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***Repression and Dissent in Contemporary Catalonia:
Appendix***

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CEO POLL SAMPLE

The CEO public opinion polls are designed to capture a representative sample of attitudes among Catalans on contemporary political issues. CEO polls are either over the phone or in person. Phone-based polling relies on an anonymous information program that contains respondent characteristics necessary to fill quotas of relevant population characteristics. In-person polling relies on a combination of census data, to build the sample frame, and random-walks within randomly assigned blocks. More information available at <http://ceo.gencat.cat/es/estudis/informacio-sobre-els-estudis/index.html>. Relevant polling items used in this study are below, and details on the timing and size of each poll are available in Table A.1. Descriptive characteristics of the sample of respondents used in this study are available in Table A.4.

It is worth clarifying that the same individuals are not re-interviewed, so the CEO surveys do not constitute a panel.

CEO POLL QUESTIONNAIRE (RELEVANT QUESTIONS, “DOES NOT KNOW” AND “DOES NOT ANSWER” OPTIONS EXCLUDED)

- **Catalonia status:** What do you think should be Catalonia’s status with respect to Spain?
 - A region within Spain
 - An autonomous community within Spain
 - A state within a federal Spanish system
 - An independent state
- **Independence Vote:** How would you vote, if the question was: “Do you want Catalonia to become a country?”
 - Yes
 - No
- **Key institutions outcome:** “Please rate the degree of confidence you have in each one of these institutions in a scale from 0 to 10, where 0 means no confidence at all and 10 means a lot of confidence.”
 - The Constitutional Court
 - Catalan Police
 - Spanish Police
 - Spanish Monarchy

- The EU
 - Catalan Parliament
 - Catalan Government
 - The Central Government
 - Courts of Justice
- **First Language:** “Do you remember what language did you speak first, at home, when you were a child?”
 - Catalan (Valencian / Balearic)
 - Spanish
 - Both languages: Catalan (Valencian / Balearic) and Spanish
 - Aranès
 - Other, DK, RF
- **Number of Catalan Parents:** “Could you tell me the birth-place of your mother/father?”
 - Catalonia
 - Other autonomous communities
 - European Union
 - Rest of the world
- **Education:** “Which is the highest educational level you have attained?”
 - Not able to read or write
 - Is able to read and write but went to school less than 5 years
 - Went to school 5 years or more but did not finish ESO, EGB or Batxillerat elemental
 - Finished the ESO (Graduat escolar), EGB, Batxiller elemental
 - Batxillerat (high school diploma), BUP, COU, Batxillerat superior, PREU
 - Cicle formatiu de grau mitjà (basic vocational training), FP1, Oficialia industrial or the equivalent
 - Cicle formatiu de grau superior (secondary vocational training), FP2, Mestratge industrial or the equivalent
 - Three years degree, has passed three years of a four years degree, technical engineering/technical architecture
 - Llicenciatura, Architecture, Engineering degree, or any four years degree (four or more years)

- Professional specialization courses, Post-graduate degree, Master (MIR, FIR...)
 - PhD / doctorate
- **Economic Class:** “In your opinion, which one of the following terms better describes your social class?”
 - Lower class
 - Lower-middle class
 - Middle class
 - Upper-middle class
 - Upper class
- **Work Status:** “In which of the following work situations do you find yourself currently?”
 - Working
 - Unemployed
 - Part-Time
 - Temporary/Sick Leave
- **Age:** “Please, tell me your age.”
 - 18 to 24 years old
 - 25 to 34 years old
 - 35 to 49 years old
 - 50 to 64 years old
 - 65 years old and more

VICTIMIZATION SURVEY QUESTIONNAIRE (RELEVANT QUESTIONS)

Victimization Do you know anyone who was injured in the October referendum? If yes what is the best description of your relation to this person: close family member, close friend, acquaintance, other.

- Victim (any) [*refvictim*]: indicator answers yes to any of above.
- Victim (close) [*refvictim_close*]: indicator answers yes to close family or friend.

