

## Appendix

Joan C. Timoneda, Purdue University

Erik Wibbels, Duke University

Below we report the model results for Figures 5, 6 and 7 in Section 6 of the article. Table A1 displays the results for the model underlying Figure 5, our in-sample test. We build an autoregressive linear probability model with lags up to a week and city fixed effects. The dependent variable is a dichotomous protest variable, coded as 1 for the days where a protest occurred (for true protests) or would have occurred (control group). We focus on predicted probabilities in the main paper to assess the capacity of the model to distinguish between protest and non-protest events.

Table A2 shows the results of the logistic regression classifier that we use to build Figure 6. Here we aggregate the data at the protest level and test whether the coefficient of the variation in Google searches can distinguish between protest (treatment) and non-protest (control) groups. We find that the highest values of the coefficient of the variation within one and two weeks prior to the protest are highly predictive of where a protest is likely to take place. However, coefficient values and significance scores are not indicative of the model’s predictive capacity (hence Figure 6 in the main article), as both treatment and control groups are included in the same estimation without any modelling technique designed to find heterogeneous effects. Rather, the classifier’s performance in distinguishing between protest and non-protest events determines the accuracy of the model. This is why we report the results from the classifier in the article and provide these results here for guidance.

In Figure 7, we use gradient boosting to improve the results from the logistic regression classifier considering that events in the dependent variable are rare. We fit a *gbm()* model with 10-fold cross-validation in R which does not produce model coefficients. Rather, we obtain the predictions for each of the folds and present the average predictive capacity of the model in Figure 7. This is the formula we use to specify the model, which is also available in the replication files:  $protest \sim lcoef\_var1 + lcoef\_var2 + lcoef\_var3 + lcoef\_var4 + lcoef\_var5 + lcoef\_var6 + lcoef\_var7$ . As in

	Protest	No Protest
Coefficient of Variation (1)	-0.046** (0.021)	0.005 (0.011)
Coefficient of Variation (2)	-0.031 (0.022)	0.004 (0.011)
Coefficient of Variation (3)	-0.019 (0.022)	0.002 (0.011)
Coefficient of Variation (4)	-0.022 (0.022)	-0.003 (0.011)
Coefficient of Variation (5)	-0.012 (0.021)	-0.008 (0.010)
Coefficient of Variation (24)	-0.000*** (0.000)	-0.000 (0.000)
Coefficient of Variation (48)	0.006 (0.017)	0.014 (0.010)
Coefficient of Variation (72)	0.043** (0.017)	0.006 (0.010)
Coefficient of Variation (96)	0.031* (0.017)	-0.009 (0.010)
Coefficient of Variation (120)	0.015 (0.017)	-0.022** (0.010)
Coefficient of Variation (144)	0.016 (0.017)	0.009 (0.010)
Coefficient of Variation (168)	-0.034** (0.017)	0.029*** (0.010)
Constant	0.016*** (0.003)	0.015*** (0.003)
City Fixed Effects	Yes	Yes
<i>N</i>	185,797	245,367

Table A1: Results of the Linear Probability Model for in-sample test from Figure 5

Figure 5, we use lags of up to one week.

	Protest
Constant	2.137*** 0.317
Coef. of Variation Max (1 week)	0.005 0.022
Coef. of Variation Max (2 weeks)	-0.098*** 0.025
<i>N</i>	263

Table A2: Results of the Logistic Regression Model with 10-fold Cross-Validation for the out-of-sample test presented in Figure 6.

Below is a table showing the protests in our sample, the claim that drove people to the streets, and the estimated participants according to CCC.

Los Angeles	CA	01/18/19	60000	demanding higher pay, smaller classes, and more support staff in LA schools
Boston	MA	06/09/18	20000	protect transgender bathroom rights; PRIDE parade; pro-LGBTQ
Los Angeles	CA	04/15/17	12000	demand Trump tax returns
Minneapolis	MN	11/30/18	7000	pro-immigrant rights; anti-ICE
Berkeley	CA	08/27/17	7000	Rally Against Hate; counter-protest Patriot Prayer
Great Falls	MT	07/05/18	6600	attending a Trump and Republican candidates rally
St. Paul	MN	02/11/17	6000	Supporting Planned Parenthood
Washington	DC	06/18/18	5000	protesting the CCP's systemic persecution of their belief system for the last two decades
Tallahassee	FL	02/21/18	5000	Protesting gun violence in the wake of school shooting
San Francisco	CA	05/01/17	5000	May Day or International Workers' Day; pro-immigration; pro-labor
Salt Lake City	UT	12/02/17	5000	Protesting Trump's monument reduction plan
New York	NY	02/11/17	5000	Supporting Planned Parenthood
New York	NY	06/26/18	5000	Protesting Supreme Court decision on Muslim Travel Ban
Boston	MA	02/19/17	5000	pro-science, pro-environment
San Francisco	CA	02/11/17	4000	protest sexual harassment and gender inequality at Google
St. Louis	MO	02/11/17	4000	Supporting Planned Parenthood
Seattle	WA	04/15/17	4000	demand Trump tax returns
San Jose	CA	02/11/17	4000	Supporting Planned Parenthood
Chicago	IL	04/15/17	4000	demand Trump tax returns
Boston	MA	05/20/17	4000	protesting education cuts in Trump's budget
Boston	MA	11/08/17	4000	Screaming protest
Fresno	CA	02/16/17	3700	Immigrant Rights
Washington	DC	04/15/17	3000	demand Trump tax returns

