Milestone #6

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I will be replicating the paper "Ethnic Riots and Prosocial Behavior: Evidence from Kyrgyzstan" written by Anselm Hager, Krzysztof Krakowski, and Max Schaub.[1] Using survey data performed in Osh, Kyrgyzstan after the 2010 ethnic riots, this paper explores the question of whether exposure to ethnic riots has a negative effect on both in and out group member prosocial behavior. Previous literature on prosocial behavior following ethnic violence suggests, intuitively, that prosocial behavior towards the aggressor group is negatively affected.[2] This paper's results, however, supports the work of other scholars who found that prosocial behavior for both in and out groups are negatively affected. [3]

The first step to understanding the data analysis performed in the following replication, is to become familiar with the event itself. The 2010 ethnic riots happened in Osh, Kyrgyzstan and were comprised of the ethnic Kyrgyz majority rioting against the ethnic Uzbek minority.[4] The second step is to understand the author's data. They performed 1100 interviews with Uzbeks and Kyrgyz from Osh, Kyrgyzstan. View the graphic I have created below to see how the interview subjects differentiate between ethnicities, average ages, average incomes, gender, and number affected by riots.[5]

Table 1: Summary of Survey Data
Separated between Uzbeks and Kyrgyz

	Uzbeks	Kyrgyz
Total	878	222
Average Age	41	37
Average Income	$21,517$	$20,331$
Percentage Men	59%	60%
Percentage Women	41%	40%
Number Affected	409	83
Number Unaffected	469	139

In the authors' analyses they measure prosocial behavior by having subjects complete a prisoner's dilemma (PD) scenario and dictator's game (DG) hypothetical to measure prosocial behavior towards both the in-group and out-group. They also create a 'Prosociality Index' score, which is simply a combined score of the PD and DG scores. They use these responses, which are measured numerically, to first run a series of OLS linear regressions for only Uzbeks who were affected by the riots, which is referred to as the victimization

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[1]Hager, Krakowski, and Schaub 2019

[2]Bauer et al. 2016; Horowitz 2001

[3]Kijewski and Freitag 2018; Rohner, Thoenig, and Zilibotti 2013;

[4]Galdini 2014

[5]All analysis for this paper is available here: https://github.com/CianStryker/Project_5_Milestone

variable. They find that on average Uzbeks who were affected by the riots have lower prosocial behavior for both in and out-group members. They then run another series of regressions for affected Uzbeks, but include potential confounding variables such as wealth, state capacity of neighborhoods, community policing, accessibility, and voting record in the recent Kyrgyz election. They found, however, that only exposure to violence during the riots had consistently statistically significant effects on prosocial behavior.

The authors then want to explore an instrumental variable which was the rioter's access to armored vehicles (APCs) to break through Uzbek barricades. During the riot, APCs were captured from the Kyrgyz military barracks by rioters to then attack Uzbek enclaves. Areas of Osh where rioters did not have access to APCs saw little to no destruction. This suggests that access to APCs might act as an exogenic assignment mechanism that explains post-riot differences across subject responses. They believe that distance to APC locations capture the 'intent-to-treat' effect and then create a closeness instrument by inputting subjects' distance to APC locations. The authors run a series of new regressions where they substitute victimization for the closeness instrument and then include these regressions with their earlier, original regressions. They see both that their original results hold and that even with victimization replaced with the closeness instrument, there is still a noticeable negative effect on prosocial behavior. They follow this up with a randomization inference procedure, where they randomized potential APC locations, to see if the earlier closeness instrument effect could occur randomly. They find, however, that this is highly unlikely.

Overall the paper essentially finds that being affected by the riot causes a drop in prosocial behavior towards both the in-group and out-group. They then test the robustness of these results through potential confounding variables and an instrument variable. They find that their original findings hold throughout these robustness tests. At the end of the paper they explore why in-group prosocial behavior is negatively affected qualitatively and argue that disappointment and suspicion may explain the negatively affected in-group prosocial behavior.

