Evidence for Out-Group Altruism in the Aftermath of Violence

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Abstract: Altruism among humans is common. It is especially prominent among members of parochial groups. We experimentally test for altruism with out-group members. Those out-group members have a different ethnic or religious background. In all instances the groups were rivals in Civil Wars. We find almost no altruistic behavior among groups currently engaged in fighting. However, altruism emerges with the passage of time. Our findings make clear that hostility between groups need not persist over time.
Humans appear to be well suited to band together in groups to eliminate other groups. Cooperation with one’s in-group is well documented and altruistic behavior within group is regarded as a key element sustaining that cooperation. It is striking the degree to which humans engage in fitness-reducing actions that are fitness enhancing for their group. This has been pointed to as strong reciprocity and it is viewed as thriving in parochial groups. Altruism ought to be limited by parochialism and we should see little out-group altruism. Here we show that considerable altruistic behavior is extended to out-group members. We use experiments carried out in the field involving groups that are either in conflict or that have recently experienced conflict. Our results demonstrate that altruistic behavior toward the out-group increases as time passes. This finding makes clear that hostility between groups need not persist over time.

Tests of parochialism are typically constrained to laboratory experiments between artificial groups or to field experiments with groups who are hostile, but not in conflict. Most experiments are carried out only with respect to the in-group, estimating the effect of out-group violence on altruistic behavior. We report a rare instance in which subjects are both hostile and in conflict with one another. Different settings are compared in which the conflict between groups has receded with time.

Findings.

We use the dictator game, a standard experimental design, to elicit altruism. Subjects are given 10 monetary units (MUs) and are told that they can keep any or all of those units. They are also given the opportunity to send any or all of those units to another person whom they do not know. The individual making the allocation decision is a "dictator" who decides what to keep and what to send to another. The recipient has no role to play. Whatever is sent to the recipient is a measure of altruism. Sending money to another is costly for the dictator and beneficial for the recipient.
The experiment is carried out in three different countries at different times. Each country has or is experiencing civil conflict. The experiment was carried out in Bosnia-Herzegovina in 2004, approximately seven years following a Civil War, and then replicated in 2013 approximately 18 years following the Civil War. The experiment was then carried out in Kosovo in 2011, approximately 11 years following its Civil War. Finally, the Syrian experiment was administered in September 2013 in the middle of a Civil War. While time is not experimentally manipulated, we rely on these differences in time to gauge the effect of temporal proximity to conflict on altruistic behavior.

The experimental manipulations involve matching the dictator with a recipient with specific ethnic characteristics. The ethnic signal is either of the same (in-group) ethnicity or of an opposing (out-group) ethnic group. For example, in Syria, the in-group manipulation indicated the money would go to someone from Aleppo, which is a proxy for Sunni Muslims. For the out-group, subjects are told that the money would go to someone from the territory controlled by President Assad, which is a proxy for Alawati Muslims.

The key finding is given in Figure 1. The figure is a series of violin plots indicating the distribution of MUs sent to the out-group (a similar figure for amounts sent to the in-group is given in the SI). Two points are notable. First, in many cases, contributions are made to the out-group. In Syria, in the throes of civil conflict, only 10.5 percent of the subjects sent something to the out-group. The percentage giving something is 71.4 percent in Bosnia (8 years after conflict), 84.1 percent in Kosovo (11 years after) and 80.6 percent in Bosnia (18 years after).

Second, there is a temporal effect. Individuals are willing to give more to the out-group as time from the conflict recedes. The differences are pairwise significant using parametric and non-parametric tests (see Table SI-2 for details).

It is possible that our samples are peculiar in that they have positive feelings toward both the in-group and the out-group. In each study we asked subjects their opinions about various groups in their society. Building a scale of social distance
toward groups, we find there is considerable distance in the evaluation of one’s own in-group and the out-group. Table 1 indicates that subjects positively evaluated their in-group and negatively evaluated their out-group. We can rule out the possibility that the samples are composed of subjects who are positive about all groups.

