Pre-analysis plan for:

State Violence and Support for Secessionism: Evidence from an OECD Democracy

Toni Rodon, Pedro Riera, Elias Dinas, Ignacio Jurado, Dominik Hangartner

December 19, 2017

Summary

The goal of this study is to assess the impact of police violence during the Catalan independence referendum of 1 October 2017 on vote choice and turnout. We will explore whether police violence led to an increase in pro-independence support and turnout—our two outcomes of interest—in the subsequent regional elections scheduled for 21 December 2017.

Data

Figure 1 presents a map of the municipalities of Catalonia. The red colour denotes municipalities in which there was Spanish police intervention in at least one of the polling stations. To examine the impact of this intervention, we collected electoral data at the precinct level from the three preceding elections: 2010, 2012 and 2015. We will merge this information with the precinct-level electoral data from the December 2017 election.

We also assembled information about all polling stations targeted by the Spanish police. We match each polling station with the corresponding precinct or precincts (*secciones censales*).[1] We combine this information to examine the impact of this intervention on pro-independence vote and turnout.

Empirical strategy

To estimate the causal effect of police violence on voting patterns, we will employ two identification strategies.

First, we will use a difference-in-differences estimator, comparing polling stations in which the Spanish police intervened during the 1 October 2017 referendum with those it did not intervene. Our post-treatment observations will come from the electoral results of the 21 December 2017 election. Our pre-treatment observations come from the three preceding elections, 2010, 2012 and 2015:

[1] Some polling stations include one precinct (*sección censal*) whereas others include more than one precincts (*secciones censales*). In the 2015 Catalan election, there were 2,697 polling stations for 5,048 precincts (the average number of precincts per polling stations was 1.87).

$$Y_{st} = \gamma_s + \lambda_t + \tau D_{st} + u_s \quad (1)$$

where *s* denotes precincts, *t* denotes the elections and *D* is a binary treatment indicator equal to one if the precinct belongs to a polling station attacked by the Spanish police during the 1 October 2017 independence referendum and zero otherwise. In all our analyses, we will cluster standard errors at the level of the precinct.

To strengthen inference, we will also use additional model specifications, in which we will add:

a) Precinct-specific linear trends;
b) Time-varying indicators, measured at the municipality level: unemployment rate, population born outside Catalonia but in Spain; foreign population; the political party of the mayor at the municipal level.

Finally, as a robustness check we will replicate the analysis at the level of the polling station, thus aggregating all precincts onto the level of the polling station.

Second, we will leverage the distance between police forces and the polling stations as a way to instrument police intervention. In particular we will use the following two metrics:

a) distance to the Spanish police headquarters in each of the four regional capitals of the region (Barcelona, Tarragona, Girona and Lleida); and
b) distance to the Barcelona and Tarragona harbours, where additional police forces sent from other parts of Spain were stationed.

We will estimate the Local Average Treatment Effect by applying the two-stage least squares estimator, whereby we will first regress the treatment on logged distance (*Z*):

$$D_i = \alpha + \beta Z + v_i \quad (2)$$

and then use the fitted values of equation (2) as a predictor of both turnout levels and vote for the pro-independence parties:

$$Y_i = \gamma + \delta \widehat{D} + v_i \quad (3)$$

In order to obtain an unbiased estimate of the treatment effect $\boldsymbol{\delta}$, we make the usual assumptions about the validity of our instrumental variable (see Angrist, Imbens and Rubin 1996). In both stages we will cluster the data at the level of the polling station.

In order to adjust for potential pre-existing differences, we will perform additional analyses in which we will control for past turnout and pro-independence vote share. We will also control for the following characteristics:

- Covariates measured at the municipality level:

a) Municipality size and population density per municipality;
b) Unemployment rate;
c) Percentage of population born outside Catalonia but in Spain; and

d) Percentage of foreign population.

- Covariates measured at the precinct level (*sección censal*):

a) Age structure (percentage of population between 16 and 64 and citizens older than 65);
b) Education (percentage of population with primary, secondary and higher education);
c) Knowledge of Catalan (percentage of population that can write in Catalan);

Measurement

As **outcomes**, we will use:

i) vote shares of the pro-independence parties. These are ERC, JxCat and CUP for the regional election scheduled for 21 December 2017. To benchmark their vote with past elections we will use vote for their previous platforms[2].
ii) vote share of parties that are against a referendum and secession (PSC, PP, and Ciudadanos).
iii) vote shares of parties that have a more neutral position, as they support a referendum, but are officially against secession (Catalunya en Comu-Podem),
iv) turnout.
v) blank or null-ballot vote.