Replication Statement

The replicable and essential figures/tables for my paper are Figures 4, 5, 6, 8, and 9, as well as Table 1. Figures 1, 2, 3, and 7 are made either via GIS software or are simply maps of Osh. These I could just screen shot and insert into my own work if necessary. There is also an online Appendix that is huge but it mostly consists of extensive robustness testing and therefore I consider it non-essential for the paper overall. Figures 4, 5, 8, 9 and Table 1 are replicable and are shown in the Appendix of this milestone. I currently cannot replicate Figure 6 from my paper, because the matrix they created does not work with the code they have provided. I have no way to edit this matrix without damaging the paper's findings. I am working with Alice to find a workaround, but since my extensions are focused on Figure 5 and Table 1 this will not prevent me from moving forward with the project. I also want to replicate one appendix figure, A.17 for my extension section, but it relies on the same matrix data as Figure 6, so it is not replicable as of now.

Extension Plans

I believe there are a few areas that could be expanded upon in this paper that the authors did not fully explore. An issue I have is that this study is non-observational and was published only a few months ago in late 2019, which means that there is no option to either incorporate additional data or necessarily rely on new additional literature that would suggest a weakness in the authors' methodological approach. Even so, however, there are two areas where I feel more exploration of the data is warranted or where fundamental assumptions can be challenged. These areas would be a more robust exploration of the Kyrgyz subset of the survey data and a more in-depth exploration of prosocial confounding variables for the Uzbek data.

My immediate reaction to reading the paper was that the predominant amount of attention was paid to the Uzbek subset of the data. This is intuitive because the study is aimed at understanding victimization from

ethnic riots and the ethnic riots in Osh, Kyrgyzstan revolved around the Kyrgyz ethnic majority attacking the Uzbek ethnic minority. The survey data includes 222 surveys of Kyrgyz citizens of Osh and within this amount over a third were negatively affected by the ethnic riots as well. Now obviously this amount is much less than the nearly half out of 878 Uzbeks citizens that were affected, but they form an interesting point of comparison for the study. The only comparative exploration of affected Kyrgyz prosocial behavior done by the authors was to measure their prosocial behavior via regressions using the instrumental variable. Now I am critical of this approach because their instrumental variable is non-replicable, and their instrumental variable was only a robustness test. Their key findings are from Figure 5 where they simply ran linear regressions to measure prosocial behavior of affected Uzbeks relying on the victimization variable. When they use the affected Kyrgyz to compare results, they use the instrumental variable and then compare these results to their main results, but they two are not necessarily the same. I will then rerun their Figure 5 testing but on the Kyrgyz subset of the data instead. I will also use this subset to recreate their Table 1, to see how Kyrgyz differed on the various scores and whether their prosocial behavior can be explained by confounding variables.

I also find that the author's exploration of confounding variables for the Uzbek subset of the data is limited in its scope. They combine a variety of variables together to create their hypothetical confounders that might explain riot location, but I believe other variables should be included that would explain over prosocial behavioral scores. Namely, the use of common language and ethnicity of employer should be tested. Using a common language is a prosocial behavior that individuals opt into and this may have a strong impact on overall prosocial behavior after the riots. Also, ethnicity of one's employer is interesting because if one's employer is of the opposite ethnic group, this would mandate interaction with the out-group, which might generate higher prosocial behavior as well. Exploring the effect these variables have on Uzbek prosocial behavior and potentially their interaction with the victimization variable might provide some interesting insights into confounders for prosocial behavior.

