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ABSTRACT: Individual preferences over public policies should ideally be based on the possession of correct information about their reality. To test whether this holds, we conducted four waves of a survey, every six months since May 2020 (still under the COVID-19-lockdown), asking basic macro questions regarding the level of tax burden, of public debt, and of the underground economy in Spain. The percentage of correct responses (defined within broad ranges) never reaches 35%, and it is by far lowest for public debt. For the tax burden, left-wing individuals (with respect to right-wing) make more errors, and highly educated people (with respect to the rest of society) make fewer. No clear deterministic patterns arise for public debt and for the underground economy. Independently of the percentage of errors, we infer the existence of relative biases across different social characteristics: highly educated people tend to undervalue the level of the tax burden and of the underground economy and overvalue the level of public debt; leftist individuals undervalue the level of the tax burden and of the public debt but overvalue the level of the underground economy. There are also significant gender biases: with respect to men, women overvalue the tax burden and the importance of the underground economy, and undervalue the level of public debt. This misinformation and biases correlate with the marginal willingness to pay taxes (MWTP). MWTP is 10% higher under the presence of misinformation. This is particularly so for those individuals who undervalue the real level of the tax burden. Although COVID-19 generates greater interest to collect information, including about fiscal issues, there is a decrease in knowledge. The pandemic seems to have produced an excess of information up to causing misinformation. We also observe a general tendency to undervalue the level of public debt provoked by the exposure to COVID-19, which might be caused by the lax fiscal policy carried out during the pandemic.

JEL Codes: D72, D91, H20, H26, H30
Keywords: Survey data, Fiscal knowledge, Marginal Willingness to Pay, COVID-19

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1. Introduction

The public sector plays a crucial role in advanced economies. The average tax-to-GDP ratio in the European Union and in the OECD economies has reached its ever-highest value, around 40% and 34% respectively. This is compatible with an increasing level of public debt: average government debt-to-GDP ratio is around 90% in the EU and in the OECD economies. Under this context, having knowledge about the real situation of public finances should be something important for citizens. Otherwise, if their preferences are the base of public policies and citizens lack basic knowledge, the design of fiscal policy will be biased. What is the level of fiscal knowledge? What are its determinants? Is there any bias in knowledge across socio-economic groups? Has the COVID-19 impacted on the level of knowledge? These are some of the basic questions we tackle in this paper.

On the one hand, knowledge might be mediated by shocks like the COVID-19[1]. Because of the increasing role of the public sector at fighting against the pandemic[2], people become more aware about the important role of the public sector and might demand more information. On the other hand, socio-economic differences across social groups might systematically create different levels of interest in the *res publica*, and so of demand of information. In any case, the final level of knowledge will depend on the sources of information that each social group employs. There might be bias, such that more information does not necessarily imply more knowledge.

To study the level and determinants of fiscal knowledge, we conducted a 2,000-observation survey in May 2020 in Spain during the lockdown caused by COVID-19, and the same survey was conducted in three subsequent waves every six months to analyse its evolution over time. The survey includes three basic questions regarding fiscal issues: the level of tax-to-GDP ratio, the level of public debt over GDP, and the estimated level of the underground economy to GDP. Although the responses to the questions are defined within broad ranges, the share of right answers never reaches 35%.

[1] We will provide some evidence about this from Google Searches in section 3.2.

[2] For example, lockdowns, additional healthcare spending, benefits for workers temporary laid off, direct aid for corporate solvency support, new rental assistance programme for vulnerable renters, acquisition and free distribution of vaccines, among others.

Nonetheless, the information environment interacts with individual-level motivation, whereby more information does not always have the same implication to everyone. As Jerit and Barabas (2012) show, more information translates into higher knowledge on topics that do not have any partisan political implication. However, when a topic has partisan implication more information reinforces partisan perceptual bias (see also Gentzkow *et al*., 2021, and the references cited therein).

