# Replication of Charnysh's *Historical Legacies of Interethnic Competition*

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**Abstract**

We elaborate on Charnysh's analysis of the effect of pre World War II Jewish population concentration on the 2003 Polish vote on accession to the European Union. After successfully replicating the authors findings, we extend her work by furthering the sequential G-estimation models, and attempting to determine causal pathways between the antebellum Jewish population and the vote share of the LPR, an explicitly anti-Semitic party, in the 2001 Polish parliamentary elections. Our results strengthen Charnyshs original conclusions, and indicate that anti-Semitism stemming from the historical legacy of the Holocaust was more likely to be responsible for the LPR vote share than simply the Holocausts economic impact.

## Introduction

How do historic experiences shape contemporary politics? In her paper "Historical Legacies of Interethnic Competition," Volha Charnysh began addressing this question in the context of legacies of anti-Semitism in Poland.[1] This question is particularly relevant to Poland, as very few Jews live in Poland currently and yet anti-Semitism still retains an important role in politics. In 2003, when Poland was debating whether to accede to the EU, anti-Semitic cues were employed in order to suggest that Jewish influence in the country is what motivated the desire to join the EU. Where were these anti-Semitic cues successful? Indeed, Charnysh showed that anti-Semitic arguments to oppose joining the EU were more persuasive in areas that had pre-existing anti-Semitic attitudes. Those areas in which there were greater Jewish populations prior to

[1] Volha Charnysh, "Historical Legacies of Interethnic Competition: Anti-Semitism and the EU Referendum in Poland," *Comparative Political Studies* 48, no. 13 (2015): 1711-1745.

the Holocaust had a greater propensity to vote against EU accession, suggesting that anti-Semitic cues were more salient in those areas. Of course, other considerations – particularly economic ones – shaped individuals' decisions whether to support or oppose joining the EU; however, Charnysh was exploring the role of anti-Semitism in *addition* or in *combination* with these pathways.

Through a variety of analyses, Charnysh shows not only that anti-Semitic attitudes and actions are more prevalent in areas in which Jews lived *prior* to the Holocaust, but also that voting against EU accession is linked to the size of the Jewish population or pogrom occurrence prior to the Holocaust. Critically, Charnysh demonstrated that the Jewish population prior to the Holocaust was not just a proxy for modern day economic development in order to show that indeed it was the salience of anti-Semitism which enabled individuals to vote against EU accession rather than purely their modern day economic status. Furthermore, she had to distinguish between the anti-Semitic legacy of the Holocaust from the economic implications of the devastation of WWII.

After replicating Charnysh's results, we focus our extensions on solidifying this distinction between the legacy of anti-Semitism when compared to the economic legacy of WWII. We modify her use of sequential g-estimation in order to distinguish between these two pathways. We find further support for her hypothesis that indeed anti-Semitism itself offers a significant pathway to predict voting against EU accession.

# Extensions

## Charnysh's Use of Sequential G-Estimation

In Charynsh's original paper, she conducted sequential g-estimation in order to explore whether the effect of the share Jewish in a county prior to the Holocaust on the Polish vote to accede to the EU was mediated by a proxy for anti-Semitism - Charnysh uses the 2001 parliamentary vote share for the League of Polish Families Party, or LPR - or whether it was mediated by a proxy for the economic effects of World War II. This analysis was extremely critical for Charnysh to conduct, as it provides more robust support for her theory of voting against EU accession as a result of historically entrenched anti-Semitism. Had her results depicted a strong pathway to the EU vote through the economic effects of WWII, there would be less evidence that anti-Semitism was a motivating force for voting against joining the EU.

Sequential g-estimation, developed for political science by Acharya, Blackwell, and Sen, is a method to provide unbiased estimates of the controlled direct effect of the independent variable on the outcome when it may be mediated by a post-treatment variable.[2] A useful visual diagram of these variables is taken from Acharya, Blackwell, and Sen's paper and displayed in Figure 1. To find this controlled direct effect, this method conducts regression in two steps. First a regression is run including the treatment, post-treatment mediators, and pre- and post-treatment controls. The next step of sequential g-estimation regresses the treatment and pre-treatment controls on a "de-meaned" version of the outcome which subtracts out the effect of the post-treatment mediator. In this way, the second step provides an estimate of the relationship between treatment and the outcome independent of the pathway which flows through the post-treatment mediator.

