

Is Your Pain My Pain? Altruistic Legacies of Herbici- dal Warfare in Vietnam

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Outline

Introduction

Experiment Design

Results

Conclusion

Introduction

How Does War Foster Altruism?



- ❖ Exposure to **wartime violence** fosters **altruism** and **prosocial behavior** (e.g., Bauer et al., 2016; Blattman, 2009; Dinas et al., 2021; Lindsey & Koos, 2024; Lupu & Peisakhin, 2017; Walden & Zhukov, 2020; Wayne & Zhukov, 2022)
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- ❖ Insights from **a lab-in-the-field experiment** in Da Nang, Vietnam (pilot experiment, with $N = 30$)

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 1. **“My pain”** effect: Herbicide victims behave **altruistic**
 2. **“Your pain”** effect: **Non-victims** behave **altruistic toward** victims

Experiment Design

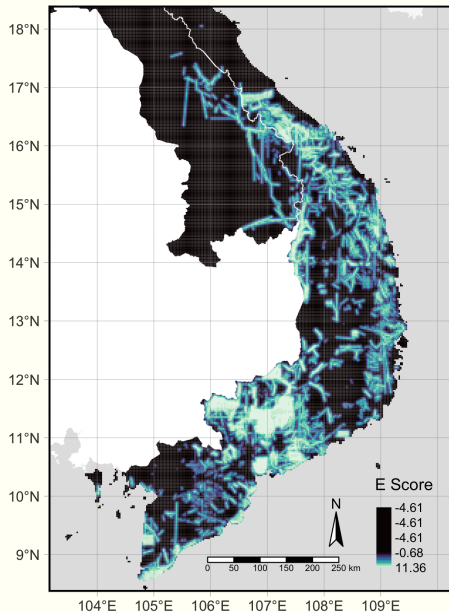
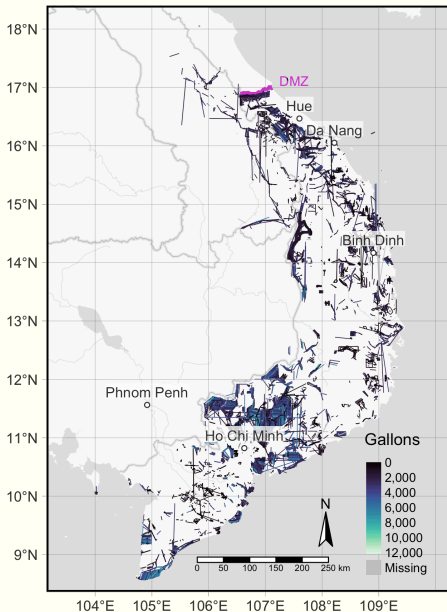
Sample, Survey Mode, etc.

- ❖ **“Hard-to-reach” population:** Herbicide victims and their families/descendants
 - ❖ We are somehow (officially) granted **access to the herbicide victim households in Da Nang, Vietnam**
 - ❖ Two major **US air bases** for Operation Ranch Hand (1962–1971): Bien Hoa (near Ho Chi Minh City/Saigon) and **Da Nang** air bases

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 - ❖ Two major **US air bases** for Operation Ranch Hand (1962–1971): Bien Hoa (near Ho Chi Minh City/Saigon) and **Da Nang** air bases
- ❖ **Sample:** 15 households (each) **with/without** herbicide victims (30 in total) in 24 villages in **Hoa Hai** (commune), **Da Nang** (district)
 - ❖ Survey mode: Face-to-face (online is infeasible)
 - ❖ Date: August 28–September 2, 2023
 - ❖ We ended up with **a sample of 28(/30) households** due to errors in the field

S-NAS-HERBS File, 1961–1971



Study Area: Hoa Hai, Da Nang



Outcomes and Covariates

Behavioral Outcome

- **Dictator (sharing) game** (next slide) \rightsquigarrow today's talk

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- Government/party support \rightsquigarrow **NOT** approved
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Demographic Variables, etc.