To elicit the determinants of knowledge and the eventual presence of bias, we estimate a linear probability model, which includes as explanatory variables personal characteristics provided by the survey, such as ideology, level of education, gender or income level, among others. Our results show that, as far as the tax-to-GDP ratio is concerned, left-wing individuals make more mistakes than right-wing, and highly educated people make less than the rest of population. Likewise, we infer the existence of relative biases. Highly educated people tend to undervalue both the level of the tax-to-GDP ratio and of the underground economy, while they overvalue public debt. Left-wing individuals undervalue both the tax-to-GDP ratio and the public debt, but overvalue the estimated level of the underground economy. This seems to confirm, thus, Jerit and Barabas (2012) result. Finally, we also identify a gender bias. With respect to men, women overvalue the tax-to-GDP ratio and the underground economy, while undervalue public debt.

As suggested above, the level of fiscal knowledge should have an impact on revealed citizens' demand of public policies, and thus thorough the democratic process it might finally have an impact on parliaments' law. In this regard, the survey also asks about the marginal willingness to pay taxes (MWTP). It is striking, albeit expected, the correlation between misinformation and the MWTP: it is 10% higher for those who fail to answer the right level of tax burden, and particularly 18.8% for individuals who underassess the right value. We cannot ensure causality here.

The pandemic has been a tremendous shock in people's life. On the one hand, the public sector has responded. Its role both as income insurer and provider of health services has been reinforced. On the other hand, there has been a surge in consumption of different sources of news due to the impact of COVID-19 (Nielsen *et al.*, 2020). Have both factors positively interacted with each other to increase fiscal knowledge? As we explain later on, in our case the

impact of COVID-19 is measured through the number of per capita deaths in the short and in the long run at the province of residence of the surveyed. Paradoxically, our results show the greater exposure to COVID-19, the lower the level of fiscal knowledge. Therefore, our interpretation is that the surge in consumption of news has provoked misinformation. We will also provide anecdotical evidence about the increase in interest on fiscal issues through *Google trends*. Regarding biases, we estimate a general tendency to undervalue the level of public debt, which we believe has to be considered within the context of a very laxing fiscal policy during the pandemic. We do not find a statistically significant impact of COVID-19 exposure on the MWTP.

People have a lower level of knowledge and there are also biases across socio-economic groups. We believe these results are important regarding the formation of fiscal policy. Where biases are more relevant is regarding the ideological spectrum. We expect this has an impact on political polarisation and distorts fiscal policies through the electoral process.

The rest of the article is organised as follows. In Section II there is a summary of the related literature regarding taxes and the size of the public sector, tax knowledge and preferences, as well as biases, misinformation and the willingness to pay. Section III describes the survey data: the waves and personal information included, the questions about fiscal knowledge and MWTP revealed preferences, and basic descriptive analysis of the data. In Section IV there is the empirical analysis and its results: the differences in knowledge about public finance between groups of individuals, the determinants and biases in the level of knowledge. Section V deals with the revealed preferences on MWTP and fiscal knowledge, and Section VI concludes.

2. Related literature

Regarding the size of the public sector, already in 1848, John Stuart Mill warned of the risks of indirect taxes compared to direct ones, as the former are much less perceived than the latter. This could cause voting "for a war, or any other expensive national luxury" without eyes' voters open to what it costs them and therefore with less security of economy in the public expenditure (1848, p. 864). Later on, around the end of the 19th century, Amilcare Puviani gave a thorough treatment of the issue labelling it as *fiscal illusion*, which refers to a systematic misperception of the costs and benefits of public programs; voters support an excessive public sector because they underestimate the costs of government (Buchanan, 1967) . Baekgaard *et al.* (2016) study

why fiscal illusion occurs and argue fiscal illusion is a special case of the so-call attention model of fiscal illusion, based on the idea that opinion on policy proposals depends on the saliency of attributes of the proposal. In this perspective, fiscal illusion can be explained by lack of attention to, not necessarily systematic underestimation of, the costs of the policy proposal. Sausgruber and Tyran (2005), through an experimental approach, find that the tax burden associated with an indirect tax is underestimated, whereas this does not happen with an equivalent direct tax. In 1960, Anthony Downs offered a completely opposite explanation about the size of public budgets: a fully informed majority would prefer larger expenditure. Voters perceive the tax burden they bear far more severely than the advantages of government programmes, many of which do not benefit them personally, which causes smaller public budgets than the ones the governments would enact if citizens had complete information. In sum, knowledge is an essential factor that could determinate policy preferences, and so the design of public policies.