Washington	DC	10/04/18	3000	protest against Judge Brett Kavanaugh's Supreme Court confirmation
Washington	DC	09/16/17	3000	Protesting FBI classification of Juggalos as a "loosely organized hybrid gang"
San Diego	CA	04/15/17	3000	demand Trump tax returns
Minneapolis	MN	06/16/17	3000	Philando Castille murderer not guilty
Los Angeles	CA	09/25/18	3000	protesting for fair contract
Austin	TX	04/15/17	3000	demand Trump tax returns
Knoxville	TN	08/26/17	2800	Counter-protest white supremacist rally
Topeka	KS	06/04/18	2700	NA
Peoria	IL	02/11/17	2500	Supporting Planned Parenthood
Nashville	TN	03/15/17	2500	anti-Trump; protest Trump visit
Gainesville	FL	10/19/17	2500	protesting visit of Richard Spencer
Dallas	TX	08/19/17	2500	Protesting violence/racism in Charlottesville
Sacramento	CA	04/15/17	2000	demand Trump tax returns
Denver	CO	04/15/17	2000	demand Trump tax returns
Sarasota	FL	04/15/17	2000	demand Trump tax returns
Philadelphia	PA	04/15/17	2000	demand Trump tax returns
Atlanta	GA	08/19/17	2000	Protesting violence/racism in Charlottesville, Trump
New Orleans	LA	08/19/17	2000	Protesting violence/racism in Charlottesville
Phoenix	AZ	08/22/17	2000	Protesting Trump rally
Charlotte	NC	12/02/17	2000	Pro-Life protest
San Francisco	CA	12/11/18	2000	calling for an immediate climate change plan
Denver	CO	02/11/17	2000	In support of Planned Parenthood
St. Petersburg	FL	02/17/18	2000	Protesting gun violence in the wake of school shooting
Lansing	MI	02/25/18	2000	Protesting GOP tax plan;
Charleston	WV	02/26/18	2000	Labor protest

West Palm Beach	FL	02/02/19	2000	International; Against foreign government; Venezuela
Oakland	CA	02/21/19	2000	Collective Bargaining; For better compensation
Miami	FL	01/23/19	2000	demanding ouster of Venezuelan President Maduro
Los Angeles	CA	07/02/17	2000	Impeach Trump
San Diego	CA	07/02/17	2000	Impeach Trump
San Francisco	CA	07/02/17	2000	Impeachment March
Charlottesville	VA	07/08/17	2000	Anti-KKK "BlocKKK Party"
Chicago	IL	07/07/18	2000	demand city officials address gun violence; pro-gun control
Brownsville	TX	06/28/18	2000	against jailing and separating immigrant children from their families; against zero-tolerance immigration policies
Columbia	SC	03/27/18	2000	Protesting the "R" word
Milwaukee	WI	05/01/17	2000	May Day
Boston	MA	11/08/18	2000	protesting Sessions resignation; protecting Mueller investigation
Los Angeles	CA	10/01/17	2000	Protesting gender inequality, sexual assault
Milwaukee	WI	09/06/17	2000	Protesting Trump's decision to end DACA
Oakland	CA	09/09/17	2000	Protesting Trump's decision to end DACA
Chicago	IL	09/13/18	2000	Hotel employees calling for a new contract with several hotel chains in the city that employ them which would give them PTO and health care benefits
Grand Rapids	MI	02/16/17	1500	Immigrant Rights
Atlanta	GA	02/21/18	1500	Protesting gun violence in the wake of school shooting
Washington	DC	07/22/17	1500	March for Public Education
Portland	OR	06/04/17	1500	Oppose fascism; counter protest Trump Free Speech rally
Dallas	TX	11/05/18	1500	pro-O'Rourke rally
New Haven	CT	05/22/17	1500	against Yale's refusal to engage in collective bargaining process for unionization of graduate students

