpart was female.[17]

The measure of out-group threat perception is taken from items tapping the degree

to which the subject feels safe around others of a specific ethnic type. The question was

asked for each ethnic group and is measured as a four-point scale ranging from "very

safe" to "highly unsafe." We use the response for the ethnic group with whom the

subject was matched in the second decision. Threat perceptions have traditionally been

related to intolerance, distrust, and recurrent violence (Posen 1993; Weingast 1998).

We also estimate separate models for attitudes about the in-group. We first use

subjects' attachment to their in-group that is measured with a single item asking "In

general, how important is your ethnicity to you?" There are three response categories

ranging from not very important to very important. We expect that those who do not

think ethnic identity is important are less likely to differentiate across ethnicity in the

experiments than subjects, for whom ethnicity matters. We also expect that the ethnic

composition of the experiment session may affect behavior. Posner (2004) points to

different behavioral strategies taken by people depending on their context. Those in the

minority in their group session should behave differently than their ethnic counterparts

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[16] In results not reported here we tried a variety of non-linear specifications with age. None added to the explained variance.

[17] We excluded other contextual variables relating to specific conditions in Bosnia (education levels, urban-rural differences, employment and unemployment, voting intentions, etc.). Such variables are outside our interest in this manuscript. We demonstrate that the dictator game captures decision-making based on ethnic considerations, and the results we observe are not based on flaws in the experimental design. In other models we include these variables as a robustness check on our estimators. We also checked for sessional effects and ran a variety of fixed effects models. None of these alternative specifications affect our conclusions. Consequently we report the reduced form models here.

who are the majority of their group. In approximately half the sessions, everyone taking part was of the same ethnicity, hence always in the majority. In other sessions, subjects were of different ethnicity and in various proportions to one another. It should be noted that Bosnjaks were seldom a minority in any of the mixed-group sessions, while Croats and Serbs often represented less than 30% of the group. Our measure calculates the percentage of in-group participants per session. We expect that deference to majority out-groups increases with ethnic heterogeneity in the mixed-group sessions.

As a final control variable we include a dummy variable for the type of ethnic partner in the second decision. Because there were two out group ethnic types for each subject, this is treated as a dummy variable and we focus on Croats and Serbs. Table 2 provides summary statistics on these dependent variables.

Given that we observe between ethnic differences we expect interactions and as a consequence we estimate separate OLS equations for each ethnic dictator. We run three models for each ethnic group. Model 1 focuses on out-group threat perception, Model 2 focuses on in-group solidarity and Model 3 contains the full specification. For all three models and all three ethnic groups, the amount allocated to a counterpart in decision 1 is negatively related to what is sent in decision 2. This is no surprise, since we have already seen that very few subjects were likely to send more in the second decision. Across all three ethnic groups the effect of gender is insignificant in all of the models. We find a positive correlation between age and a shift in fairness among Serb subjects, and marginally among Bosnjak subjects.

<Table 3 About Here>

The picture changes when we look at individual measures of threat perception of out-groups. The behavior of all three ethnic groups vary with threat perception. Subjects who felt threatened by their ethnic counterparts are likely to send less. This is not strongly influenced by the specific ethnic pairing. For example for Bosnjak subjects, the difference in having a Serb or a Croat recipient in the second experiment is negligible in terms of out-group fairness. This same is true for Croat and Serb subjects. We do not observe strong preferential treatment of one out-group compared to another. Hence, Model 1 reveals significant out-group effects in terms of perceptions of threat.

Model 2 turns to in-group solidarity. As attitudes vary with respect to the importance of in-group ties, so does the likelihood that subjects will change what they send to a counterpart. We find no effect for group composition. This pattern is unexpected, because as minorities become majorities within their group, in-group solidarity increases and out-group members are treated poorly. If we look only at group composition and ignore in-group solidarity, we find weak effects for group composition. We conclude that what is important here is the degree to which people think that in-group ties are paramount. However, this matters for less than a third of the population in each ethnic group.