- ❖ Covariates: Household and respondent attributes (reported in Appendix)
- ❖ Other outcomes: Social and political organization membership/leadership (results not reported here)

Dictator Game and Treatment

Dictator (Sharing) Game

- ❖ Respondents receive VND 80K (~ USD 3.5)
 - ❖ Minimum hourly wage in Vietnam ~ USD 1
- ❖ decide how to **share** (“**donate**”) the VND 80K with **an anonymous recipient** with an increment of 10K (0–80K)

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Randomized Treatments

1. **Recipient status**: Household **with/without** herbicide victim(s) \rightsquigarrow **“your pain”**
2. **Decision timing**: Dictator game at the **beginning/end** of the herbicide-related survey \rightsquigarrow **information stimulus**

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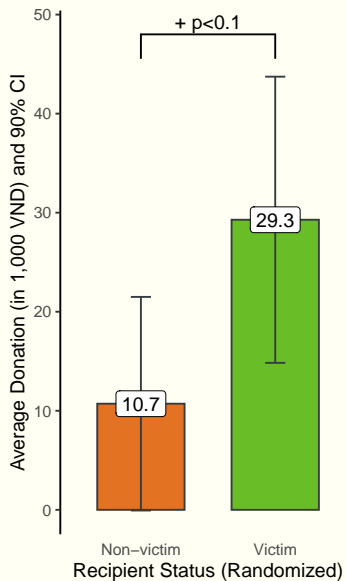
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Observed Herbicide Victim Status

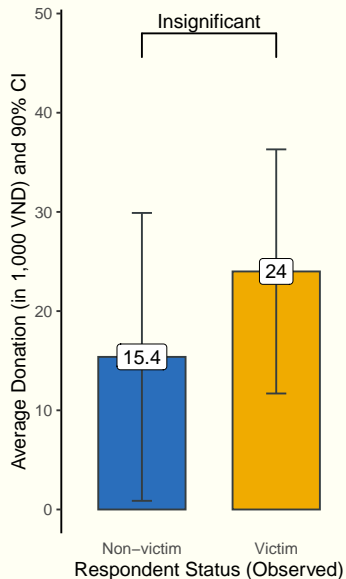
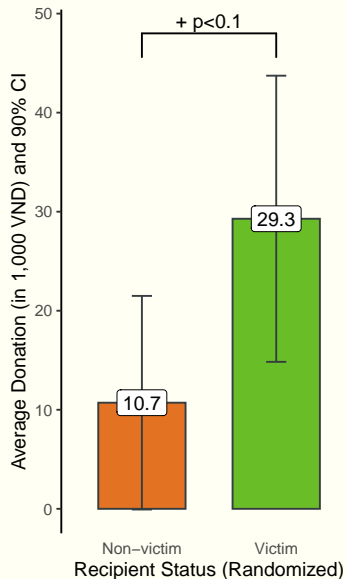
- ❖ **Respondent status**: With 1+ victims or not \rightsquigarrow “**my pain**”
- ❖ mimicking the **key variable** in previous studies

Results

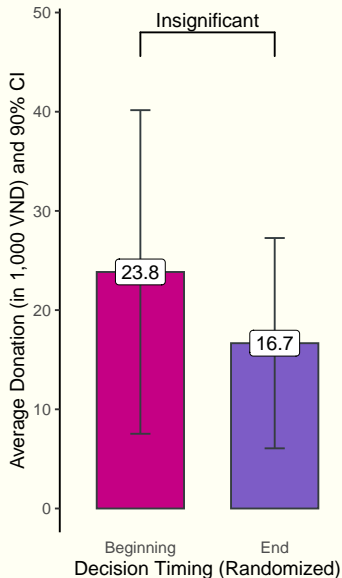
Naïve Difference



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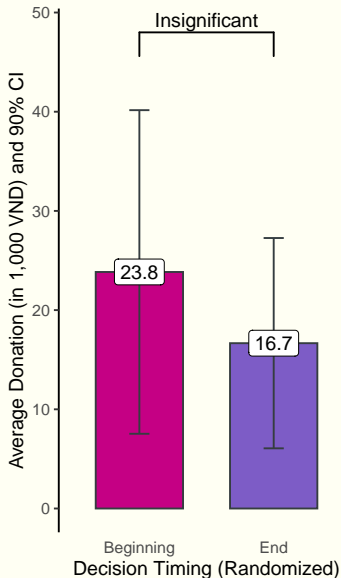


