Trump Rallies and Hate Crimes: A Comment on Feinberg et al. (2019)

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Abstract

This note replicates and critiques the analysis of Feinberg et al (2019), which claims that Donald Trump election rallies led to a 226% increase in county hate incidents. After correcting their analysis for various problems, we find no effect of rallies on hate incidents.

1 Introduction

Feinberg et al (2019) claim evidence of an association between Donald Trump election rallies and county hate incidents. In particular, they argue that Donald Trump election rallies led to a heightened frequency of hate incidents. We collect the same data used by Feinberg et al., and then show that their conclusion is driven by the assumptions underlying their regression framework. Despite the language used in their paper, the analysis they present does not actually analyze whether counties that hosted Trump rallies saw increases in hate crimes following the rallies. Instead, the claim of a 226% increase relied on comparing counties with rallies to other counties without them. Yet politicians tend to hold political rallies near where large numbers of people live. And in places with more people, the raw number of crimes is generally mechanically higher. Appropriately controlling for population eliminates the effect they report. Further, as an example of the flaws in their model, we show that applying their methodology to Hillary Clinton election rallies yields the ostensible result that Clinton rallies led to an increase in hate incidents as large as the supposed Trump effect, if not larger.

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2 Data

We obtain the exact data used by Feinberg et al to the best of our abilities, given the description of the data they use in their paper. Table 1 reports the range and mean of each of the relevant variables in the data we obtained. Table 2 analogously reports the range and mean that Feinberg et al report in their data. They do not report the range and mean for every variable in their paper, so we list those for which they do. This allows us to assess the extent to which we have been able to collate the same or highly similar data, in order to replicate their study.

Variable	Mean	Minimum	Maximum
# Hate Incidents	0.03	0	16
# Hate Groups	24.6	0	79
Jewish Pop. Per Capita	0.00297	0	0.29292
% Rep 2012	59.6%	7.3%	95.9%
% College	20.4%	1.9%	78.8%
Violent Crime (Per 10k)	28.19	0	920.88
Property Crime (Per 10k)	200.89	0	3480.01
Population	98318	82	9818605

Table 1 – Means and Ranges of Control Variables Used in Analysis

Variable	Mean	Minimum	Maximum
# Hate Incidents	0.03	0	16
# Hate Groups	24.6	0	79
"Jewish Pop. Per Capita"	315.7	0	28903.7
% Rep 2012	59.7%	7.1%	95.9%
% College	20.8%	3%	80.2%

Table 2 – Means and Ranges Reported by Feinberg et al.

We obtain the hate incident data from the Anti-Defamation League (ADL) website, the link to which is provided in Feinberg et al.'s paper.[1] We match exactly the range and mean (the latter within determinable rounding error) of this variable with the range and mean reported by Feinberg et al. We obtain the hate group data from the Southern Poverty Law Center (SPLC) website.[2] Again, we match exactly the range and mean of this variable with those reported by Feinberg et al.

Feinberg et al. state that they obtain the data on county-level Jewish population "culled from the 2011 North American Jewish Data Bank and the 2011 U.S. Census American Com-

[1] https://www.adl.org/education-and-resources/resource-knowledge-base/adl-heat-map
[2] https://www.splcenter.org/hate-map?year=2016

munity Survey by Comenetz (2012)." We take this to mean that they used the data from the North American Jewish Data Bank,[3] [4] which itself draws on the Comenetz data. Feinberg et al report that "per capita Jewish population ranges from 0 to 28,903.7 with a mean of 315.7". By definition of per capita, this statement is impossible – so we assume that they are multiplying the per-capita numbers by 100,000. (Regardless, because this is a control variable, multiplication by a constant will have no effect on any other coefficients in the regression analysis.) If this is the case, then our numbers closely, but not exactly, match those reported by Feinberg et al.

The ADL, SPLC, and rally data are at the *place* level, whereas Feinberg et al. run their regressions at the county level. We use the Missouri Census Data Center's geographic correspondence dataset,[5] which is based on GIS, to assign places to their corresponding counties.

