

**Pre Analysis Plan for  
"Crisis Management and Political Consequences of the Covid-19 Crisis"**

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PIs: Monica Martinez-Bravo, Carlos Sanz<sup>1</sup>

## **Section 1. Introduction**

This document outlines the hypotheses to be tested and specifications to be used in the study about the effects of quality in the management of the Covid-19 crisis on political attitudes. Since the authors completed the plan before the data was delivered to the authors and analyzed, the plan can provide a useful reference in evaluating the final results of the study. In particular, we registered this study with the American Economic Association (AEA) Randomized Control Trial Registry on December 13, 2020.

This study is related to the project “The Political Consequences of the Covid-19 Crisis” that we conducted in June and July 2020 and for which we submitted a Pre-Analysis Plan to the American Economic Association (AEA) Randomized Control Trial Registry AEARCTR-0006084. This Pre-Analysis Plan focuses on describing new experiments that we plan to conduct within the new survey, which will take place in November 2020.

We have received IRB clearance from CEMFI (Centro de Estudios Monetarios y Financieros)'s IRB for these data collection and survey experiment (Application Reference #9; Approval date: October 2020).

The rest of this plan is outlined as follows: Section 2 reviews the motivation for the study; Section 3 presents the data sources, experimental design and econometric specifications; Section 4 presents the main outcomes to be tested; Section 5 the main hypotheses; Section 6 describes the analysis of heterogeneous effects and potential non-linearities.

## **Section 2. Motivation**

In this study, we analyze the political and economic consequences of the (mis)management of the Covid-19 crisis. With this objective, we plan to implement a number of large-scale online experiments conducted to a representative sample of the Spanish population. Spain is one of the most severely affected countries by the Covid-19 pandemic, both in terms of the public health crisis and the expected economic downturn.

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<sup>1</sup> Monica Martinez-Bravo, CEMFI, mmb@cemfi.es  
Carlos Sanz, Banco de España, carlossanz@bde.es

Our main research question is to study how providing information about the importance and the quality of the public management of the crisis and about the difference in management of the crisis across Spanish regions affect trust in institutions, support for extremist parties, polarization, and compliance with the rules, among other political attitudes.

### **Section 3. Data sources, experimental design and econometric specifications**

#### **3.1. Data**

To perform this study, we will conduct a large-scale survey in Spain during November and early-December of 2020. We expect the sample size to be of approximately 4,000 individuals. These individuals will be selected by recontacting the 5,000 individuals that we surveyed in a baseline survey conducted in July 2020 (see AEA Pre-Analysis Plan AEARCTR-0006084). Given that a few months have passed since the baseline survey, we anticipate there will be some attrition.

In this survey we will collect some basic socio-demographic information, expose individuals to different information treatments, and elicit beliefs and political attitudes that are examined as outcomes of interest. We outsourced the data collection to YouGov, which is a well-established data analytics firm.<sup>2</sup>

#### **3.2. Experimental Design**

Individuals will be randomly assigned to one of the following three groups:

**T1:** This group obtains a treatment that consists on information on the importance of political action in managing the Covid crisis. In particular, it emphasizes the relevance of contact tracing. First, we elicit the individual's prior on what is the number of contact tracers in his/her region (Autonomous Communities in Spain). Second we provide the actual number of contact tracers in their region in October 2020. In order to provide a benchmark for this information, we also provide information on the recommended number of contact tracers according to the Fitzhugh Mullan Institute for Health Workforce Equity.

**T2:** This group obtains the same information and prior elicitation as those in T1. At the end of that treatment, they receive additional information on how the number of contact tracers in their region compares to the rest of Spanish regions. This information provides an additional benchmark to the number of contact tracers.

**Control:** This group receives the treatment T1 at the end of the survey. Since at the time of answering all relevant outcomes the control group has not received yet the information treatment, this group serves as a control group. By providing the

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<sup>2</sup> <https://es.yougov.com/?stay>. Contact: Pau Pinós pau.pinos@yougov.com.

treatment information to this group at the end of the survey, we can obtain from them the prior about the number of contact tracers in their region.

**Randomization:**

The sample is randomized to the three groups according to the following proportions: T1 (1/4 of the sample), T2 (1/4 of the sample), Control (1/2 of the sample).

The randomization is stratified by region, age, education level, and treatment assignment in the survey wave conducted in July 2020.<sup>3</sup> In particular, the combination of each of the 17 Autonomous Communities of Spain, 3 age-levels, 2 education groups, and 6 first-wave assignments define different strata. Individuals in each stratum are randomly assigned to the three groups (treatments and control) without replacement.