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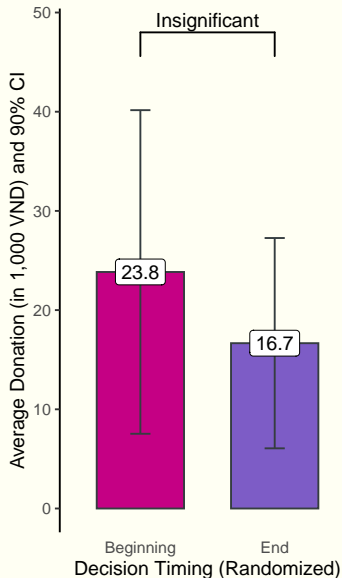
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 - ❖ yet the association remains statistically indeterminate

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 - ❖ **consistent** with existing literature
 - ❖ yet the association remains statistically **indeterminate**
- ❖ **Decision timing** (after the survey) is weakly **negatively** associated with donation amount (23.8K to 16.7K)

Regression Estimates

	Outcome: Donation (in 1,000 VND)					
	(1)	(2)	(3)	(4)	(5)	(6)
Main Effects						
Victim Recipient ("Your Pain")	18.65 ⁺ (10.79)	34.04* (15.56)	18.71 ⁺ (10.91)	27.45* (10.84)	42.70** (13.78)	27.75* (11.37)
Decision Timing (1 if at the end)	-9.71 (10.89)	-9.84 (10.71)	-17.53 (16.01)	-17.97 (10.57)	-14.67 (10.22)	-19.90 (16.76)
Victim Respondent ("My Pain")	8.62 (10.89)	22.83 (15.01)	0.81 (16.01)	11.93 (10.65)	34.88 ⁺ (17.10)	9.90 (17.26)
Interaction Effects						
Demographic Controls				✓	✓	✓
Average outcome	20	20	20	20	20	20
Observations	28	28	28	27	27	27
Adjusted R ²	0.04	0.08	0.02	0.34	0.41	0.30

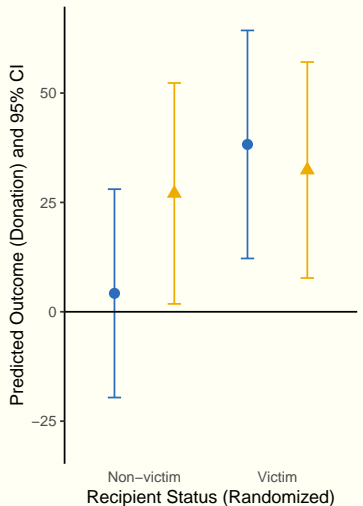
OLS estimates. Standard errors in parentheses. ** $p < 0.01$, * $p < 0.05$, + $p < 0.1$.

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Interaction Effects						
Victim Recipient × Victim Respondent		- 28.69 (21.23)			- 38.12 (22.91)	
Decision Timing × Victim Respondent			14.82 (22.03)			3.59 (23.63)
Demographic Controls				✓	✓	✓
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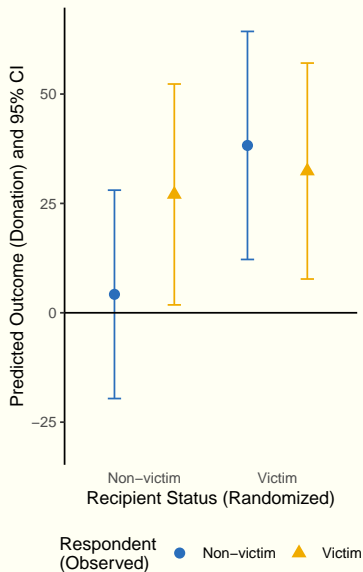
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 - ❖ yet the effect is **invisible** among **victim households** (triangles)