Income Adding the net monthly income of the people that make up your household, what is your best guess as to your household's total income each month? (We divide the median of the total income range by the number of individuals in the household using the standard equivalence scales to obtain respondent income decile, *adjincome*)

Education What are the highest degree studies you have completed? [*educ_3*]

- Less than 5 years of schooling. [1]
- Primary or compulsory secondary education (EGB, ESO, school graduate) [1]
- General secondary education (BUP, COU, Baccalaureate) [2]
- Vocational training of medium or higher grade (FP I or II, professional degrees, ..) [2]
- University (Diplomatura, Ingenieria, Licenciatura) [3]
- Postgraduate (Master, Doctorate, ...) [3]

Gender Male, Female, Other.

Age How old did you turn in your last birthday? [*age_group*]

- 18-24
- 25-34
- 35-44
- 45-54
- 55-64
- 65 and above

Employment Status Employed = 1, Unemployed = 0 [*Employed*]

Language "What is your native language? We refer to the language that you consider your own".

- Catalan (Valencian-Balearic)
- Spanish
- Both of them: Catalan (Valencian-Balearic) and Spanish
- Aranès
- Other languages or combinations

We generate 3 main categories: Catalan (1), Spanish (2), Both Catalan and Spanish (3).

Origins Where were you and your parents born? We create the following categories:
 1 "Not born in Cat" 2 "Born in Cat, parents not" 3 "Born in Cat, one parent not"
 4 "Born in Cat, both parents too" [*cat_origins*]

Would Vote Yes in Legal Ref. [*voteYES_agreedref*] Indicator that equals 1 if respondent answers 'yes' to all three following questions:

- Suppose in the future the central government and government in Catalonia come to an agreement to have a referendum in Catalonia to decide if Catalonia should be an independent republic. Would you favor or oppose the holding of such a referendum? Yes = somewhat favor or strongly favor.
- Would you participate in such a referendum? [Yes/No]
- How would you vote in such referendum? [Yes/No]

Participated in Protest [*Partprotest*] Did you protest in any recent demonstrations since 1 October against the actions of the Spanish state, regarding the referendum and its consequences?

VICTIMIZATION SURVEY SAMPLE

Balcells, Fernández-Albertos and Kuo (2020) implemented this regionally representative survey through the UK-based firm Respondi, which conducted 2,551 interviews with an approximate duration of 14 minutes each. The target group were people aged 18 or older, residents of Catalonia, fulfilling quotas in terms of age categories and gender. The survey was fielded between December 11th and December 20th, 2017, in Catalan and Spanish; the respondent could choose their preferred language of response at the beginning of the questionnaire. The authors of the survey received IRB approval from Oxford University (ID: R54690/RE001) and Georgetown University (ID: 2017-1430) to conduct it.

DESCRIPTION OF METHODS

Matching is used extensively in the broader political science literature [Kocher, Pepinsky and Kalyvas \(2011\)](#) and has also been successfully applied to survey data in the political science literature [Kam and Palmer \(2008\)](#); [Barabas \(2004\)](#); [Ladd and Lenz \(2009\)](#). While there are many available matching algorithms, each with its own advantages and disadvantages, we choose to use coarsened exact matching (CEM) in this study. CEM is derived from the "Monotonic Imbalance Bounding" class of matching algorithms [Iacus and King \(2012\)](#). CEM works by placing observations in coarsened bins (which can either be set by the researcher or determined automatically) and then performing exact matching based on those bins. CEM has been found to outperform competing methods and avoids the pitfalls associated with propensity score matching ([King and Nielsen, 2016](#)).

To compare the effects of the 2017 referendum to the 2014 referendum, we use a similar survey item that's available in both 2014 and 2017. In this survey question, respondents choose among four options, with Catalonia as a: region within Spain; autonomous community within Spain; state within a federal Spanish system; independent state. We construct a dummy indicator (**Catalonia Status**) for whether the respondent believes Catalonia should be an "independent state", and replicate the matching and analysis around both 2014 and 2017 referendums.

TABLES AND FIGURES

TABLE A.1: Summary of CEO Surveys.