### 3.3. Econometric Specifications

In a first econometric specification we will combine the two treatment groups into a single group, which we denote as  $T_{ic}$ , and compare it to the control group. In particular,  $T_{ic}$  is an indicator that takes value 1 if the individual  $i$  living in region  $c$  is assigned to groups T1 or T2. Note that since the information provided differs by region, we include subindex  $c$ . The specification we plan to estimate is

$$Y_{ic} = \alpha + \beta T_{ic} + X'_{ic}\delta + u_{ic} \quad (1)$$

where  $Y_i$  is one of our outcomes of interest measured at the individual level (we describe outcomes in detail in the next section);  $T_{ic}$  is defined as described above;  $X'_{ic}$  is a vector of controls that we specify below.  $\beta$  captures the effect of receiving the treatment information on the number of contact tracers in region  $c$  on political attitudes.

We are also interested in the heterogeneous response by priors:

$$Y_{ic} = \beta_0 + \beta_1 T_{ic} + \beta_2 T_{ic} x (\mu_{ic} - a_c) + \beta_3 (\mu_{ic} - a_c) + X'_{ic}\delta + e_{ic} \quad (2)$$

where  $Y_{ic}$  and  $T_{ic}$  are defined as in equation (1);  $a_c$  is the measure of the number of contact tracers in region  $c$ ,  $\mu_{ic}$  is individual's  $i$  prior about the number of contact tracers in region  $c$ . Hence,  $(\mu_{ic} - a_c)$  captures the information shock to the individual. If  $\mu_{ic} - a_c > 0$  the individual got bad news, if  $\mu_{ic} - a_c < 0$ , the individual got good news.  $\beta_1$  captures the effect of receiving the information treatments for individuals that do not update their priors.  $\beta_2$  captures the additional effect for individuals that receive bad news.

We will examine a number of variations of specifications (1) and (2):

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<sup>3</sup> See AEA Pre-Analysis Plan AEARCTR-0006084.

- We will examine if the effects are different depending on whether individuals received treatment T1 or T2 (i.e., for whether individuals obtained additional information about the performance of their region relative to the rest of the country).
- In specification (2), instead of the continuous measure of "bad news",  $\mu_{ic} - a_c$ , we will use a dummy for receiving bad news  $d_i = 1$  iff  $\mu_{ic} - a_c > 0$ . In that specification,  $\beta_1$  captures the effect for individuals that obtain "good news" (i.e.,  $\mu_{ic} - a_c < 0$ ), while  $\beta_2$  captures the differential (or additional) effect for individuals that obtain good news.
- We will also allow all the main coefficients in equation (2) to vary by whether the news received is good or bad news: we will interact the main terms with  $d_i$  defined above.
- We will examine whether the coefficients are heterogeneous on the basis of whether the individual is ideologically aligned to the government of their Autonomous Community, as well as by whether the individual is right-wing leaning or left-wing leaning (which proxies for alignment with the left-leaning central government).

**Controls.** Ideally, the vector of controls  $X'_i$  will include strata fixed effects defined by the combination of each autonomous region (17 in total), educational level (3 levels), age level (2 groups), and treatment assignment of first wave (6 treatments) which amounts to 612 strata. However, many strata will have very few or no observations and, hence, little variation on treatment assignment. In case the inclusion of strata fixed effects leaves little remaining identifying variation, we will replace the strata fixed effects for the variables used in the stratification. We will also add a number of controls to improve the precision of our estimates. In particular, pre-treatment ideological variables (self-reported vote in the last Congress election and left-right ideological position on a 1-10 scale); gender; centrality; socio-economic situation (pre-shock and change with the shock); and household income (pre-shock and change with the shock). As a robustness check, we will also add baseline values of the outcome as measured in the first wave of the survey conducted in July 2020 by the same individuals. We may exclude some of these covariates if they have too many missing values and their inclusion would lead to an important drop in the sample size. We will report the results with and without covariates.

**Randomization balance check.** We will report a balance table to check whether the different treatment groups are balanced across all the pre-treatment variables mentioned in the previous paragraph.

**Outcomes.** As we describe in the next section, we will aggregate outcomes on six different families of outcomes. For each of these families of outcomes, we will construct mean effects indices following. We will also report the estimates for each separate outcome.

**Data cleaning.** Before proceeding with the analysis, we will examine the internal quality of the data. In case of detecting observations for which we have evidence of careless response patterns, we will drop those observations from the sample. The criteria that we will use to detect those observations will be: (i) abnormally short time to answer all questions (less than 2 standard deviations from the mean, bottom 5% of time to complete); (ii) inconsistent answers across similar questions, (for instance, inconsistent description of occupation and sector); or (iii) abnormal responses (e.g., answering 0 or 10 to all questions with a 0-10 scale, or always answering the same number).