As **treatment** we will use:

i) A dummy indicator that will distinguish those polling stations that were exposed to the Spanish police on the 1st of October referendum and the rest of stations that did not receive police action.

Baseline Results

Using the pre-treatment observations, we present some evidence about the key identification assumption underlying the difference-in-differences estimator. For the design to work we need to assume that in the absence of the police intervention the targeted and the non-targeted precincts would change their vote from 2015 to 2017 to the same degree. Although a direct test of this assumption is not possible (as it requires observing the counterfactual December 2017 electoral results for the treated precincts under the counterfactual scenario of no police intervention), we can at least gauge the plausibility of this assumption by comparing the pre-treatment over-time trends between the two groups of precincts. This is done in Figure 2, which shows the average pro-independence vote share in each of the three elections preceding the referendum, distinguishing between treated and control precincts. As it can be seen,

[2] PDeCat is the rebranding of CiU ¡, which ran in all elections until 2012. In 2015, ERC and PDeCat (Ciu) ran together in a coalition called Junts pel Si.

although there is a slight (and not statistically significant) level difference in the evolution, the two sets of precincts vary in identical way. Indeed when we apply equation 1 to implement a placebo regression as a way to estimate the effect of the treatment on the change in the percentage vote for the pro-independence parties between the 2015 election and the previous elections (i.e. before treatment was realized), the treatment effect estimate is -0.263 with standard error 0.427 ($p>0.6$). Without being a formal test of the parallel trends assumption, this baseline evidence suggests that there are good reasons to believe this assumption is satisfied.

We replicate this procedure using abstention as dependent variable. Figure 3 shows the turnout trend. It can be observed that the trends are parallel over the last three elections. If we implement a placebo regression, we can estimate the effect of the treatment on turnout in the 2015 election compared to the previous elections. The placebo treatment effect on abstention is 0.84 percentage points with standard error 0.260 ($p<.05$). Although significant, the placebo effect is very modest, i.e. less than one percentage point. In our main analyses we will evaluate the magnitude of our treatment effect under the light of these placebo estimates.

References

Angrist, J. D., Imbens, G. W., & Rubin, D. B. (1996). Identification of causal effects using instrumental variables. Journal of the American statistical Association, 91(434), 444-455.