Model 3 is the full model and contains the estimates for both the in-group and out-group measures. The model shows that the primary effect is due to subjects' sense of in-group solidarity. Those individuals who believe that their ethnicity is very important are likely to shift their behavior.

The estimates we produce in Table 3 lead us to conclude that there are systematic variations in behavior for these subjects. This leads us to think that the dictator game is

measuring fairness toward both the in- and out-groups. The heterogeneity we observe in

the data is due to individuals with extreme views about the trustworthiness or threat of

non co-ethnics and who regard their own ethnicity as paramount. These individuals are

the least likely to be fair toward the out-group. The bulk of the other subjects adopt

simple rules of fairness toward both their own ethnic group and non-co-ethnics. Thus we

are left with our earlier finding that there is a considerable amount of fairness both within

and between ethnic groups.

Conclusion

We find strong evidence for a norm of fairness across ethnicity in the aftermath of

Bosnia's civil war. This has important implications for understanding the manner in

which people resume their normal life. Rather than imagining that ethnic enclaves will

be cemented into place with no intra-ethnic contact, these findings indicate that a norm of

reciprocity can emerge (or be sustained) even following a bloody civil war. While

individuals may view one another with suspicion, most are willing to engage in indirect

reciprocity – taking a costly action in which a later benefit does not directly accrue. This

does not imply that the past is forgiven, it merely points out that people rely on and

understand simple norms for the conduct of their daily lives. Putnam (2000), among

many others, points to the importance of simple norms like fairness and trust as important

for ensuring social and political cohesion.

In a narrower sense, we think that it is important to rely on behavioral as well as

attitudinal measures when focusing on questions of social norms. We find that the

dictator experiment is valuable for detecting ethnic bias. Only relying on attitudinal

measures may be misleading in that it costs people very little to reply to an abstract question about how others should be treated. In the research reported here people make choices for which they bear real costs. Indeed, the sums used in the experiment were non-trivial for subjects – often amounting to as much as a day's wage. At the same time we find that the attitudinal measures collected during the experiment are helpful in informing what we behaviorally observe.

It is not the case that everyone is fair to both co-ethnics and non-co-ethnics. There is a considerable amount of heterogeneity in individual choices. We find that that there is a great deal of positive in-group bias and negative out-group discrimination. This, of course, is expected and such findings are rife in the social psychology literature. But, the patterns are not merely due to an in-group effect. Our multivariate analysis points out that those who are most committed to their in-group identity are also the least likely to be fair to the out-group. Ethnicity matters in a post-conflict environment and in-group attachments and out-group perceptions effect individuals' commitments to simple norms of fairness.

On a positive note, given what we know about ethnicity and violence and what we know about the context of Bosnia, we conclude that a norm of fairness is stronger than expected. Though we find that ethnicity still matters, it does not preclude the extension of norms of fairness beyond co-ethnic boundaries for most subjects in our sample. This lends great credence to the argument that the roots of the Bosnian conflict lie in institutional and entreprenurial factors rather than enduring ethnic hatreds (Woodward 1995 and Gagnon 2004). We are not claiming that all is good and well in post-war Bosnia. Our results suggest that opportunism against out-groups is still a problem in

Bosnian society. It is something that Bosnjaks, Croats, and Serbs all need to work to overcome. In particular, we need to know what kinds of institutions in Bosnia are helping and/or hurting in this process[18].

Finally, we believe that our methods and our findings have implications for many avenues of future research beyond Bosnia. One, which we emphasize, is that if individuals are capable of treating each other fairly despite a history of violent confrontation, this, in itself, must be considered a positive sign for social tolerance, trust, and possibly reconciliation.

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[18] Woodward 1999 raises a number of great questions for further research along these lines.