## **Section 4. Outcomes**

We have 6 different sets of outcomes and hypotheses.

1. Beliefs.
2. Trust in political institutions.
3. Political preferences and support for the incumbent government.
4. Polarization.
5. Support for taxation and redistribution.
6. Compliance.

### **4.1. Beliefs**

#### **Competence of regional government in handling of the pandemic**

- Measure in a scale from 0 to 10 of how good or bad has the handling of the Covid-19 pandemic in their region, where 0 is very bad and 10 is very good.

#### **Competence of central government in handling of the pandemic**

- Measure in a scale from 0 to 10 of how good or bad has the handling of the Covid-19 pandemic by the central government, where 0 is very bad and 10 is very good.

#### **Regional versus central government responsibility**

- Measure in a scale from -10 to 10, where -10 means only the central government is responsible and 10 means only the regional government is responsible.

#### **Exogenous versus endogenous factors responsible.**

- Measure in a scale from -10 to 10, where -10 means the evolution of the pandemic only depends on exogenous factors and 10 means only endogenous factors responsible.

#### **Voting based on management or ideals.**

- Measure in a scale from -10 to 10, where -10 means individual votes only based on management and 10 means only on ideals.

### **Competence of parties (PP, PSOE, Cs, Vox, Podemos) in management.**

- Measure in a scale from 0 to 10, where 0 means very bad and 10 means very good.

### **Competence of central versus regional governments in management.**

- Measure in a scale from -10 to 10, where -10 means regional governments more competent and 10 means central government more competent.

## **4.2. Trust**

### **Trust in regional government**

- Measure of degree of trust on the regional government on a scale from 0 to 10.
- Share of money chosen to donate to regional government (vs. Red Cross). Alternatively, we will consider a dummy indicating whether the individual chooses to donate more than 50% to the regional government.
- Share of money chosen to donate to regional government (vs. Red Cross) net of central government vs. Red Cross.

### **Trust in the political system and other institutions**

- Measure of degree of trust on the following institutions on a scale from 0 to 10: Spanish government, members of central parliament, local government, institutions of the European Union, judicial system, public health system.
- Assessment of the capacity of political institutions to address citizens' main problems. On a scale from 0 to 10.
- Share of money chosen to donate to central government (vs. Red Cross). Alternatively, we will consider a dummy indicating whether the individual chooses to donate more than 50% to the central government.

### **Additional analysis:**

We will collect measures of trust on other entities or groups of individuals: economists, epidemiologists, media, and pharmaceutical companies. We will use these measures as outcomes to explore if the effects on trust are generalized across groups, or specific to institutions.

## **4.3. Political preferences and support for the regional incumbent party**

- An indicator for whether the individual intends to vote for one of the parties that form the regional government.
- An indicator for whether the individual mentions one of the parties that form the regional government as the party to which he/she feels the most sympathy.
- Mean sympathy for the parties that form the regional government. On a scale from 0 to 10.

Additional analyses:

- We plan to explore as outcomes the whole vector of vote intention and sympathy for all parties.
- We plan to explore as outcomes the support for centralist and pro-regional independence parties.
- We plan to explore as outcomes participation in collective action, e.g., demonstrations.
- We plan to explore as outcomes responses about what term best describes the situation of the country.

#### 4.4. Polarization

We will consider four types of polarization: ideological polarization, affective polarization, partisanship, and support for radical parties.

**a.** We measure **ideological polarization** through a question on individuals' position on a 0 (extreme left)-10 (extreme right) scale. We construct three ideological polarization variables: the standard deviation of the responses, and the share of respondents in the extreme positions (0 and 10 or, alternatively, 0-1 and 9-10).

**b.** We measure **affective polarization** through a set of questions on how each party "makes the respondent feel". We construct two affective polarization variables.

First, for each individual, we will compute the standard deviation of responses across all parties. For example, if a respondent grades all parties the same, then the standard deviation will be zero. Second, for each individual, we will compute the difference between her "feelings" about her preferred party (as answered in the question about which party they feel closest to) and the mean of her feelings for the parties in the opposite side of the ideological spectrum. Parties on the right (left) of the ideological spectrum are CS, PP, and VOX (PSOE, Podemos, Más País-Equo, and Izquierda Unida). For example, for a respondent whose preferred party is the PSOE, this variable will take the value of the feeling about the PSOE minus the mean feeling for CS, PP, and VOX. For voters whose preferred party is a nationalist party (ERC, Junts, CUP, PNV, and EH Bildu), we consider central right-wing parties (CS, PP, VOX) as parties on the opposite side. For voters whose preferred party is "another" or "none", we will consider the party for which they report the highest feeling as their preferred party, and then proceed following the previous steps. In case the respondent gives more than two parties her highest valuation, we will randomly choose one as the preferred party to construct this variable.