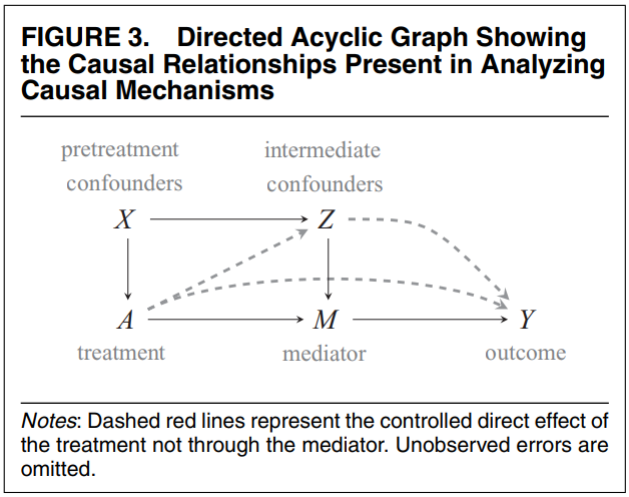


Figure 1: Acharya, Blackwell, and Sen graph of sequential g-estimation

Sequential g-estimation provided more support for her theory. Her analysis found that when income tax (a proxy for economic impact of WWII) was included without including the anti-Semitic LPR vote as a mediator, the proportion of Jews in 1931 in a county still had a significant effect on the EU vote. This result suggests that the proportion of Jews in 1931 decreases the probability of EU accession vote independently of the economic impact of WWII on a

[2] Advit Acharya, Matthew Blackwell, and Maya Sen, "Explaining Causal Findings Without Bias: Detecting and Assessing Direct Effects," *American Political Science Review* 110, no. 3 (2016): 512-529.

region. Conversely, When including the anti-Semitic LPR vote as a mediator, the proportion of Jews in 1931 lost significance as a predictor of the EU accession vote. As such, anti-Semitism is likely the pathway through which share Jewish in 1931 relates to the EU vote, mediated by other anti-Semitism such as the vote for the LPR in 2001.

## Extending Sequential G to Include Multiple Mediators

Our first extension consisted of altering the construction of the directed acyclic graph (DAG) by placing *both* the LPR Vote and the income tax variable as mediators. Charnysh placed her variables `LPRVote` - the anti-Semitic vote - and `logInc` - the logged income tax per capita - as mediators independently, in the M section of the Acharya, Blackwell, and Sen's graph. Though both the income levels, proxied by Charnysh through income tax, and the share of the vote for the anti-Semitic LPR individually could both indeed mediate the effect of the pre-WWII Jewish population on the EU Vote, we see no reason why they could not work in some combination to mediate the effect, or perhaps cannibalize their own mediation effect. As such, our first extension to Charnysh's work was to place both the LPR vote share and the logged income tax in the mediators section of the graph in the same model. We repeated the sequential G analysis including intermediate confounders of `Share Urban 2000`, `Share Retirees 2000`, and `Share Private Sector 2000`, as Charynsh did, in the Z section of Acharya, Blackwell, and Sen's graph. We also conducted the analysis without including the intermediate confounders. The results are presented in Table 1.

Recall from Charnysh's paper that the share of the LPR vote functioned as an effective mediator for the effect of the pre-WWII Jewish population on the EU accession vote, but the income proxy did not. Our models, placing both as mediators, indicate essentially the same phenomenon.