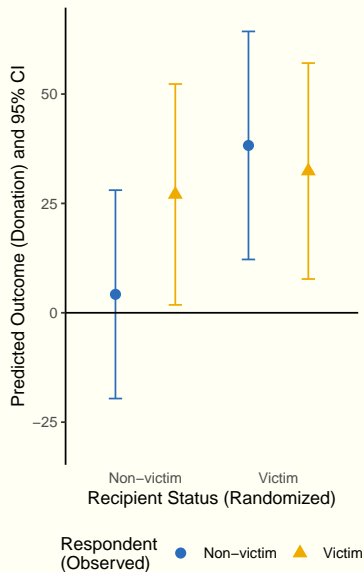
Respondent (Observed) ● Non-victim ▲ Victim

Interaction Effects



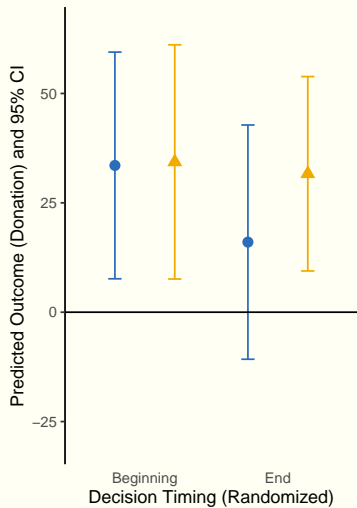
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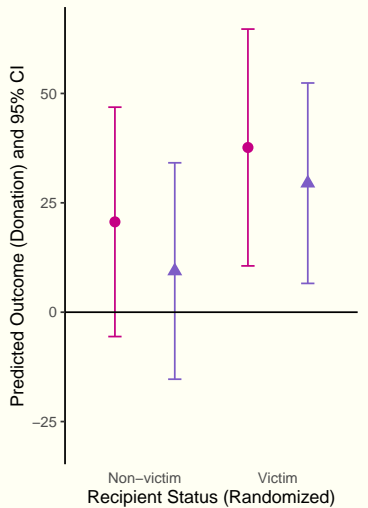


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 - ❖ **Ceiling effect?**
- ❖ Other moderation (interaction) effects remain less clear (next slide)
 - ❖ almost identical results with the logged outcome (Appendix)

Interaction Effects



Respondent (Observed) ● Non-victim ▲ Victim



Decision Timing (Randomized) ● Beginning ▲ End

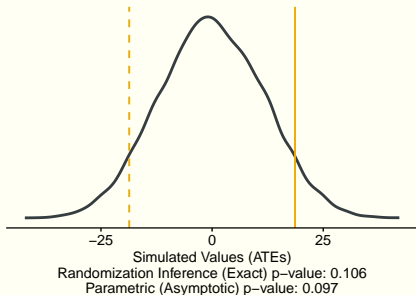
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- ❖ Accounting for the **small sample size** ($N = 28$)
 - ❖ also the right-**skewed** outcome distribution
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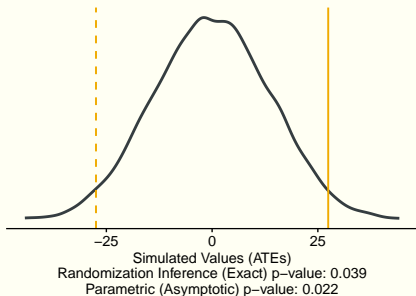
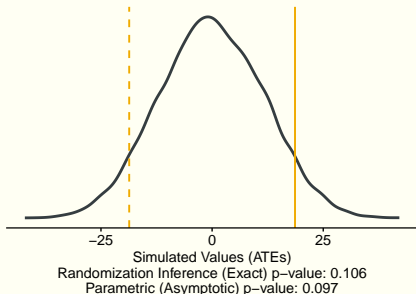
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 - without** (Model 1, top), **with** controls (Model 4, bottom) (Young, 2019)