Tucson	AZ	08/13/17	1300	Protesting violence/racism in Charlottesville
Austin	TX	08/19/17	1200	against white supremacy
Portland	ME	08/20/17	1200	Protesting racism; white supremacy
Orlando	FL	10/19/17	1200	Protesting Low wages
Raleigh	NC	08/13/17	1100	Protesting violence/racism in Charlottesville
Seattle	WA	02/11/17	1100	LGBTQ rights
Austin	TX	02/11/18	1100	Protesting Doritos' new chips for women
Seattle	WA	06/08/18	1100	against gun violence; for gun control
Portland	OR	06/24/18	1100	Protesting ICE
Philadelphia	PA	11/16/18	1050	protesting hate groups such as the Proud Boys and the Three Percenters Militia
El Paso	TX	09/01/17	1000	SB-4 Bill
Duluth	MN	04/22/17	1000	March for Science
Los Angeles	CA	09/04/17	1000	Rally for DACA
Raleigh	NC	06/25/18	1000	protesting farming bill
Gainesville	FL	04/22/17	1000	March for Science
Kansas City	MO	06/24/18	1000	against jailing and separating immigrant children from their families
San Francisco	CA	09/03/18	1000	low pay
Charlotte	NC	04/22/17	1000	March for Science
St. Louis	MO	09/18/17	1000	Protesting acquittal of Jason Stockley
Rochester	MN	04/22/17	900	March for Science
Erie	PA	09/04/17	600	Rally for higher wages
Oklahoma City	OK	04/20/18	580	Rallying to legalize marijuana
Syracuse	NY	03/06/17	94	Demand investigation into Trump-Russia ties
Boston	MA	03/27/18	87	Rallying for immigrant rights
Chicago	IL	05/06/18	72	Protesting the slaughtering of animals

Reno	NV	03/04/17	58	March 4 Trump
New York	NY	01/01/18	54	Protesting potential cuts to the EPA
Baltimore	MD	02/02/17	50	Potential anti-LGBTQ executive order
Detroit	MI	08/08/17	50	Oppose deportation of long-time Ann Arbor resident
New York	NY	04/24/18	50	Protesting sexual violence
Springfield	MO	07/05/17	50	Oppose ACA repeal
Salt Lake City	UT	05/12/18	43	Rallying for officers killed in line of duty
Las Vegas	NV	05/13/18	40	Protesting police brutality
St. Louis	MO	04/25/18	40	Protesting working conditions
Buffalo	NY	03/21/18	36	Labor protest
Reno	NV	11/14/17	34	#StillIN Environmental protest
Syracuse	NY	05/15/18	32	Rallying for the state of Palestine
Charlottesville	VA	05/07/18	24	Protesting natural gas pipelines
Columbia	SC	06/04/18	24	support healthcare and a healthy planet; multiple causes
Detroit	MI	01/21/18	24	Rallying for DREAM Act
Gainesville	FL	07/26/18	24	support gun control
Jackson	MS	09/08/17	24	Protesting Trump's decision to end DACA
Knoxville	TN	06/22/17	24	Oppose proposal to outsource campus facilities management work
Nashville	TN	05/14/18	24	Protesting inequality
New Orleans	LA	03/30/17	24	oppose pipeline
New York	NY	10/23/17	24	Rallying against domestic violence
Pittsburgh	PA	05/04/17	20	protesting new housing development
Portland	OR	03/08/19	20	Civil Rights; For women's rights; International Women's Day
Tulsa	OK	06/29/17	20	Oppose ICE arrests and deportations
Portland	OR	01/02/19	18	against placing more police officers in Portland schools

Baton Rouge	LA	07/05/17	14	Commemorate anniversary of the death of Alton Sterling
Indianapolis	IN	06/16/17	12	Protest Vice President Pence fundraiser
New York	NY	07/11/17	12	Demand Gov. Cuomo fix the MTA
Sherman	TX	06/03/17	11	Demand investigation into Trump-Russia ties
Milwaukee	WI	06/01/18	9	support gun reform and gun safety
Springfield	MA	05/30/18	9	seeking gun reform
Columbia	MO	03/30/18	5	Counter-protest in support of abortion rights
Eugene	OR	03/06/18	5	Protesting contracting prison labor at University of Oregon
Jackson	MS	02/11/17	3	Supporting Planned Parenthood
Louisville	KY	07/24/17	1	Oppose last remaining abortion clinic in KY