Feinberg et al. do not report from where they obtained their 2012 county-level presidential election data, so we obtain the county-level 2012 election returns data from Dave Leip's Election Atlas,[6] a standard source in the political science literature for election returns data. The range and mean of our % Republican vote share variable very closely matches theirs.

Feinberg et al. state that they obtained data on county-level college education rates for individuals aged 25+ from the 2015 American Community Survey. We also obtained data on this variable from the 2015 American Community Survey.[7] The range and mean of this variable is close – but not identical – to that reported by Feinberg et al.

We obtain the list of rallies for the 2016 Donald Trump presidential campaign from Wikipedia, which is the source listed by Feinberg et al.[8] We obtain the list of Hillary Clinton rallies for the 2016 general election campaign from FairVote.[9]

Feinberg et al. state that they obtain county-level violent crime and property crime rates from "the FBI's 2015 Unified Crime Report". The Unified Crime Report (UCR) encompasses

[3] `https://www.jewishdatabank.org/databank/search-results/study/602`

[4] `https://www.jewishdatabank.org/content/upload/bjdb/602/N-JewishMapUS_2011_Methodology.pdf`

[5] `http://mcdc.missouri.edu/applications/geocorr2014.html`

[6] `https://uselectionatlas.org/`

[7] `https://data2.nhgis.org/main` – Series B15003.

[8] `https://en.wikipedia.org/wiki/List_of_rallies_for_the_2016_Donald_Trump_presidential_campaign`

[9] `https://docs.google.com/spreadsheets/d/14Lxw0vc4YBUwQ8cZouyewZvOGg6PyzS2mArWNe3iJcY/edit#gid=0`

many different datasets, one of which is the county-level crime data, available on ICPSR.[10] Within this, there is data on Arrests and, separately, Offenses Known. Because not all offenses result in arrests but an offense known constitutes a crime nonetheless, we use the UCR County-Level Offenses Known to obtain our violent crime and property crime rate data.[11] Feinberg et al. do not report summary statistics for these variables. Also from the UCR, we obtain official data on hate crimes as an alternative measure to the ADL's data on hate incidents.[12]

We obtain county population data from the 2010 U.S. Census.[13] Note that using intercensal estimates[14] – approximations of county population made by the Census Bureau for non-Census years – corresponding to 2015 does not change our findings.

3 Analysis

3.1 Replication of Headline Result - Population Controls & Clinton Rally Effects

We run negative binomial regressions directly analogous to those of Feinberg et al. Table 1 reports the coefficients resulting from these regressions. In particular, column (1) repeats the main regression specification presented by Feinberg et al, the results of which we match rather closely, with a coefficient of 1.12 (compared to 1.18 in Feinberg et al) on the Trump rallies variable. Column (2) repeats this same regression, except with Clinton rallies, instead of Trump rallies, as the key variable of interest. The coefficient here is 1.21, an even larger number than the coefficient on Trump rallies in (1) (although the difference between the two is not statistically significant).

In addition to closely matching the estimated Trump rally effect in Feinberg et al., there are several other ways to demonstrate that we have closely replicated the full results of their model. Looking at the other control variables, these also typically have very similar coefficients to the estimates provided in Feinberg et al. Formally, denoting their point estimates as b and

[10] `https://www.openicpsr.org/openicpsr/project/108164/version/V1/view`

[11] Note that, in the county-level UCR numbers, data is missing for the counties corresponding to 4 out of 5 of New York's boroughs. This is because each borough is incorporated as a separate county, but the New York Police Department encompasses all five boroughs and is headquartered in Manhattan, so the data for the city as a whole is given for Manhattan alone. As such, we fill in the missing observations for the remaining 4 boroughs with the data for New York City as a whole.

[12] `https://www.icpsr.umich.edu/icpsrweb/ICPSR/studies/37060`

[13] This variable is included in the 2011 North American Jewish Data Bank, so we do not separately acquire it.