We notice that `Share Jewish 1931` is not statistically significant in any of our models, meaning that the impact of `Share Jewish 1931` on EU Vote flows through some combination of `Pct VoteLPR 2001` and `log(Income Tax 2002)`, not by itself. `Pct VoteLPR 2001` is statistically significant in both stage 1 models (1 and 3), indicating that there is a strong negative relationship between the anti-Semitic vote for LPR in 2001 and voting against EU acession in 2003. The relationship of `log(Income Tax 2002)` is slightly more complex. Where intermediate economic confounders in 2000 are included (model 1), `log(Income`

| | *Dependent variable:* | | | |
|---|---|---|---|---|
| | EU Vote | De-Meaned EU Vote | EU Vote | De-Meaned EU Vote |
| | (1) | (2) | (3) | (4) |
| Share Jewish 1931 | −0.169 | −0.174 | −0.148 | −0.148 |
| | (0.107) | (0.124) | (0.113) | (0.128) |
| Pct VoteLPR 2001 | −0.758*** | | −0.734*** | |
| | (0.123) | | (0.132) | |
| Log(Income Tax, 2002) | 0.008 | | 0.048*** | |
| | (0.016) | | (0.015) | |
| Share Catholic 1931 | −0.061** | −0.046 | −0.056* | −0.056* |
| | (0.030) | (0.032) | (0.033) | (0.033) |
| Share Urban 1931 | −0.014 | 0.013 | 0.015 | 0.015 |
| | (0.029) | (0.027) | (0.028) | (0.027) |
| Share Literate 1931 | −0.099 | −0.016 | −0.058 | −0.058 |
| | (0.093) | (0.109) | (0.095) | (0.110) |
| Share Ag. 1931 | −0.140*** | −0.218*** | −0.166*** | −0.166*** |
| | (0.041) | (0.040) | (0.039) | (0.031) |
| log(Pop 1931) | 0.011 | 0.010 | 0.002 | 0.002 |
| | (0.009) | (0.010) | (0.010) | (0.009) |
| Prussian Partition | −0.066*** | −0.059*** | −0.049** | −0.049** |
| | (0.020) | (0.022) | (0.021) | (0.022) |
| Russian Partition | −0.096*** | −0.096*** | −0.096*** | −0.096*** |
| | (0.016) | (0.016) | (0.016) | (0.017) |
| Share Urban 2000 | 0.134*** | | | |
| | (0.036) | | | |
| Share Retirees 2000 | −0.609** | | | |
| | (0.238) | | | |
| Share Private Sector 2000 | 0.126*** | | | |
| | (0.045) | | | |
| Constant | 0.895*** | 0.909*** | 0.995*** | 0.995*** |
| | (0.129) | (0.128) | (0.135) | (0.114) |
| Observations | 181 | 181 | 181 | 181 |
| $R^2$ | 0.774 | 0.664 | 0.733 | 0.590 |
| Adjusted $R^2$ | 0.756 | 0.649 | 0.717 | 0.571 |
| Residual Std. Error | 0.043 (df = 167) | 0.047 (df = 172) | 0.046 (df = 170) | 0.046 (df = 172) |
| *Note:* | | | | *p<0.1; **p<0.05; ***p<0.01 |

Table 1: Sequential G-estimation with both *logInc* and *LPRVote* in the mediators node

Tax 2002) loses significance, but where intermediate economic confounders in 2000 are not included (model 3), log(Income Tax 2002) retains a strong positive relationship. This suggests that there is a relationship between economic conditions in a region and its propensity to vote for EU accession. Counties with higher income tax (and thus higher income) or counties with a greater proportion of working-age individuals and/or urban population and/or private sector employees are more likely to vote for EU accession.

We believe these results further strengthen Charnysh's conclusion that "lower EU support in counties with larger pre-WWII Jewish populations did not result from the dampening economic impact of the Holocaust" (Charnysh 1730). The anti-Semitic vote for LPR is more highly predictive of and correlated with voting against EU accession than any economic predictors. Furthermore, even if economics are correlated with voting for EU accession, it is evident that economics are not a *mediator* for the the impact of the Holocaust, but rather are just a relevant present-day consideration. To further explore this connection, we attempt to use Share Jewish 1931 and the other historical covariates to predict Log(Income Tax 2002) and find that Share Jewish 1931 is not statistically significant (results in Table 2). As such, we can tell there is not a clear pathway from Share Jewish 1931 to Log(Income Tax 2002) and then to EU Vote. Rather, the effects of Share Jewish 1931 flow through Pct VoteLPR 2001, suggesting that anti-Semitism is the path through which Share Jewish 1931 relates to voting against EU accession.