Bibliography

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Summary Table

Table 1: Summary of Survey Data
Separated between Uzbeks and Kyrgyz

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Figure 4. Payoff Illustration in Prisoner's Dilemma

	You	Partner	
+	60	60	-
-	80	80	+
-	20	100	-
+	100	20	+

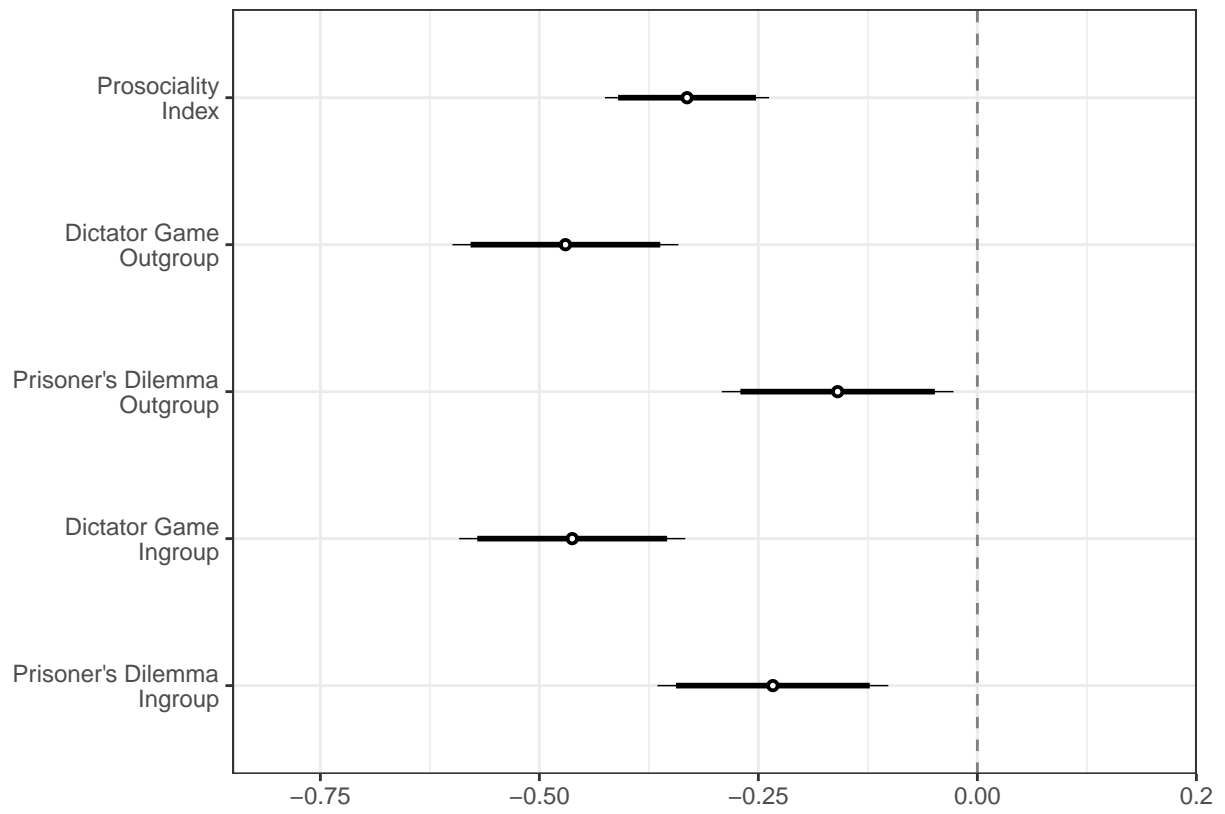**Figure 5.** Effect of Riot on Prosocial Behavior

Figure 6. Effect of Riot Destruction on Prosocial Behavior (IV)