[14] `https://data.nber.org/data/census-intercensal-county-population-age-sex-race-hispanic.html`

Table 3 – Replication of Base Specification - Trump and Clinton Rally Effects

	(1) Hate Incidents	(2) Hate Incidents	(3) Hate Incidents	(4) Hate Incidents
Trump Rally	1.1152***		0.1772	
	(0.1759)		(0.1328)	
Clinton Rally		1.2128***		0.1608
		(0.3700)		(0.2246)
Population (Log)			1.1748***	1.1902***
			(0.0727)	(0.0704)
Jewish Pop. (p.c.)	29.6317***	29.5561***	9.7918***	9.7363***
	(5.8375)	(5.4755)	(2.9117)	(2.9242)
Hate Groups	0.0220***	0.0221***	-0.0054	-0.0057
	(0.0051)	(0.0052)	(0.0035)	(0.0035)
Violent Crime	0.0043	0.0049	0.0025	0.0023
	(0.0029)	(0.0039)	(0.0032)	(0.0031)
Property Crime	0.0007	0.0010**	0.0008	0.0009
	(0.0004)	(0.0005)	(0.0008)	(0.0007)
% Rep. 2012	-4.0908***	-3.8977***	-1.3461**	-1.2439**
	(0.7139)	(0.7746)	(0.5709)	(0.5694)
% College	5.5976***	6.6066***	3.0044***	3.1048***
	(0.8383)	(0.8663)	(0.7814)	(0.7929)
Northeast	0.7020**	0.7640***	0.7473***	0.7540***
	(0.2759)	(0.2717)	(0.2308)	(0.2288)
Midwest	-0.4082	-0.3294	-0.3835	-0.3761
	(0.2673)	(0.2788)	(0.2491)	(0.2510)
South	-0.6969**	-0.6859**	-0.2221	-0.2240
	(0.2864)	(0.2879)	(0.2086)	(0.2094)
January	-0.9767***	-1.1787***	-1.1383***	-1.1824***
	(0.1852)	(0.1819)	(0.1760)	(0.1683)
February	-1.0075***	-1.1788***	-1.1961***	-1.2346***
	(0.1643)	(0.1720)	(0.1652)	(0.1689)
March	-0.3967**	-0.5310***	-0.5508***	-0.5743***
	(0.1553)	(0.1577)	(0.1485)	(0.1546)
April	-0.7467***	-0.8187***	-0.8893***	-0.9035***
	(0.1692)	(0.1694)	(0.1491)	(0.1540)
May	-0.7223***	-0.7921***	-0.8569***	-0.8705***
	(0.1733)	(0.1751)	(0.1586)	(0.1614)
June	-0.7611***	-0.7980***	-0.9730***	-0.9799***
	(0.1759)	(0.1796)	(0.1569)	(0.1643)
July	-1.1752***	-1.2059***	-1.3050***	-1.3109***
	(0.2148)	(0.2180)	(0.1891)	(0.1932)
August	-0.9521***	-1.0125***	-1.0666***	-1.0765***
	(0.1690)	(0.1666)	(0.1586)	(0.1613)
September	-0.9285***	-0.9449***	-0.9731***	-0.9767***
	(0.1671)	(0.1647)	(0.1596)	(0.1603)
October	-0.6520***	-0.6619***	-0.6411***	-0.6436***
	(0.1434)	(0.1417)	(0.1389)	(0.1382)
December	-0.4354**	-0.4234**	-0.4561***	-0.4547***
	(0.1718)	(0.1654)	(0.1438)	(0.1438)
Constant	-3.8758***	-4.1682***	-17.5205***	-17.7651***
	(0.6148)	(0.7073)	(0.9791)	(0.9631)
$\ln(\alpha)$	1.4618***	1.5591***	0.3038	0.3194
	(0.1717)	(0.1592)	(0.2107)	(0.2069)
Pseudo R-squared	0.3203	0.3130	0.4152	0.4149
Log Likelihood	-2916.22	-2947.36	-2509.19	-2510.46
Observations	37668	37668	37668	37668