Substantively, it is interesting to note this powerful relationship between LPR vote and voting against EU accession. We varied pctVoteLPR from its minimum to maximum observed values and calculated predicted pct YES EU Accession, holding all other covariates at their medians and at their observed values (Figure 2). Indeed, if all other covariates are held at their observed values, we predict that a county which voted 5% for the LPR in 2001, would vote in a a 95% confidence interval of (.726, .748) to accede to the EU. However, if 15% of the county voted for the LPR in 2001, this predicted interval drastically reduces to (.645, .679).

## Extending Sequential G for the LPR Vote

Looking once more over Charnysh's findings, we note that she intuits that even though the LPR vote share acted as an effective mediator for the effect or pre-WWII Jewish population on EU accession, there still existed a causal

| | *Dependent variable:* |
|---|---|
| | Log(Income Tax 2002) |
| Share Jewish 1931 | $-0.806$ |
| | (0.538) |
| Share Catholic 1931 | 0.226 |
| | (0.160) |
| Share Urban 1931 | $-0.055$ |
| | (0.142) |
| Share Literate 1931 | $1.040^{**}$ |
| | (0.470) |
| Share Ag. 1931 | $-1.321^{***}$ |
| | (0.164) |
| log(Pop 1931) | $0.198^{***}$ |
| | (0.046) |
| Prussian Partition | $-0.234^{**}$ |
| | (0.103) |
| Rusian Partition | 0.029 |
| | (0.071) |
| Constant | $-2.183^{***}$ |
| | (0.653) |
| Observations | 181 |
| $R^2$ | 0.721 |
| Adjusted $R^2$ | 0.708 |
| Residual Std. Error | 0.231 (df = 172) |
| F Statistic | $55.654^{***}$ (df = 8; 172) |
| *Note:* | $^{*}$p<0.1; $^{**}$p<0.05; $^{***}$p<0.01 |

Table 2: OLS to predict *logInc* with *Share Jewish 1931*

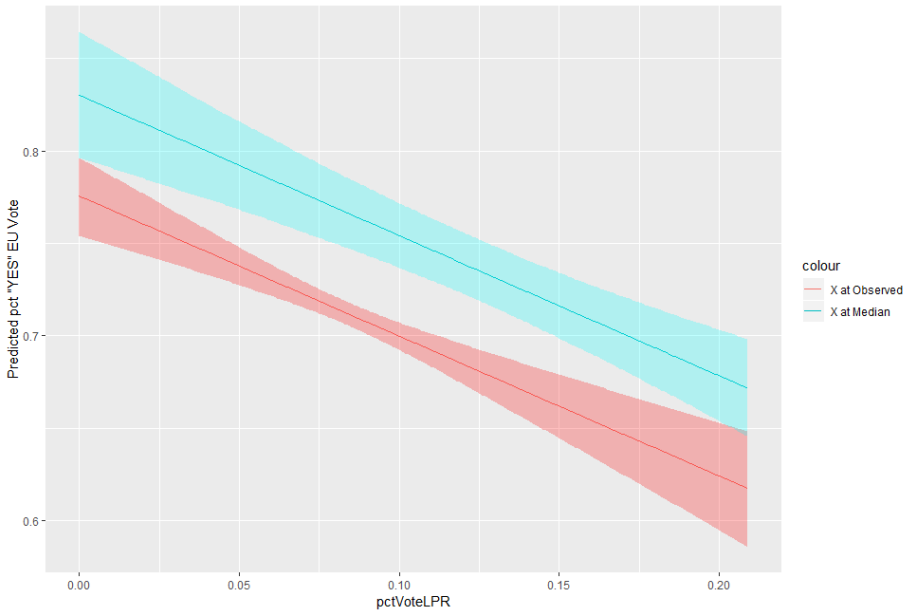


Figure 2: Predicted Percent EU Accession Vote as pctVote LPR Varies. Line represents point estimate, and shaded area represents 95% confidence interval.