Conclusion

Your Pain Is My Pain

- ❖ “**Your pain**” matters in generating post-war **altruism**
 - ❖ “Your pain” effect is **visible** among **non-victims**
 - ❖ “My pain” may also matter in shaping **altruism**
 - ❖ **Information stimulus** (decision timing) is negatively associated with altruism but remains **less effective**

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 ↪ **Previously under-studied legacies** of wartime violence
- ❖ **Lasting legacies** of political violence **beyond** the first-generation victims ↪ transmission via **interaction?**

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- ❖ **Experimental measures**
 - ❖ **Game**: Ultimatum game, trust game, and envy game
 - ❖ **Behavioral**: **Petition** for WMD prohibition or related
 - ❖ **Attitudinal**: **Sympathy** for wartime violence victims (Hiroshima/Nagasaki/Palestine/Ukraine, etc.) and anti-US **sentiments** (perpetrator of indiscriminate violence)

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- ❖ **Mechanisms? Mediators?**
 - ❖ causal **processes** (= indirect effect) and causal **interactions** (= conditioning effect of a mediator) (Acharya et al., 2018)

Thank You

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Our Another Manuscript

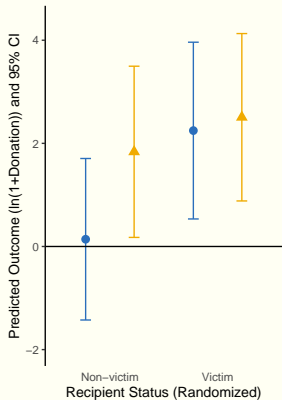
W on the legacies of herbicidal warfare is available at:
`https://ssrn.com/abstract=4512129`

Appendix

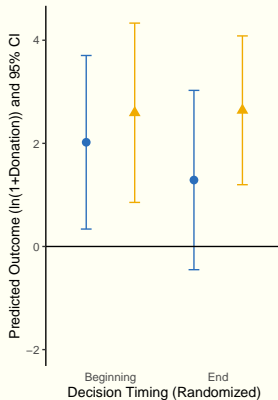
Descriptive Statistics

	N	Mean	SD	Min	Max
Outcome (dictator game)					
Donation	28	20	29.059	0	80
20/80 = 25% approximately matches the known experimental results (~ 30%)					
Herbicide victim status					
With herbicide victim dummy (1 = yes)	28	0.536	0.508	0	1
Household attributes					
Household size	28	3.357	1.789	1	7
Female household head dummy (1 = yes)	28	0.464	0.508	0	1
Wage income dummy (1 = yes)	28	0.929	0.262	0	1
Annual wage income (in million VND)	28	95.793	90.575	0	300
Respondent attributes					
Female respondent dummy (1 = yes)	28	0.571	0.504	0	1
Respondent's age	27	57.889	13.846	32	80
Respondent's education (years)	28	9.250	4.178	0	15
Not in regression models					
Residence duration (years) (14 NAs = "for centuries")	14	16.714	18.378	5	72
Number of herbicide victims	28	0.821	0.905	0	3
Number of died herbicide victims	28	0.286	0.659	0	3
Serious illness member dummy (1 = yes)	28	0.500	0.509	0	1
Number of seriously ill members	28	0.750	0.887	0	3

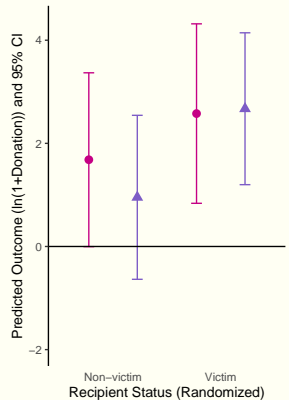
Interaction Effect: Logged Outcome



Respondent (Observed) ● Non-victim ▲ Victim



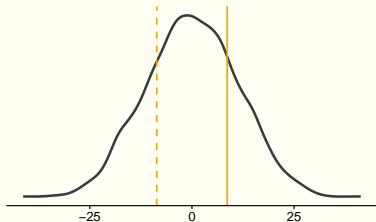
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Decision Timing (Randomized) ● Beginning ▲ End