As a further check on the findings we carried out a post-stratification test focusing on individuals who lost a family member, whose home was destroyed or whether they were displaced. These individuals are compared with people who did not suffer such losses. Those with losses should be the least forgiving and should send little or nothing. Table 2 compares these two groups by the type of loss. For Bosnia less is sent to the out-group if an individual reported losing a family member in the conflict. This was not the case for Kosovo or Syria. The same pattern is true for those who were displaced. Finally, across the board, less was sent to the out-group if one’s home was destroyed. Generally we find that patterns of altruistic giving are not different between those with and without losses.

**Experimental Test of Mechanism.**

These studies carried out in the field cannot discriminate between mechanisms that cause sharing with a former enemy. We highlight two likely candidates that are tested in a laboratory experiment. First, some version of the “contact hypothesis” may explain the time course. In this context, intergroup contact improves norms by facilitating better information, reducing fear and building empathy toward former adversaries. Second it may be that individuals simply revert to past norms as the conflict fades. We argue this point with respect to Bosnia (2004). A simple and general norm of behavior, in which there is widespread sharing, reduces friction in day-to-day interactions. It is costly for any organism to remain in conflict with the out-group all the time and reverting to common social norms can reduce the drain linked to conflict.

The “third-party” dictator game is used to measure out-group altruism. The dictator decides an allocation between an anonymous in-group and out-group
member. In this setting the dictator keeps nothing for herself. Subjects do this three times in order to capture norms in place (allocation 1), changing norms following conflict (allocation 2) and norms following treatment (allocation 3). Groups are formed using the minimal group paradigm. \{Tajfel, 1978 #978\} Conflict is generated using the contest game in which subjects compete for a prize that is shared by members of the winning group. \{Abbink, 2010 #278\} Members of each group could spend private funds to destroy resources held by the other group and did so 10 times. Experimental sessions were randomly assigned to one of four experimental treatments that took place after the second allocation decision. All treatments had a common element in which subjects were presented with a 6x6 matrix of single digits, one digit was selected and subjects were given 10 seconds to indicate how many times that digit appeared in the matrix. Correct guesses were worth 5 ECUs and incorrect guess were worth -2 ECUs. This was repeated 30 times. The task is cognitively taxing, takes a little under 10 minutes, and is distinct from prior tasks.

The first treatment \((solo)\) has subjects carrying out the task on their own and serves as a proxy for time passing. If the passage of time is sufficient then subjects will revert to their original allocation norm. The second treatment \((in-group)\) randomly pairs in-group members who see the same matrix and digit. If either of the paired subjects guesses correctly, both subjects get the high payoff. If both are wrong, they get the low payoff. Pairs are randomly rematched each period. This treatment is predicted to enhance out-group bias by building in-group solidarity. The third treatment \((out-group)\) explicitly pairs an in- and out-group member in the same manner as above. This treatment is a proxy for the “contact” hypothesis in the sense that joint production with an out-group member should decrease out-group bias. The final treatment \((random)\) randomly pairs subjects in the experiment. The group identity of one’s partner is not revealed, otherwise subjects do the same joint production task as noted above. This is similar to the \(solo\) treatment in that absent any cues about group membership, subjects should revert to initial norms.

Figure 2 illustrates the differences in third-party dictator allocations by subjects after treatments and after conflict. As noted in the SI, Section 4, these data
provide very weak support for the hypothesis that there is a reversion toward norms. However, the danger of this interpretation is that the effect sizes from the experiment are tiny. In part this is due to floor effects in the measurement of the outcome variable.

**Discussion**

Parochial altruism predicts in-group favoritism and implies that the out-group will be treated less favorably. There is no reason to expect that individuals will sacrifice for the out-group when in conflict. This finding is clearly supported by the Syrian case. However, what is remarkable about our findings is the degree to which out-group altruism develops after a short period of time. The further removed in time from civil conflict, the more out-group altruism we observe. What are these sources of out-group altruism?