pathway from the historical Jewish population levels to the resonance of anti-Semitic cues with voters, and thus lower support for Polish accession to the EU. Charnysh tells us that the LPR Vote directly influenced the EU accession vote, and that the proportion of Jews in an area prior to World War II influenced the LPR vote, but did not affect the EU accession vote once the LPR vote effect is accounted for.

Using the same sequential G-estimation that Charnysh used for her analysis, we attempted to determine the causal pathway from the pre-WWII Jewish population to the LPR vote. Figure 2 shows a graph of the potential causal pathways, where an arrow from a node to another node represents a potential causal pathway. From Charnysh, we know that the arrow from `LPR` to `EU` exists, and a direct arrow from `Jews 1931`, representing the pre-WWII Jewish population, does not exist. Using Charnysh's own techniques, we attempted to determine the pathway between the `Jews 1931` and `LPR`.

We again use Charnysh's original dataset, and attempt to identify potential mediators between the pre-WWII Jewish population share and the vote for the LPR in 2001. We notate the direct pathway as $B$. As Charnysh does in her

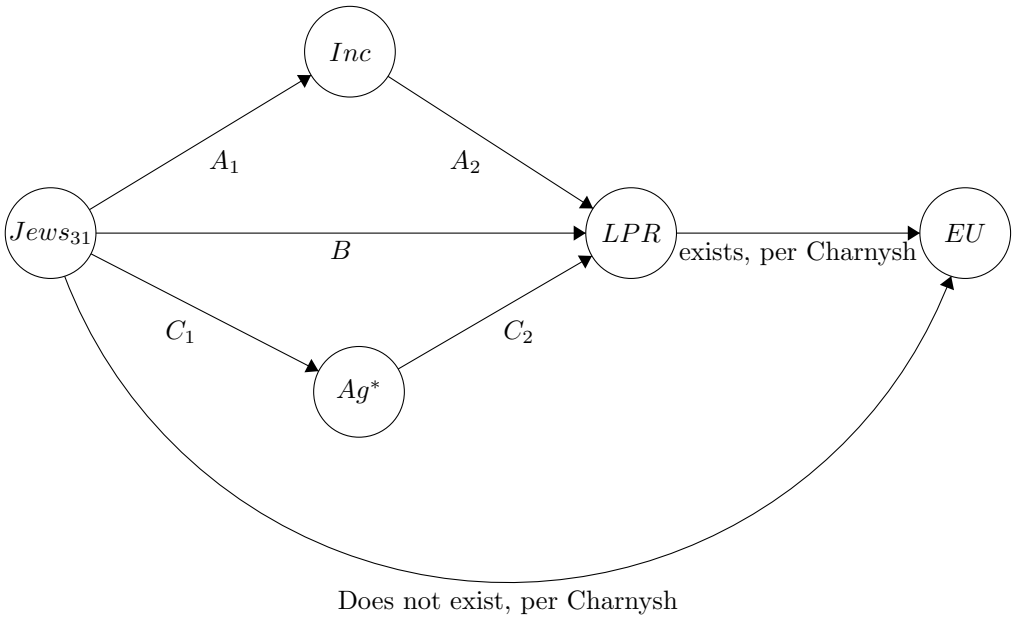


Figure 3: Potential causal pathways from the share Jewish in 1931 to EU accession vote