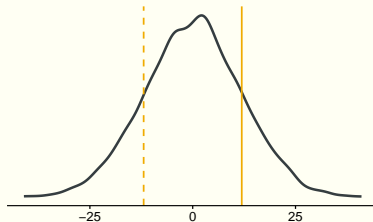
Randomization Inference

Respondent Victim, Model (1)



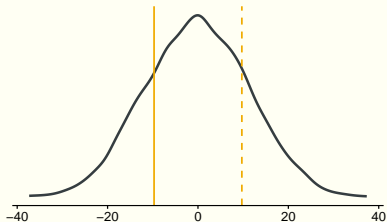
Randomization Inference (Exact) p-value: 0.457
Parametric (Asymptotic) p-value: 0.436

Respondent Victim, Model (4)



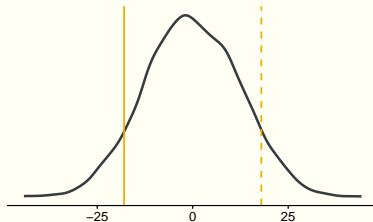
Randomization Inference (Exact) p-value: 0.311
Parametric (Asymptotic) p-value: 0.279

Decision Timing, Model (1)



Randomization Inference (Exact) p-value: 0.404
Parametric (Asymptotic) p-value: 0.381

Decision Timing, Model (4)



Randomization Inference (Exact) p-value: 0.144
Parametric (Asymptotic) p-value: 0.109

References I

- Acharya, Avidit; Matthew Blackwell & Maya Sen (2018) Analyzing Causal Mechanisms in Survey Experiments. *Political Analysis* 26(4): 357–378.
- Bauer, Michal; Christopher Blattman; Julie Chytilová; Joseph Henrich; Edward Miguel & Tamar Mitts (2016) Can War Foster Cooperation? *Journal of Economic Perspectives* 30(3): 249–274.
- Blattman, Christopher (2009) From Violence to Voting: War and Political Participation in Uganda. *American Political Science Review* 103(2): 231–247.
- de Juan, Alexander; Felix Haass; Carlo Koos; Sascha Riaz & Thomas Tichelbaecker (2024) War and Nationalism: How WW1 Battle Deaths Fueled Civilians' Support for the Nazi Party. *American Political Science Review* 118(1): 144–162.
- Dinas, Elias; Vasiliki Fouka & Alain Schläpfer (2021) Family history and attitudes toward out-groups: Evidence from the European refugee crisis. *Journal of Politics* 83(2): 647–661.
- Ito, Gaku; Duc Tran & Yuichiro Yoshida (2023). Not gone with the wind: Long-run impact of herbicidal warfare in Vietnam. Available at SSRN: <https://ssrn.com/abstract=4512129>.
- Lindsey, Summer & Carlo Koos (2024) Legacies of Wartime Sexual Violence: Survivors, Psychological Harms, and Mobilization. *American Political Science Review*: forthcoming.

References II

- Lupu, Noam & Leonid Peisakhin (2017) The Legacy of Political Violence across Generations. *American Journal of Political Science* 61(4): 836–851.
- Walden, Jacob & Yuri M Zhukov (2020) Historical Legacies of Political Violence. In: William R. Thompson (ed.) *Oxford Research Encyclopedia of Politics*. Oxford: Oxford University Press.
- Wayne, Carly & Yuri M Zhukov (2022) Never Again: The Holocaust and Political Legacies of Genocide. *World Politics* 74(3): 367–404.
- Young, Alwyn (2019) Channeling Fisher: Randomization tests and the statistical insignificance of seemingly significant experimental results. *Quarterly Journal of Economics* 134(2): 557–598.