Figures

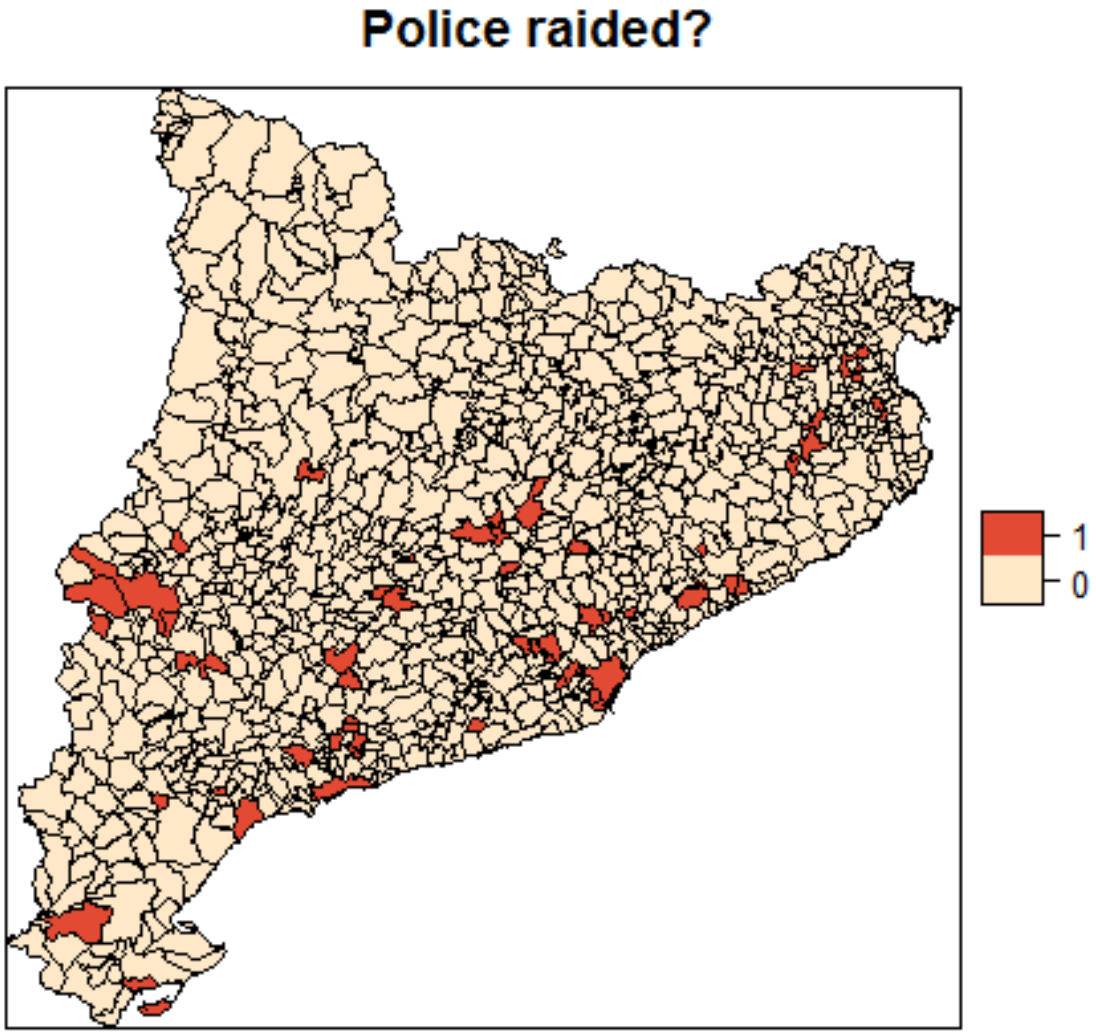

Figure 1: Map of Catalonia, showing all municipalities and indicating by red those municipalities in which there was police intervention.