paper, we note that the income level (`Inc`) is a potential mediator, but are unable to use her proxy of the logged per capita income tax as it is from 2002, which is after the 2001 vote for the LPR. In Figure 3, this pathway goes over edges $A_1$ and $A_2$. We also note that the portion of a local economy in the agricultural sector could mediate the effect in a similar manner, traveling over edges $C_1$ and $C_2$. Though Charnysh's dataset contains data on the portion of jobs in the agricultural sector, it comes from 2002 - prior to the EU accession vote, but after the 2001 election in which the LPR vote is measured. As such, we instead create another proxy, taking the "share Urban in 2000" measure, and subtracting it from 1. Though this might more accurately be considered a "share not urban" measure than a "share agricultural" measure, our proxy and the 2002 purely agricultural measure have a high correlation of 0.71, indicating that our proxy is at least serviceable. Using the same historical covariates as Charnysh, we ran similar sequential G-estimation models (results in Table 3) to determine through which of the pathways in Figure 3,

Our analysis finds that indeed, the pathway from `Jews 1931` to `LPR Vote` travels through path $B$, rather than through a mediating variable of the share

| | *Dependent variable:* | |
|---|---|---|
| | pctVoteLPR | de-Meaned pctVoteLPR |
| | (1) | (2) |
| Share Jewish 1931 | 0.257*** | 0.260*** |
| | (0.063) | (0.063) |
| Share Non-Urban 2000 | 0.003 | |
| | (0.021) | |
| Share Catholic 1931 | 0.048** | 0.049** |
| | (0.019) | (0.020) |
| Share Urban 1931 | 0.017 | 0.016 |
| | (0.018) | (0.021) |
| Share Literate 1931 | −0.015 | −0.009 |
| | (0.058) | (0.060) |
| Share Ag. 1931 | 0.065*** | 0.065*** |
| | (0.023) | (0.020) |
| log(Pop 1931) | −0.006 | −0.006 |
| | (0.005) | (0.005) |
| Prussian Partition | −0.033*** | −0.032*** |
| | (0.012) | (0.012) |
| Russian Partition | −0.051*** | −0.052*** |
| | (0.009) | (0.009) |
| Share Retirees 2000 | −0.093 | |
| | (0.145) | |
| Share Private Sector 2000 | 0.010 | |
| | (0.027) | |
| Constant | 0.100 | 0.093 |
| | (0.077) | (0.074) |
| Observations | 181 | 181 |
| $R^2$ | 0.446 | 0.438 |
| Adjusted $R^2$ | 0.410 | 0.412 |
| Residual Std. Error | 0.027 (df = 169) | 0.027 (df = 172) |
| F Statistic | 12.373*** (df = 11; 169) | 16.752*** (df = 8; 172) |
| *Note:* | | *p<0.1; **p<0.05; ***p<0.01 |

Table 3: Sequential G-estimation with *Share Non-Urban* in the mediators node

non-Urban in 2000. Even when accounting for the mediating variable of share non-Urban, the coefficient on `Share Jewish 1931` retains positive statistical significance (in Model 2). The share non-Urban in 2000 is insufficient to explain