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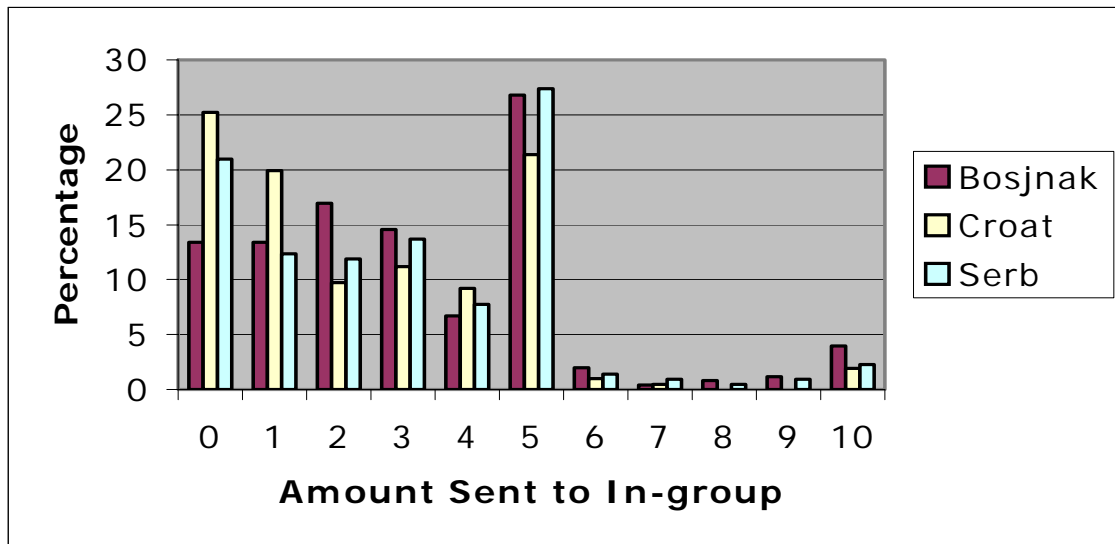Figure 1 Distribution of amounts sent in dictator game to in-group recipients.