This Figure is currently non-replicable. See replication section for details.
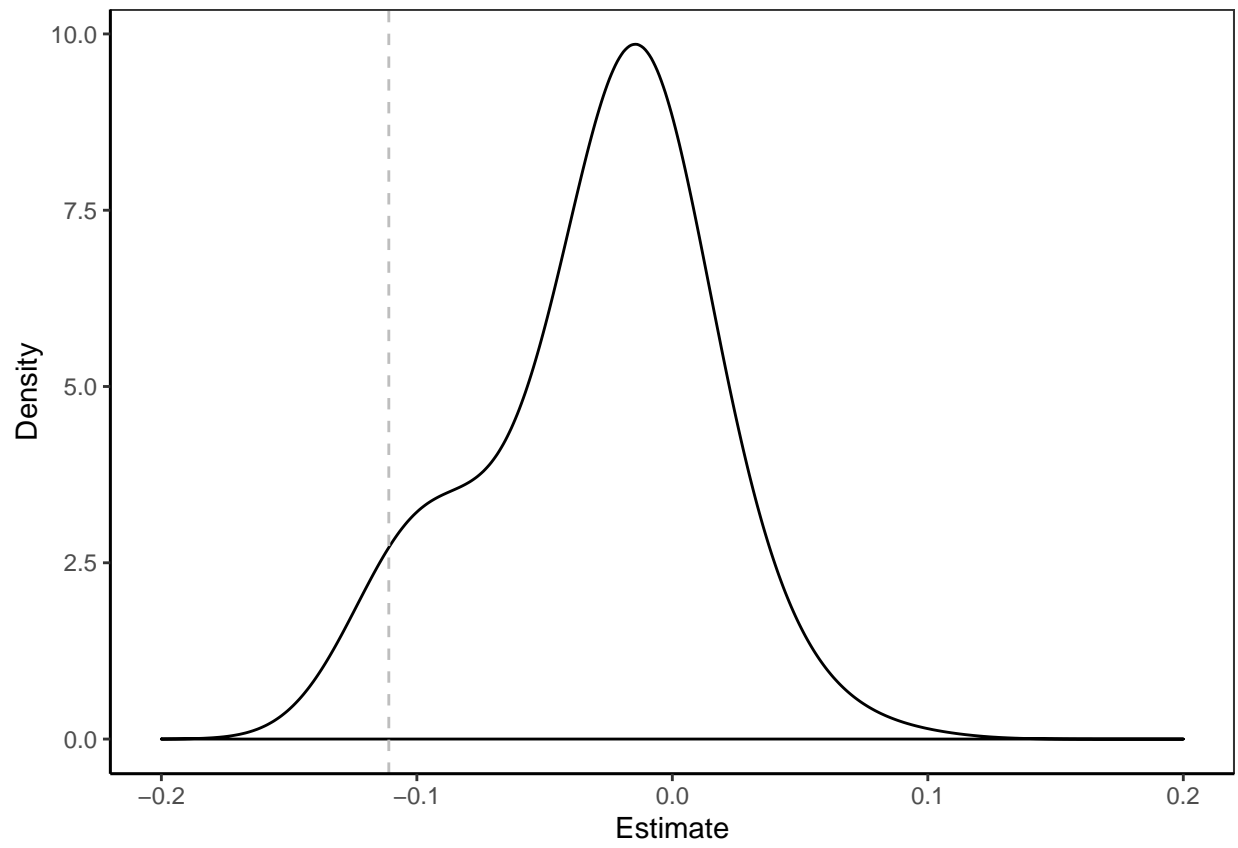
Figure 8. Randomization Inference