	Date	n	Support Independence	Refuse to Answer	Do Not Know	Survey Name	Type
1	2013-02-14	2000	0.550	0.010	0.050	712	Phone
2	2013-06-13	2000	0.520	0.010	0.040	723	Phone
3	2013-11-14	2000	0.550	0.020	0.040	733	Phone
4	2014-04-15	2000	0.520	0.020	0.070	746	Phone
5	2014-10-23	2000	0.540	0.010	0.060	758	Phone
6	2014-12-13	1100	0.390	0.030	0.050	760	In-Person
7	2015-03-02	2000	0.470	0.020	0.050	774	Phone
8	2015-06-24	2000	0.460	0.010	0.040	795	Phone
9	2015-10-27	2000	0.490	0.010	0.040	804	Phone
10	2015-11-23	1050	0.430	0.020	0.040	806	In-Person
11	2016-03-08	1500	0.410	0.010	0.050	816	Phone
12	2016-07-13	1500	0.450	0.010	0.060	826	Phone
13	2016-11-03	1500	0.420	0.020	0.060	835	Phone
14	2016-12-17	1058	0.400	0.030	0.030	838	In-Person
15	2017-03-21	1500	0.390	0.020	0.040	850	Phone
16	2017-07-11	1500	0.380	0.020	0.060	857	Phone
17	2017-10-29	1338	0.450	0.010	0.050	863	Phone
18	2018-01-30	1195	0.350	0.020	0.030	874	In-Person
19	2018-04-27	1500	0.470	0.020	0.050	885	Phone
20	2018-07-14	1500	0.420	0.010	0.040	901	Phone
21	2018-11-12	1500	0.430	0.030	0.070	908	Phone

TABLE A.2: Matching estimate of effect of crackdown on pro-independence attitudes. OLS using matching weights. N = 2,302.

	TERM	ESTIMATE	STANDARD ERROR	STATISTIC	P-VALUE
1	Intercept	0.503	0.013	39.538	0
2	Treatment	0.067	0.022	3.061	0.002

TABLE A.3: Effects of 2017 referendum in context. We match the respondents from each survey in the post-referendum period to respondents in the pre-referendum period in 2017. Presented are the estimated effects of the regression surrounding the referendum on the question “Do you want Catalonia to become a State?”

95% (lower)	Estimate	95% (higher)	Type
-0.081	-0.040	0.002	2018 Poll: January
-0.005	0.034	0.074	2018 Poll: April
0.008	0.047	0.086	2018 Poll: July
-0.011	0.028	0.068	2018 Poll: November

MATCHING BALANCE

TABLE A.4: Sample Characteristics

First Language (most common)	Catalan
Num. of Catalan Parents (average)	0.8701509
Education Level (median)	HS (higher)
Economic Class (median)	Middle
Work Status (median)	Between Work
Age	11
Female	0.49

In matching and modeling, **First Language** takes on the value of 1 if the language primarily spoken in the respondent’s home was “Catalan” and 0 if it was Spanish, or a mix of Spanish and Catalan. **Number of Catalan Parents** runs from no Catalan parents (0) to both parents being Catalan (2). **Education Level** is an ordinal variable running from 1 (low ability to read and write, no formal education) to 11 (has earned a doctoral degree). **Economic Class** is ordinal and can take on values: Low Class, Lower-Middle, Middle, Upper-Middle, Upper. **Work Status** is a categorical variable defining if the person is out of work, working, or working part-time. **Age** is a categorical variable defining age ranges.

TABLE A.5: Pre-Balance Summary Statistics. 2017 Referendum Analysis.

	Means Treated	Means Control	SD Control	Mean Diff
Distance	0.284	0.274	0.045	0.011
Lang: Catalan	3.445	3.917	13.082	-0.473
Number of Catalan Parents	0.990	0.823	0.889	0.167
Education	6.004	5.712	2.313	0.292
Economic Class	2.619	2.520	0.789	0.099
Employment Status	1.547	1.537	0.531	0.010
Age	10.806	10.749	3.531	0.057
Gender	1.514	1.514	0.500	0

TABLE A.6: Post-Balance Summary Statistics. 2017 Referendum Analysis.

	Means Treated	Means Control	SD Control	Mean Diff
Distance	0.283	0.283	0.045	0
Lang: Catalan	2.177	2.177	6.924	0
Number of Catalan Parents	0.964	0.964	0.926	0
Education	5.797	5.808	2.221	-0.010
Economic Class	2.623	2.623	0.646	0
Employment Status	1.515	1.515	0.500	0
Age	11.020	11.020	3.583	-0.001
Gender	1.529	1.529	0.499	0

TABLE A.7: Pre-Balance Summary Statistics. 2014 Referendum Analysis.