Trying to sort between explanations in the laboratory is a start. Unfortunately our design produces insufficient data to drawn inferences about a causal mechanism.
Methods.

For the lab experiments-in-the field a total of 1,742 subjects were recruited in three countries at four points in time. In Bosnia (2004 and 2013) and Kosovo (2011) subjects were recruited by a public opinion firm using probability proportion to size sampling methods based on available population estimates. In Syria (2013) a local Syrian field administrator who has covered the conflict for various international news organizations and aid groups carried out the sampling. Due to unknown population parameters and security concerns in Syria, random sampling was not possible. Instead, the local administrator conducted cluster sampling limiting participants to no more than five per cluster and only one per household.

Subjects completed experiments in groups, behind privacy screens, with the assistance of the local administrator who read from a standard script. Slight variations of the protocol were used in the cases of Kosovo, Syria, and the second Bosnia study (see the protocols in SI, Section 1). Subjects were given an in- or out-group cue and marked on a sheet of paper how much to keep and send. Following a number of behavioral decisions subjects filled out a questionnaire. The experiments took approximately 60 minutes.

For the laboratory experiments 148\(^1\) subjects were recruited to the Behavioral Research Laboratory. These subjects were drawn from the lab subject pool, were paid an average of US $16.66 and were in the lab for less than 60 minutes. Assignment to treatment was by experimental session and was double blind to the experimenter. All interactions by subjects were computerized using software written by Wilson. The experiment was pre-registered at Open Science Framework (DOI 10.17605/OSF.IO/2GXIM | ARK c7605/osf.io/2gxim).

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\(^1\) Once the experiment was completed we determined one subject had participated twice. That subject’s data from the second experiment was omitted from all analysis.
References

Table 1. Differences in attitudes toward the in-group and out-group.

<table>
<thead>
<tr>
<th></th>
<th>Syria 2013</th>
<th>Bosnia 2004</th>
<th>Kosovo 2011</th>
<th>Bosnia 2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Close to In-group</td>
<td>1.90 (0.77)</td>
<td>1.50 (0.66)</td>
<td>1.72 (0.75)</td>
<td>1.71 (0.67)</td>
</tr>
<tr>
<td>Close to Out-group</td>
<td>3.12 (0.92)</td>
<td>2.46 (0.89)</td>
<td>3.21 (0.87)</td>
<td>2.65 (0.86)</td>
</tr>
<tr>
<td>In/Out group difference</td>
<td>t=12.05 p&lt;.001</td>
<td>t=18.47 p&lt;.001</td>
<td>t=29.88 p&lt;.001</td>
<td>t=19.35 p&lt;.001</td>
</tr>
<tr>
<td></td>
<td>[138]</td>
<td>[340]</td>
<td>[452]</td>
<td>[449]</td>
</tr>
</tbody>
</table>

In-group and out-group social distance is measured on a 1-4 scale, where 1 = very close and 4 = not close at all. Means are given on the top line, standard deviations in parenthesis and the number of subjects responding to the item is in brackets. Student t-tests for the differences between the in- and out-group social distance are given on last line. The question reads “How close do you feel to the following people?” For Bosnia, the response categories are Bosniaks,Croats, Serbs. For Kosovo, the response categories are ethnic Albanians and ethnic Serbs. For Syria the response categories are Sunni Muslims and Alawati Muslims. Due to initial constraints imposed by the Institutional Review Board this item was only asked for half the sample in Bosnia (2004).
Table 2. Amounts given to the out-group by whether individuals had suffered a specific loss.