**c.** We measure **partisanship** through self-reported persistence in voting preferences. We will focus on the share of respondents that answer that they always vote for the same party, or that they always or generally vote for the same party.

**d.** We measure **support for parties on the ideological extremes** through the share of respondents that report an intention to vote for Podemos, VOX, or CUP; or through

the share of voters that mention one of these parties as the party for which they feel the most “sympathy”; or through the sympathy felt for these parties on a 0-10 scale.

#### **4.5. Support for taxation and redistribution.**

- Support for taxation and redistribution based on ideological stance regarding taxes. Two alternative outcome variables:
  - Categorical variable that takes the following values:
    - sup\_tax = 3 if answer "tax revenue is a way to better redistribute wealth in society"
    - sup\_tax = 2 if answer "taxes are necessary to fund the provision of public goods"
    - sup\_tax = 1 if answer "the amount we pay in taxes is not in accordance with the public goods we receive due to corruption"
    - sup\_tax = 0 if answer " tax money would be better used in people's pockets"
    - When multiple options are chosen, we will calculate the mean.
  - Indicator that takes value 1 if the answer “tax revenue is a way to better redistribute wealth in our society” (and “tax money would be better used in people’s pockets” is not chosen); and takes value 0 otherwise.
- Support for higher spending and taxes. On a scale from 0 to 10 where 0 means decreasing spending and taxes and 10 means increasing spending and taxes
- Preferences towards progressive taxation. In particular:
  - Indicator for whether a hypothetical increase in taxes should be mainly charged to very high-income individuals (higher than 120,000 €/year).
  - Indicator for whether a hypothetical increase in taxes should be mainly charged to high-income individuals (higher than 60,000 €/year).

#### Additional analysis:

- We will also test whether the treatment has larger effects on support for redistribution for people that self-identify as left-leaning (or voted for left-wing parties in the last election), and a more negative effect for people that self-identify as right-leaning (or voted for right-wing parties).

#### **4.6. Compliance:**

- Support for mask use. Indicator for whether it is a good idea or linearized variable.
- Willingness to quarantine. Indicators for options (a) or (a or b) or linearized variable.
- Observed willingness to quarantine. 0-10.

- Willingness to get vaccine. 0-10.

## Section 5. Hypotheses.

**"First Stage":** We will first examine the effects on the perceived level of competence of regional governments (first outcome of section 4.1.). This regression can be understood as a “first stage,” since we hypothesize that the effects on the rest of outcomes are mediated through a change in the perceived level of competence in the quality of political reaction to the Covid-19 crisis.

We expect our treatments to have a negative effect on the perceived level of competence of regional governments ( $\beta < 0$  in specification (1),  $\beta_1 < 0$  and  $\beta_2 < 0$  in specification (2)).

We also expect these effects to decline in magnitude when the respondent is ideologically aligned to the regional government and misaligned to the central government. We expect T2 to have larger (smaller) effects in magnitude for individuals in regions with a below-median (above-median) response.

**"Other Outcomes":** We expect to find similar effects for outcomes that measure “favorable” political attitudes, such as trust in government, support for redistribution, lack of polarization, and compliance with rules and regulations. In particular, we expect ( $\beta < 0$  in specification (1),  $\beta_2 < 0$  in specification (2)). We also expect similar heterogeneous effects on the basis of ideological alignment with regional and central governments.

## Section 6. Heterogeneous Effects and Non-linearities

### 6.1. Heterogeneous treatment effects.

For all outcomes, we will explore heterogeneous effects along several dimensions: age, educational level, region, gender, centrality, pre-treatment ideological variables (self-reported vote at the last Congress election and left-right ideological position on a 1-10 scale), socio-economic situation (pre-shock and change with the shock), and household income (pre-shock and change with the shock), by having suffered from Covid-19 disease personally or in the household, by eligibility to GMI (proxied using pre-treatment questions, such as reported household income), by health and personal experience with handling of the pandemic.

## **6.2. Non-linear effects.**

For the 0-10 outcome variables, in addition to linear models, we will allow for non-linearities by considering as alternative outcomes indicators for whether respondents respond above a given number.

For multiple-choice qualitative outcome variables, in addition to dummies for each category, we will consider ordered probits.