	Means Treated	Means Control	SD Control	Mean Diff
Distance	0.282	0.280	0.018	0.002
Lang: Catalan	4.086	3.373	12.213	0.713
Number of Catalan Parents	1.239	1.255	0.880	-0.015
Education	6.145	6.076	2.204	0.068
Economic Class	2.543	2.573	0.721	-0.031
Employment Status	1.477	1.496	0.528	-0.019
Age	10.239	10.417	3.383	-0.177
Gender	1.489	1.483	0.500	0.006

TABLE A.8: Post-Balance Summary Statistics. 2014 Referendum Analysis.

	Means Treated	Means Control	SD Control	Mean Diff
Distance	0.280	0.280	0.015	0
Lang: Catalan	2.137	2.137	7.588	0
Number of Catalan Parents	1.307	1.307	0.892	0
Education	6.066	6.110	2.157	-0.044
Economic Class	2.577	2.577	0.672	0
Employment Status	1.443	1.443	0.499	0
Age	10.291	10.290	3.383	0.001
Gender	1.476	1.476	0.500	0

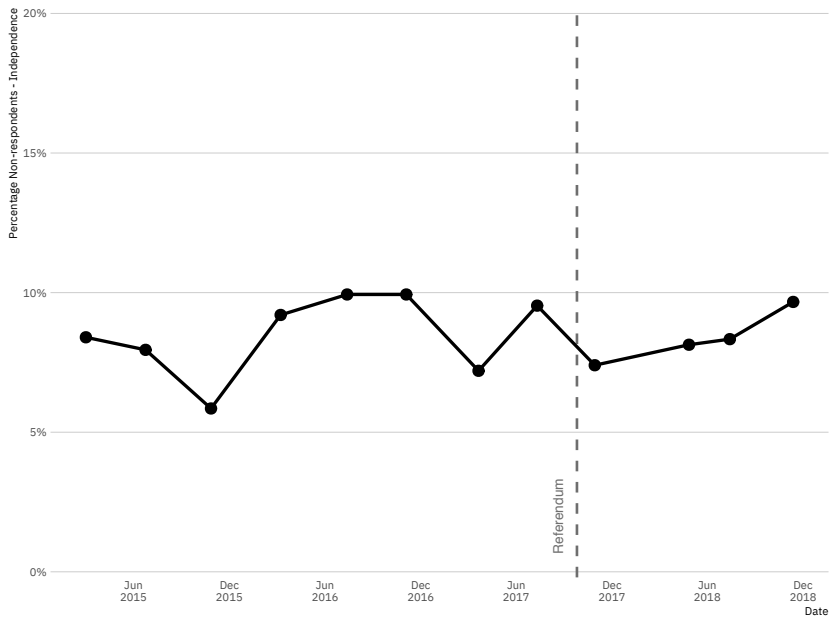


Figure A.1: Non-response pattern over time.

TABLE A.9: Estimates of repression effect by outcome.

Outcome	Estimate	Interval	Outcome Scale
Independence	0.067	(0.024,0.111)	0-1
Courts of Justice	-0.762	(-1.03,-0.494)	0-10
Central Government	-0.337	(-0.585,-0.088)	0-10
Catalan Government	0.698	(0.397,0.999)	0-10
Catalan Parliament	0.505	(0.212,0.798)	0-10
The EU	-0.879	(-1.14,-0.619)	0-10
Spanish Monarchy	-0.613	(-0.888,-0.338)	0-10
Spanish Police	-2.083	(-2.386,-1.779)	0-10
Catalan Police	-0.064	(-0.311,0.184)	0-10
Constitutional Court	-0.527	(-0.822,-0.232)	0-10

TABLE A.10: Placebo test matched model, where March 2017 poll set to ‘control’ and July 2017 poll set to ‘treatment’.

Outcome	Estimate	Interval
Independence	-0.054	(-0.241,0.132)

TABLE A.11: Changes in levels of support for independence across the 2014 and 2017 public referenda. Estimates based on results from CEM matching.

Estimate	Pvalue	Observations	Referendum
-0.011	0.547	3,427	2014
0.067	0.002	2,302	2017

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