* p<0.10, ** p<0.05, *** p<0.01

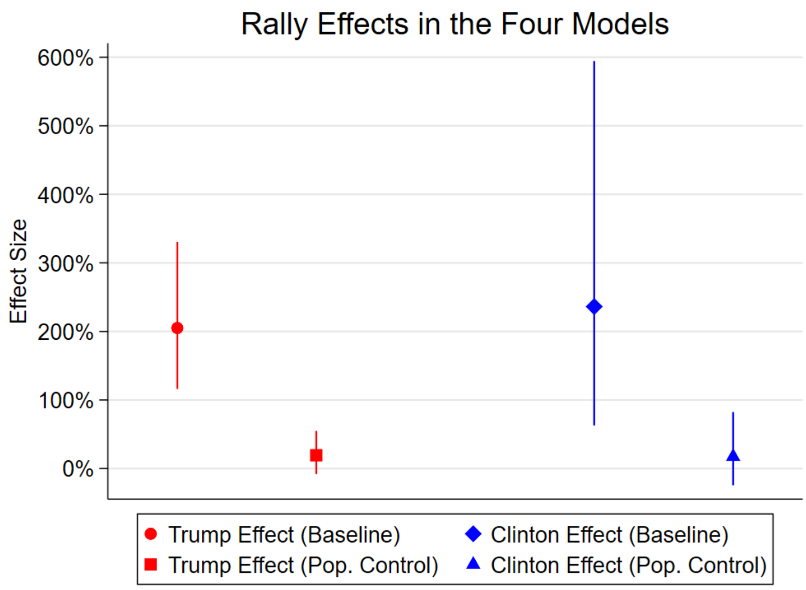

Figure 1 – Trump and Clinton Rally Effects in Base Specification, and with Population Control

ours as $\hat{\beta}$, we can measure the aggregate similarity of the predicted values of the two models. To do this, we use our data to construct the *index* for the two sets of estimates (respectively Xb and $X\hat{\beta}$. Across our regression sample, the resulting correlation between the two indices is 0.9732, and this would likely be even higher except for rounding error as the Feinberg et al. coefficients are often known to only two or fewer significant figures. This demonstrates that we have closely replicated the model in the original paper.

Crucially, we next add controls for the logarithm of population. In an exponential regression model such as this one, including the logarithm of population is the only correct way of controlling for population.[15] Intuitively, negative binomial regressions estimate proportional rather than additive effects. As such, to properly control for the fact that the count of crime grows proportionally with the count of population, the correct approach is to include the log of population as a control. (Using the level of population as a control will not capture this relationship.) After doing this, the effects of both Trump rallies (column 3) and Clinton rallies (column 4) are no longer statistically significant. The model fit as measured by the pseudo R^2 and log likelihood, is also substantially improved. Figure 1 plots the four coefficients side-by-side, transformed to be represented in terms of a percentage increase (the way Feinberg et al reported their headline result).

[15]See `https://www.mathematica-journal.com/2013/06/negative-binomial-regression/` for a detailed explanation of this.

3.2 Replication Using FBI Hate Crimes Data

Next, in Table 4, we reproduce the same regressions in columns 1-4 of Table 3, except using the FBI UCR Official Hate Crime Data instead of the ADL data on Hate Incidents. Similarly, we get a significant coefficient on the Trump and Clinton rally variables if we do not control for population; once we do, both coefficients again fall to insignificant levels very close to zero. Figure 2 again plots these four transformed coefficients side-by-side.