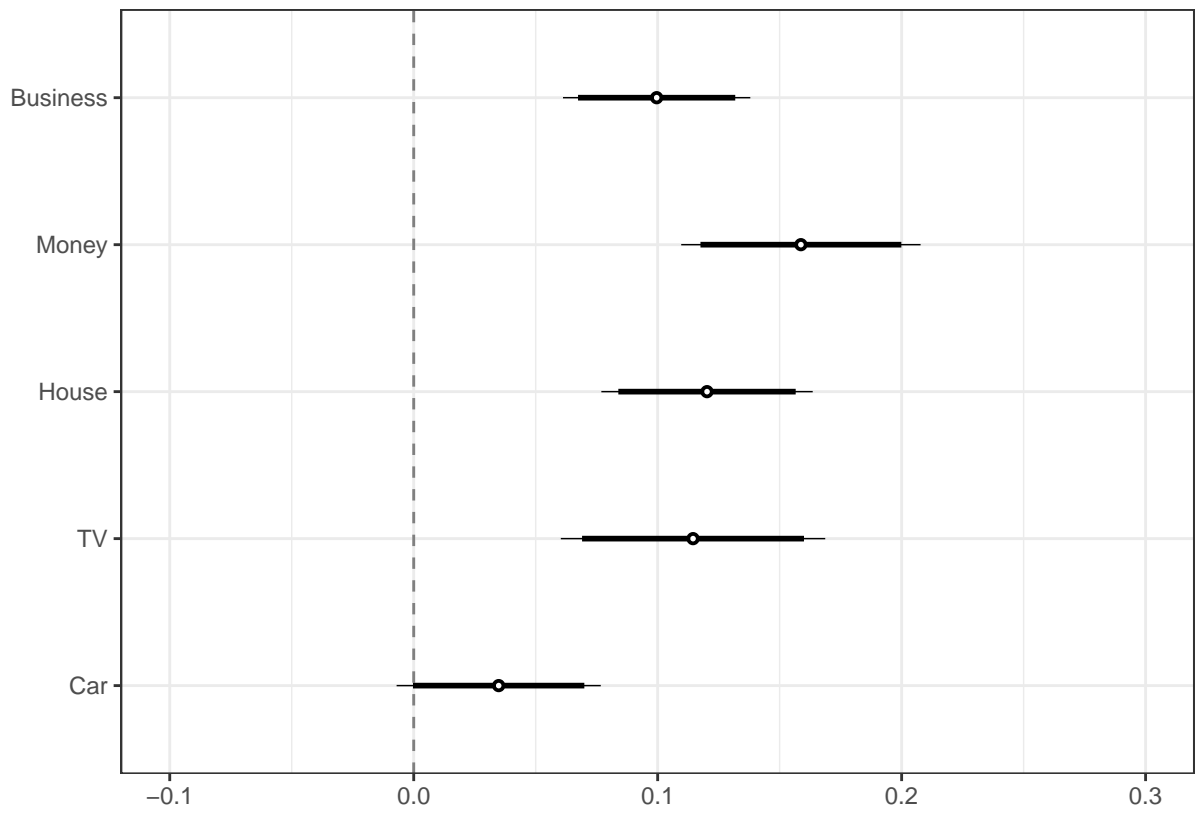**Figure 9. Effect of Riot Destruction on Losses**

Table 1

	Dependent variable:				
	Cooperation in Prisoner's Dilemma	Investment in Dictator Game	Cooperation in Prisoner's Dilemma	Investment in Dictator Game	Cooperation-Index
	(1)	(2)	(3)	(4)	(5)
Destruction	−0.387***	−0.575***	−0.267***	−0.537***	−0.442***
	(0.074)	(0.073)	(0.075)	(0.073)	(0.053)
Wealth index	0.433	0.503	0.801*	0.586	0.581*
	(0.328)	(0.319)	(0.330)	(0.320)	(0.232)
State capacity index	0.177	0.679***	0.138	0.677***	0.418***
	(0.146)	(0.142)	(0.147)	(0.142)	(0.103)
Community policing index	0.076*	−0.081*	0.048	−0.081*	−0.009
	(0.033)	(0.032)	(0.033)	(0.032)	(0.023)
Accessibility index	0.362	−0.500	−0.120	−0.526	−0.196
	(0.308)	(0.300)	(0.310)	(0.300)	(0.218)
AJ	(0.225)	(0.219)	(0.226)	(0.219)	(0.159)
Constant	−1.997***	−1.829***	−1.630***	−1.676***	−1.783***
	(0.385)	(0.375)	(0.388)	(0.376)	(0.273)
Observations	878	878	878	878	878
R^2	0.041	0.090	0.026	0.087	0.086
Adjusted R^2	0.034	0.083	0.019	0.081	0.080
Residual Std. Error (df = 871)	0.983	0.957	0.990	0.959	0.696
F Statistic (df = 6; 871)	6.198***	14.274***	3.881***	13.803***	13.694***

Note: *p<0.05; **p<0.01; ***p<0.001

Figure A.17

Figure A.17 is currently non-replicable. See replication section for details.