Figure 2. Overall distribution of what was sent to in-group vs. out-group counterparts in Decision 1 and Decision 2.
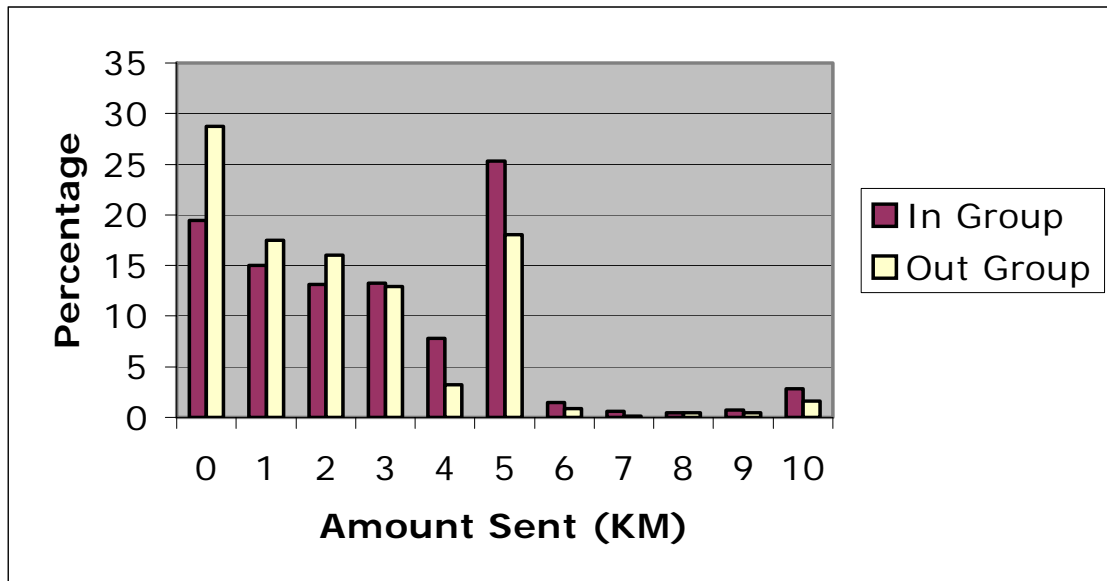
Figure 3. Box and whiskers plots of the amounts sent to counterparts broken out by ethnicity of sender and recipient. Decision 1 (in-group) amounts are same ethnicity pairings, while Decision 2 (out-group) amounts are across pairings.
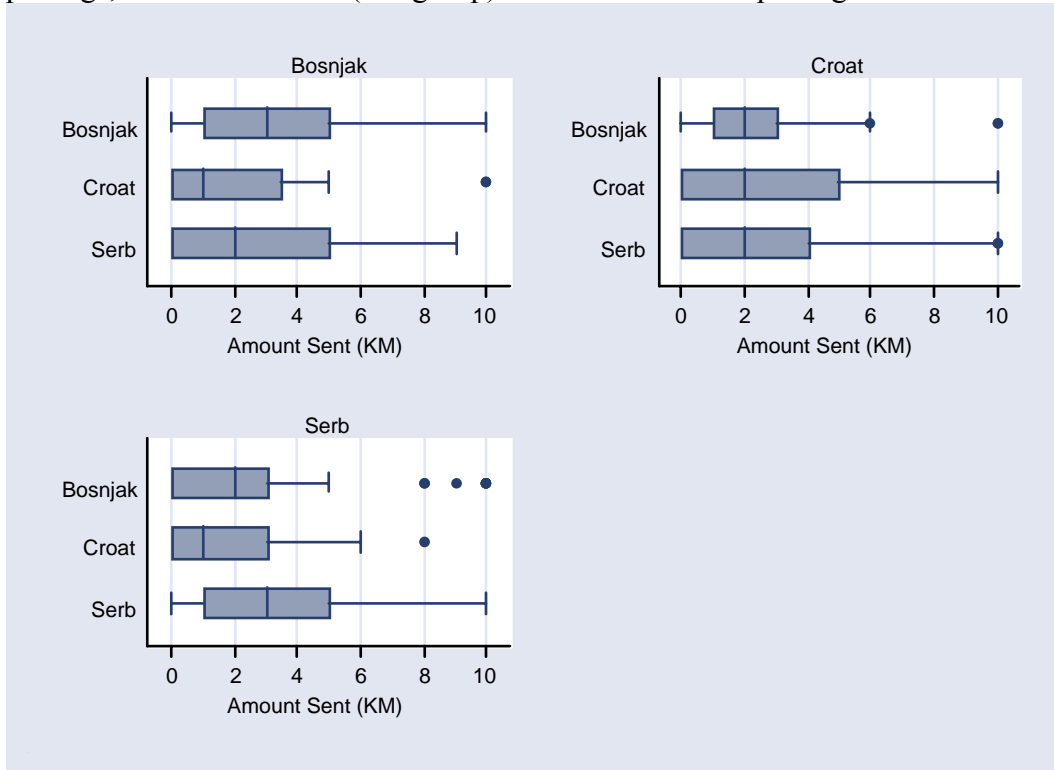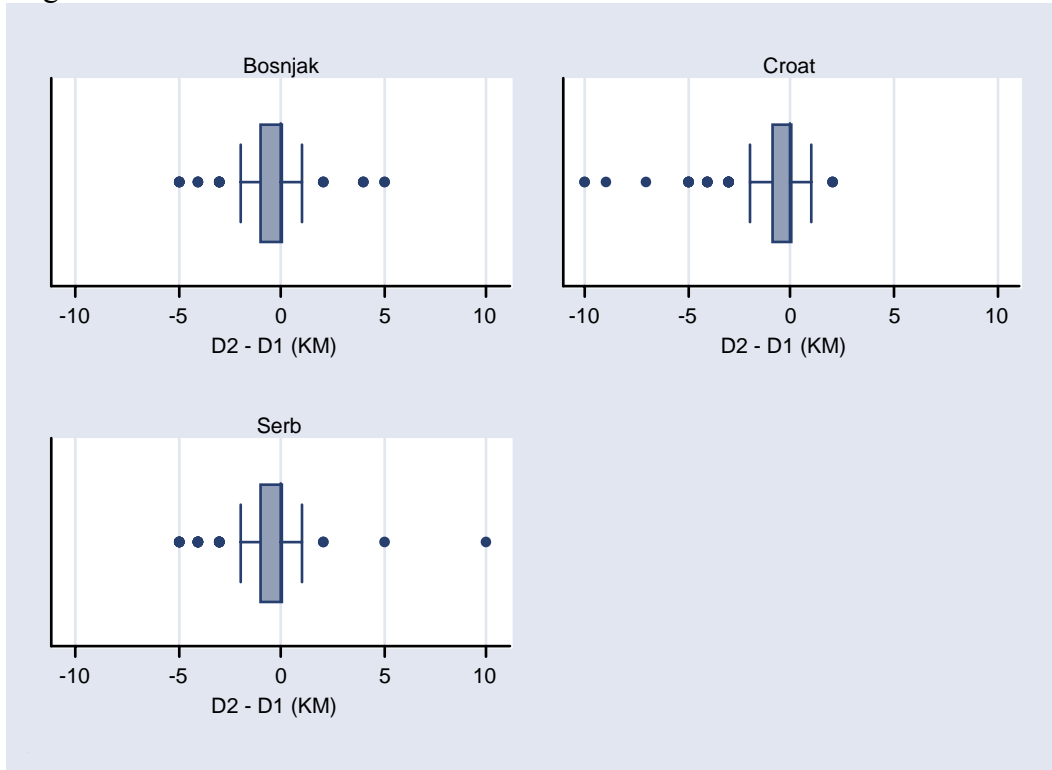
Figure 4. Box and whiskers plots of the difference between what was sent in the second and first task. Each ethnic category represents the ethnic target of the second task. Negative values indicate less was sent in the second decision.