Table 4 – Base Specification with FBI Hate Crime Data

	(1) Hate Crimes	(2) Hate Crimes	(3) Hate Crimes	(4) Hate Crimes
Trump Rally	1.0168***		-0.0440	
	(0.1891)		(0.1079)	
Clinton Rally		1.3833***		0.0724
		(0.2935)		(0.2181)
Population (Log)			1.0688***	1.0617***
			(0.0349)	(0.0325)
Pseudo R-squared	0.1936	0.1886	0.3035	0.3034
Log Likelihood	-10824.11	-10890.90	-9349.54	-9349.68
Observations	37668	37668	37668	37668

Control variables in these regressions are identical to those in Table 3; results are suppressed for brevity. * p<0.10, ** p<0.05, *** p<0.01

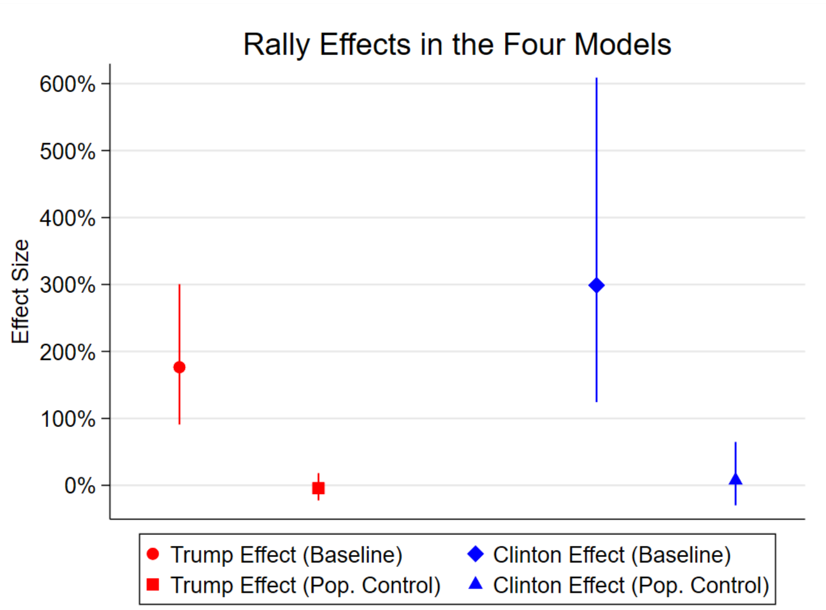

Figure 2 – Trump and Clinton Rally Effects Using FBI Hate Crime Data

3.3 Back to the Future

Feinberg et al. aim to investigate whether "following a Trump rally, the hosting county is more likely to report an increase in incidents targeting minorities". However, the analysis they present did not actually analyze whether counties that hosted Trump rallies saw an increase in hate crimes following the rally relative to their prior level. Instead, the headline claim of a 226% increase relied on comparing counties with rallies to other counties without them.

To demonstrate the pitfalls of using cross-sectional analyss to verify a temporal claim, and more specifically the flaws underlying the statistical model used by Feinberg et al., we present an additional falsification test by regressing *past* hate incidents on *future* Trump rallies. In other words, we ask whether Trump rallies in, say, November cause hate incidents in the preceding February. This would be an absurdity. To perform this analysis, we define a county as having a future rally for candidate x if it subsequently held a rally for that candidate in a later month, and had not already held a rally for that candidate in our sample.[16] Aside from this temporal switch, we retain the primary regression specification estimated by Feinberg et al. Despite the absurd nature of this hypothesis, we do indeed find that future Trump and Clinton rallies cause hate incidents in the past. Furthermore, the magnitude of the coefficients on both the Trump (1) and Clinton (2) specifications are almost indistinguishable from from the baseline estimates in Table 3. This is an example of the hazards of running static regression specifications to study a dynamic question (i.e., do Trump rallies cause an increase in hate crimes in the county where the rally is held relative to the numbers of hate crimes beforehand?).

3.4 Dynamic Analysis

Despite these implementation issues, Feinberg et al. are correct in one regard - the natural thought experiment to test is whether hate crimes rose in counties hosting a Trump rally following the rally, relative to their previous level.