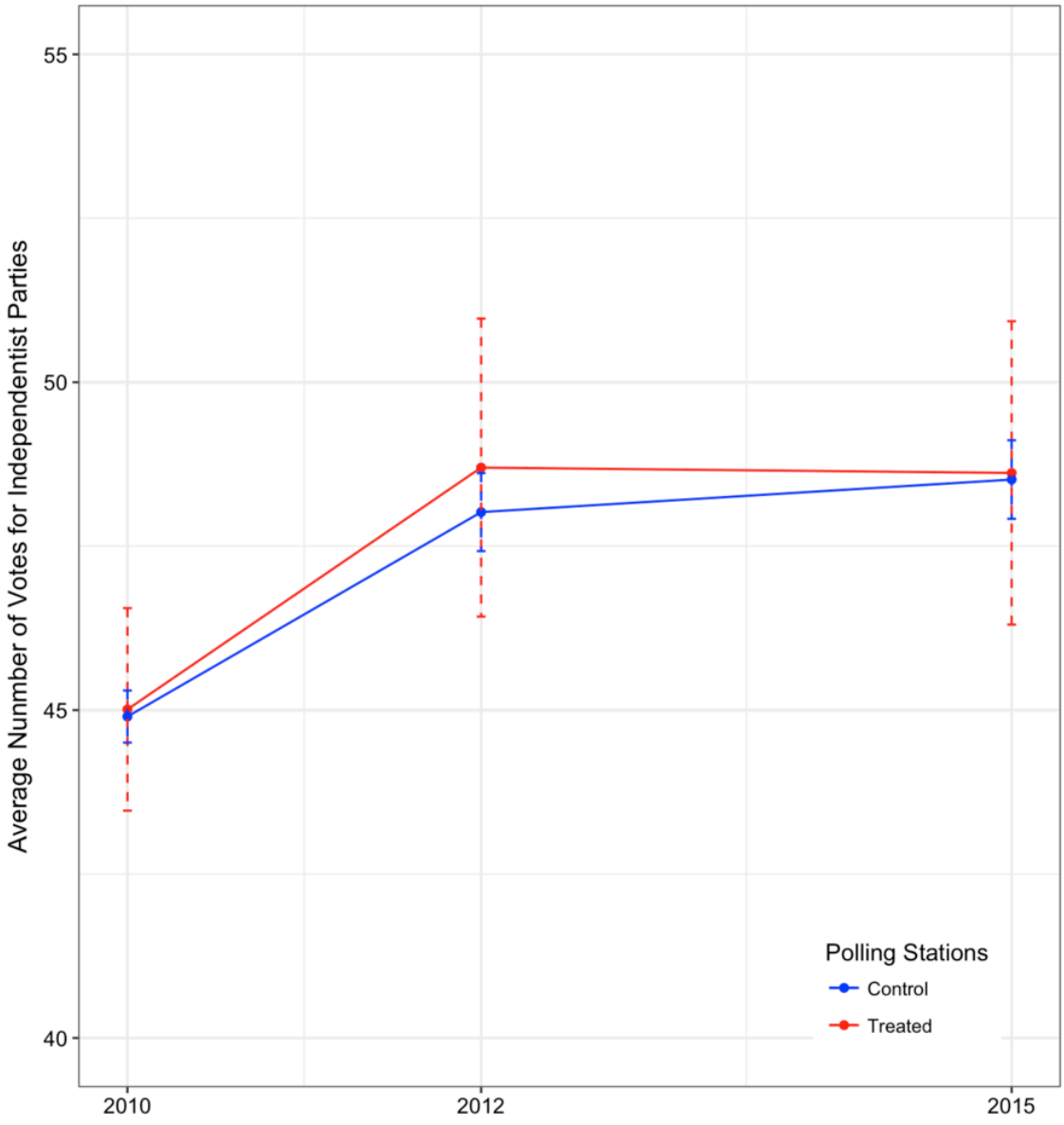

Figure 2: Pre-treatment pro-independence vote share, treated and control polling stations.

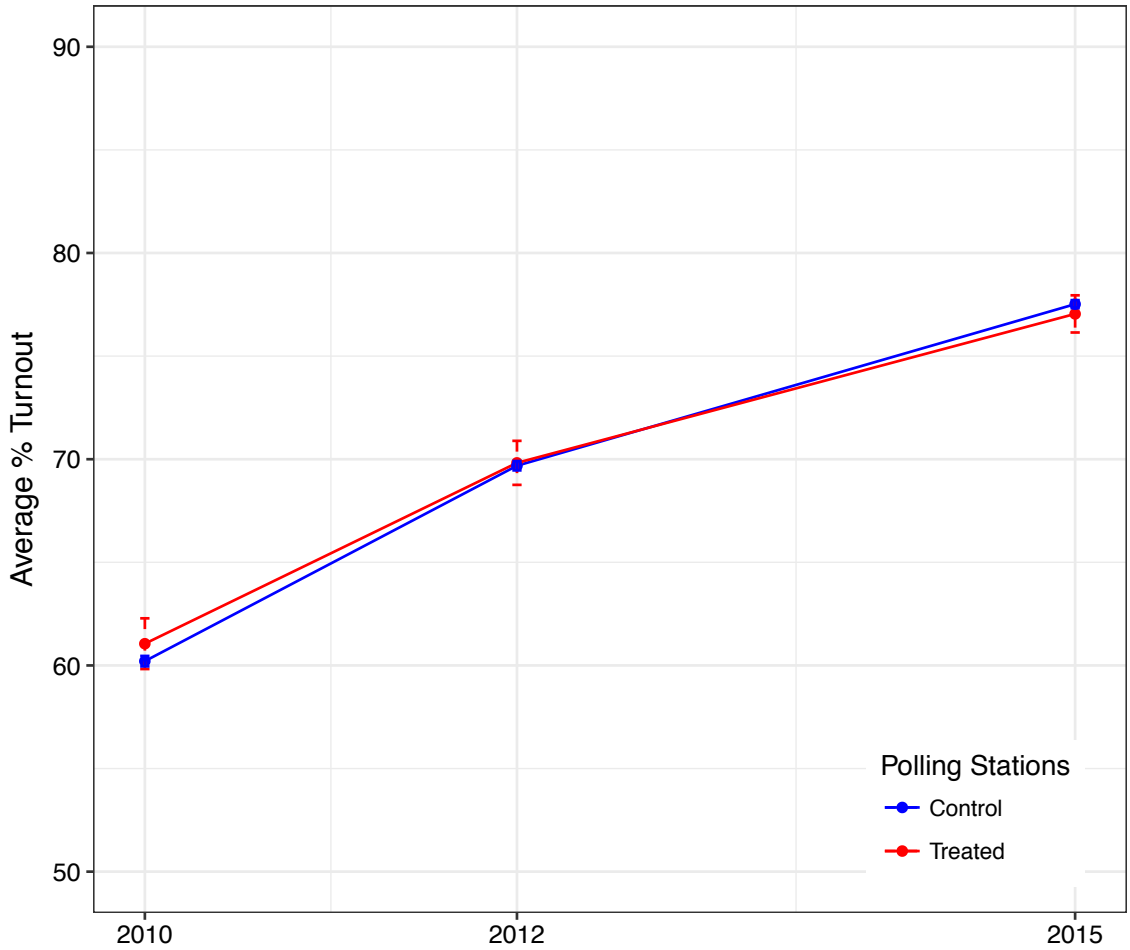

Figure 3: Pre-treatment turnout, treated and control polling stations.