<table>
<thead>
<tr>
<th></th>
<th>Family Members Killed</th>
<th>Home Destroyed</th>
<th>Displaced by Violence</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
<td>Student t-test</td>
</tr>
<tr>
<td>Syria (2013)</td>
<td>1.01 (2.98)</td>
<td>0.66 (2.39)</td>
<td>0.76</td>
</tr>
<tr>
<td></td>
<td>[74]</td>
<td>[59]</td>
<td>p=0.22</td>
</tr>
<tr>
<td>Kosovo (2011)</td>
<td>3.31 (2.59)</td>
<td>3.53 (2.95)</td>
<td>-0.70</td>
</tr>
<tr>
<td></td>
<td>[89]</td>
<td>[377]</td>
<td>p=0.24</td>
</tr>
<tr>
<td>Bosnia (2013)</td>
<td>3.43 (2.91)</td>
<td>4.19 (3.15)</td>
<td>-2.59</td>
</tr>
<tr>
<td></td>
<td>[167]</td>
<td>[282]</td>
<td>p=0.005</td>
</tr>
<tr>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

|                | Student t-test | Kolmogorov-Smirnov |         |       |         |            |         |       |
|                |               |                   |         |       |         |            |         |       |
|                |               |                   |         |       |         |            |         |       |
A comparison of the behavioral measure of out-group altruism and self-reported victimization. Means are given on the top line, standard deviations are in parenthesis and the number of subjects responding to the item is in brackets. Both parametric (Student t) and non-parametric (Kolmogorov-Smirnov) tests are carried out over the distributions. A positive t-statistic indicates that victims send more than non-victims. The IRB would not allow these questions to be asked in Bosnia (2004).

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>SD</th>
<th>t</th>
<th>p</th>
<th>Mean</th>
<th>SD</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kosovo (2011)</td>
<td>3.33</td>
<td>3.67</td>
<td>-1.25</td>
<td>0.08</td>
<td>3.33</td>
<td>3.67</td>
<td>-1.25</td>
<td>0.08</td>
</tr>
<tr>
<td></td>
<td>(2.71)</td>
<td>(3.08)</td>
<td></td>
<td>p=0.11</td>
<td>(2.71)</td>
<td>(3.08)</td>
<td></td>
<td>p=0.11</td>
</tr>
<tr>
<td></td>
<td>[256]</td>
<td>[210]</td>
<td></td>
<td></td>
<td>[256]</td>
<td>[210]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bosnia (2013)</td>
<td>3.51</td>
<td>4.00</td>
<td>-1.21</td>
<td>0.16</td>
<td>3.51</td>
<td>4.00</td>
<td>-1.21</td>
<td>0.16</td>
</tr>
<tr>
<td></td>
<td>(3.41)</td>
<td>(3.00)</td>
<td></td>
<td>p=0.11</td>
<td>(3.41)</td>
<td>(3.00)</td>
<td></td>
<td>p=0.11</td>
</tr>
<tr>
<td></td>
<td>[85]</td>
<td>[364]</td>
<td></td>
<td></td>
<td>[85]</td>
<td>[364]</td>
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</tbody>
</table>
Figure 1. Out-group contributions from the dictator game.

Panel A gives the distribution of MUs sent to out-group members in different decisions under the Dictator Game. Each figure is a violin plot. The interior contains a box-and-whiskers plot with the interquartile range and the circle noting the median amount sent. The exterior of each plot is the estimated kernel density of the distribution (using an epanechnikov kernel estimator). Countries are arrayed from most to least temporally proximate to civil conflict. Each adjacent pair of countries is significantly different from one another (p values noted on the figure). Panel B provides the distributional properties of the data.
Figure 2. Difference in Out-Group Allocations Before and After Experimental Treatments.

Each bar represents the difference between what was allocated in the 3\textsuperscript{rd} allocation decision (following the treatment) and what was allocated in the 2\textsuperscript{nd} allocation decision (following the contest game and prior to the treatment). Positive values indicate an increasing amount sent to the out-group. Negative values indicate a decreasing amount sent to the out-group following the treatment. Lines on the bars represent one standard error. Both parametric (Student’s t) and non-parametric (Mann-Whitney) tests indicate no pair-wise difference across treatments.