To this end, we run difference-in-differences specifications – comparing the changes in hate incidents before/after Trump (Clinton) rallies in counties where rallies were held with

[16] This ensures that effects of past rallies cannot be attributed to the Future Rally variables.

Table 5 – Falsification Test - Future Rally Effects on Past Hate Incidents

	(1) Hate Incidents	(2) Hate Incidents
Future Trump Rally	1.0561***	
	(0.2282)	
Future Clinton Rally		1.1946***
		(0.3177)
Pseudo R-squared	0.3147	0.3137
Log Likelihood	-2940.34	-2944.30
Observations	37668	37668

Control variables in these regressions are identical to those in Table 3; results are suppressed for brevity. * p<0.10, ** p<0.05, *** p<0.01

the contemporaneous changes in counties where rallies were not held. If Trump (Clinton) rallies did indeed cause hate incidents, then we should see an increase in hate incidents in the counties where they were held relative to the counties where they were not. Estimating such a specification requires adding a fixed effect (dummy variable) for each county. Having included these, demographic controls that are constant across time (such as those controls included in previous regressions) become redundant. We do however also include dummy variables for month, to separate the effects of rallies from general temporal variation in the number of incidents. In fact, as seen in Table 6, we find no significant difference.[17] This is true for both Trump rallies (column 1) and Clinton rallies (column 3). It remains true if we again use FBI UCR hate crimes as the outcome variable (columns 2 and 4), rather than ADL hate incidents. Indeed, not only are the point estimates for Trump rallies on hate crimes statistically insignificant, they are not even consistently signed.

Table 6 – Difference in Differences Estimates

	(1) Hate Incidents	(2) Hate Crimes	(3) Hate Incidents	(4) Hate Crimes
Trump Rally	0.1968	-0.1357		
	(0.1662)	(0.0861)		
Clinton Rally			0.0885	0.0130
			(0.1446)	(0.0968)
Month FE	Yes	Yes	Yes	Yes
Log Likelihood	-1481.51	-5575.59	-1482.56	-5577.99
Observations	3000	9648	3000	9648

* p<0.10, ** p<0.05, *** p<0.01

[17] The regressions we run in Table 6 are Poisson regressions. We consider these to be closest in nature to the negative binomial regressions of Feinberg et al. while still being tractable in a difference-in-differences framework.

4 Conclusion

Do Trump rallies boost hate crimes? Feinberg et al. initially reported that Trump rallies led to an increase in hate incidents on the order of 226% in the counties wherein the rallies were held. This is an undeniably huge effect size. However, we find that the analogous purported effect of Clinton rallies on hate incidents is just as large, if not larger.

When we control for the logarithm of population – the correct way of controlling for population in a negative binomial model – both coefficients immediately fall to levels statistically indistinguishable from zero. This demonstrates that the headline result of Feinberg et al. was an artefact of their failure to account for the fact that higher population places will tend to have proportionally higher counts of crime.

In a further extension, we use FBI UCR Official Hate Crime data instead of ADL hate incident data. Again, controlling for population eliminates the result. Finally, we observe that, contrary to the claim that Trump rallies led to an increase in hate incidents, Feinberg et al. did not even analyze a dynamic statistical model, only comparing at the static level hate incidents in counties with Trump rallies to the level in counties without them. We show that regressing *past* hate crimes on *future* Trump rallies leads to a significant effect similar in magnitude to the headline result, demonstrating that hate incidents were already higher in counties with Trump rallies before the rallies were ever held (an unsurprising result given their higher population). Proceeding further in this vein, we run a difference-in-differences specification to more appropriately answer the main research question by comparing the *change* in the number of hate incidents in counties with Trump rallies before/after the rally to the change in counties without Trump rallies. In so doing, we again find no significant effect.

Reference

Feinberg, Branton, and Martinez-Ebers (2019). "The Trump Effect: How 2016 Campaign Rallies Explain Spikes in Hate." Working Paper.