Note: Horizontal Axes are the difference between the 2nd and 1st decisions (D2 – D1) in Bosnian Marks (KM)

Table 1. Average allocations by ethnicity of the subject and recipient. The bolded rows are the co-ethnic allocations from the first decision. The remaining rows are the average allocations to out-group members.

Ethnicity of Subject	Ethnicity of Recipient	# Recipients	Mean	SD
Bosnjak	**Bosnjak**	**254**	**3.22**	**2.41**
Bosnjak	Croat	119	2.33	1.99
Bosnjak	Serb	133	2.39	2.46
Croat	**Croat**	**206**	**2.45**	**2.22**
Croat	Bosnjak	104	1.99	2.21
Croat	Serb	101	1.86	1.94
Serb	**Serb**	**219**	**2.95**	**2.35**
Serb	Bosnjak	111	2.39	2.19
Serb	Croat	107	2.25	2.21

Table 2. Summary statistics of variables used in the multivariate analysis. These data are broken out by the ethnicity of the subject. Cases with missing data are excluded in order to match the estimates reported in Table 3.

Variable	Bosnjak Subjects			Croat Subjects			Serb Subjects		
	N	Mean	St. Dev	N	Mean	St. Dev	N	Mean	St. Dev
Difference in Allocations[a]	252	-0.87	1.74	203	-0.51	1.48	216	-0.62	1.50
Amount Sent D-1[b]	252	3.24	2.41	203	2.47	2.23	216	2.96	2.36
Age[c]	252	34.39	12.27	203	36.09	14.28	216	36.49	13.70
Female Subject[d]	252	0.46	0.50	203	0.54	0.50	216	0.46	0.50
Out-Group Threat[f]	252	2.21	0.85	203	2.26	0.86	216	2.39	0.83
Ethnic Ties[h]	252	2.19	0.69	203	2.15	0.68	216	2.06	0.62
Session In-group %[i]	252	68.60	22.80	203	69.10	33.18	216	85.72	29.62
Serb Other[j]	252	0.53	0.50	203	0.49	0.50	-	-	-
Croat Other[k]	-	-	-	-	-	-	216	0.49	0.50