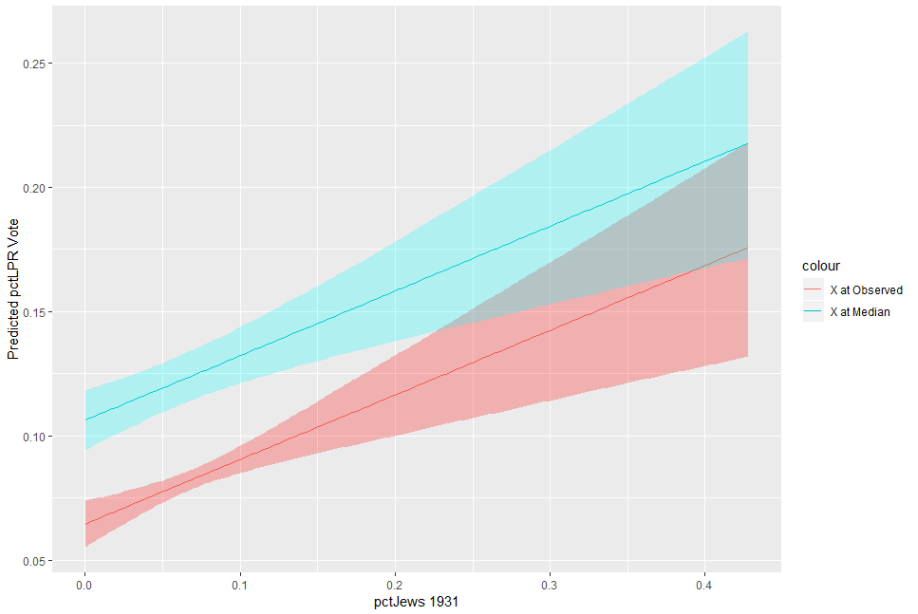


Figure 4: Predicted Percent LPR Vote as Percent Jewish in 1931 Varies. Line represents point estimate, and shaded area represents 95% confidence interval.

the 2001 LPR vote without inclusion of the share Jewish in 1931 variable. In this way, we have more evidence that it is precisely anti-Semitism that motivated the LPR vote in 2001, rather than the effects of WWII in preventing urbanization or development of regions.

This relationship itself is striking. We varied `pct Jewish 1931` from its minimum to maximum observed values and calculated predicted `pct LPR Vote`, holding all other covariates at their medians and at their observed values (Figure 4). Indeed, if all other covariates are held at their observed values, we predict a 95% confidence interval of (.055, .074) percent of a county voting for the LPR with a near 0% Jewish population in 1931. However, if roughly 17% of the population was Jewish in 1931, this predicted interval drastically increases to (.096, .121).

In sum, our extensions have helped confirm the robustness of Charnysh's theory. Indeed, anti-Semitism appears to be the pathway through which share Jewish implicates both the LPR vote in 2001 and the EU vote in 2003.

## Further Research

We see two main pathways for further research on this question using Charnysh's techniques. First, we see the possibility of a new dependent variable, either through another national referendum or more parliamentary elections. Notably, with national parliamentary elections, one party would have to be basing its campaign primarily on anti-Semitic views or policies. Indeed, the lack of such a party was why we could not use the most recent Polish parliamentary elections as such. As members of mainstream Polish parties tend to employ certain anti-Semitic cues, there has yet to be another fringe element garnering support from *primarily* anti-Semitic sources.[3] The irony of politics as a whole becoming more anti-Semitic making anti-Semitism harder to measure is not lost upon us, and perhaps points to a need to operationalize new variables, or "hope" that another referendum comes along. The second main pathway for further research involves using observation matching prior to analysis to address causal effects. Though matching is extremely difficult in the absence of a binary treatment variable, we see potential in Charnysh's paper in her section on the existence of pogroms in Polish counties in 1941. Charynsh's dataset with such variables only included towns in the Bialystok region, resulting in too few observations from which to draw meaningful conclusions after matching and pruning. However, future datasets which contain similar variables for the whole country would offer an interesting opportunity to have a more robust causal test of the effect of historic anti-Semitism on the present.

Finally, we would be remiss if we did not mention the importance of findings such as Charnysh's in the modern political climate. With far-right political groups on the rise in many democracies, we believe that analyses such as Charnysh's carry increasing weight. Understanding the variables that can mediate historical ethnic tensions comes with great import in a world with rising xenophobia, especially in countries that have the combination of historical ethnic and racial tensions and massive amounts of modern power, such as the United States. Additionally, we see situations coming to pass across the globe that carry similar undertones to the Holocaust in their political ramifications, and thus in a few decades may present areas ripe to be studied with these techniques - from the treatment of migrants on the US-Mexico border, to the

[3] Esther Webman, "Antisemitism Worldwide 2018 General Analysis," Kantor Center for the Study of Contemporary European Jewry, Tel Aviv University: 96-98, accessed at `http://www.kantorcenter.tau.ac.il/sites/default/files/Antisemitism%20Worldwide%202018.pdf`.

internment of the Uighurs in China. Collecting data on these situations *now* would allow stronger analyses later, using the same techniques that Charnysh used in her paper.