Notes:
[a] Dependent variable (-10 = extreme in-group over out-group bias, 0 = Sent same amount, +10 = extreme out-group over in-group bias)
[b] Amount of money sent in D1, ranging from 0 to 10
[c] Subject age in years, ranging from 18 to 77
[d] Dummy variable coded 0 = Male Subject, 1 = Female Subject
[e] Dummy variable coded 1 = Unemployed Subject, 0= employed, student, retired, not seeking employment
[f] Question reads "In general, how safe do you feel being around the following people?" [Bosnian Serbs, Bosnian Croats, Bosnjaks/Bosnian Muslims] Response categories are 1 = Highly Safe, 2 = Generally/Somewhat Safe, 3 = Generally/Somewhat Unsafe, 4 = Highly Unsafe
[g] Question reads "Generally speaking, do you think the following people would try to take advantage of you if given the chance?" [Serbs (In general), Croats (in general), Bosnjaks (in general)] Response categories are 1 = Definitely Not, 2 = Probably Not, 3 = Probably Yes, 4 = Definitely Yes
[h] Question reads "In general, how important is your ethnicity to you?" Response categories are 1 = "It is not very important at all to me", 2 = "It is Important, but not the most important thing for me," 3 = "My ethnicity is an important part of who I am"
[i] % of In-group subjects taking part in each group session
[j] Dummy variable coded 0 = non-Serb counterpart in 2nd decision, 1 = Serb counterpart in 2nd decision
[k] Dummy variable coded 0 = non-Croat counterpart in 2nd decision, 1 = Croat counterpart in 2nd decision

Table 3. OLS estimates of the difference of between what is sent to a non co-ethnic and a co-ethnic (D-2 – D-1) broken out by the ethnicity of the allocator. Three models are estimated for each ethnic group.

	Bosnjaks			Croats		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Decision 1	-.340***	-.335***	-.341***	-.285***	-.270***	-.278***
	(.041)	(.041)	(.041)	(.043)	(.042)	(.042)
Age	-.001	-.004	-.004	.008	.005	.005
	(.008)	(.008)	(.008)	(.007)	(.007)	(.007)
Female	-.223	-.187	-.204	-.005	.040	.023
	(.195)	(.195)	(.195)	(.188)	(.186)	(.186)
Threat	-.228**		-.167	-.249**		-.158
	(.116)		(.119)	(.110)		(.116)
Ethnic Ties		-.369***	-.317**		-.341**	-.274*
		(.143)	(.145)		(.140)	(.148)
In-Group %		-.003	-.003		-.004	-.004
		(.004)	(.004)		(.003)	(.003)
Serb Other	.144	.120	.127	-.262	-.282	-.267
	(.195)	(.195)	(.194)	(.189)	(.187)	(.186)
Intercept	.791*	1.350**	1.649***	.618	1.116**	1.331***
	(.451)	(.586)	(.622)	(.415)	(.467)	(.492)
r^2	.21	.22	.22	.19	.21	.21
N	252	252	252	203	203	203

	Serbs		
	Model 1	Model 2	Model 3
Decision 1	-.292***	-.284***	-.297***
	(.039)	(.041)	(.041)
Age	.014**	.014**	.013*
	(.007)	(.007)	(.007)
Female	-.017	-.032 (.185)	-.027
	(.184)		(.183)
Threat	-.331***		-.241**
	(.112)		(.123)
Ethnic Ties		-.417***	-.308*
		(.160)	(.168)
In-Group %		-.001	.000
		(.003)	(.003)
Croat Other	-.251 (.182)	-.224	-.244
		(.182)	(.181)
Intercept	.666	.771	1.134**
	(.431)	(.470)	(.502)
r^2	.21	.21	.22
N	216	216	216

*** Significant at $p \le 0.01$, ** Significant at $p \le 0.05$, * Significant at $p \le 0.10$