As far as taxation is concerned and particularly regarding the personal income tax, surveys conclude there is a high degree of misinformation about progressivity issues. When analysing the relationship between respondents' self-reported average tax rates (ATRs) and marginal tax rates (MTRs), Gideon (2014, 2017) concludes that most people do not understand the progressive nature of the federal income tax in the United States: only slightly more than one fifth of respondents understand tax schedule progressivity to mean that MTRs are higher than ATRs. And people overestimate their tax burden (as reflected in their perceived ATR), while respondents with lower income overestimate their MTR and those with higher income underestimate MTR. Ballard and Gupta (2018) confirm that an overwhelming majority of respondents (84.9%) overstate their ATR in the US federal income tax, which tends to be greater among those who are in favour of lower taxes, get tax-preparation assistance and believe public resources are spent ineffectively. Slemrod (2006) obtains similar results from an in-depth survey of American's attitudes toward taxation: there is a widespread misconception that the existing income tax system is not progressive, but most important this misconception has consequences on revealed tax preferences, as it strongly contributes to support for replacing the current income tax with either a flat-rate tax or a retail sales tax.

More recently, Blaufus *et al*. (2022) review the research on misperception (128 mainly empirical studies in different countries) and reinforce the existence of misinformation: the estimates of taxpayers who largely accurately perceived their income tax rate range from under 10% to 44%.

Tax rate misperception also affects decisions-makers in firms as Fochmann *et al*. (2022) show using survey data on German firms. Misperception is mainly driven by tax complexity, lack of tax knowledge and dissatisfaction with the tax system.

Stantcheva (2021) assesses what people know about income taxation and estate taxation in the US, and explores how they reason, by means of a social economics survey. Respondents smooth out the tax schedule and overinflate the income tax paid by median households while underassess the one paid by top bracket household: the level of progressivity is misunderstood. Nonetheless, there are relevant heterogeneity patterns. Stantcheva finds left-leaning respondents tend to underassess actual taxes and their progressivity compared to right-leaning ones. Higher-income respondents are also more aware of variables that affect the top of the distribution, while they do not differ in misperceptions of other variables. The partisan gaps in policy views are mostly due to differences in redistributive concerns rather than in efficiency ones and these views are heterogeneous across parties and much more homogeneous within them.

Individuals may choose their political affiliations according to their perceptions of reality, but political preferences also affect the information one receives, which can in turn shape perceptions of reality. Regardless of the direction of causality, as Alesina *et al.* (2020) indicate, having different attitudes about an economic policy seems reasonable, as policies can be seen from different points of view, but "what is striking, rather, is to have different perceptions of realities that can be factually checked" (p. 324). As information becomes more available (e.g., though the mass media), the level of political knowledge rises, but regarding certain topics, perceptual biases are present. Jerit and Barabas (2012) show that the information environment interacts with individual motivation: on topics that do not have any partisan implications, more information generates more political knowledge, but for partisan topics, more media coverage increases perceptual biases. People perceive the same reality in a way consistent with their political views, but learning is selective: higher for facts that corroborate their views and lower for those that challenge them.

The literature has widely analysed many issues regarding the impact of COVID-19. Bursztyn *et al.* (2022) study the extent to which misinformation broadcast on mass media at the early stages

of the pandemic influenced health outcomes. Their results indicate misinformation can have significant consequences as differential exposure to information affected behaviour and health outcomes. The World Health Organisation drew attention to the challenge of "infodemic", that is, too much information including false and misleading information during a disease outbreak[3] and 132 Member States signed a statement to counter misinformation[4]. Allcot *et al*. (2020) study partisan differences in Americans' response to the pandemic and show partisan gaps in beliefs about the severity and in social distancing behaviours are real. Media sources have sent divergent messages about COVID-19, and Allcot *et al*. find gaps are smaller when the partisanship of news consumption is controlled for, and that news partisanship is correlated with beliefs even when party is controlled for. The literature has also analysed many other important issues related to the pandemic such as the impact on the labour market and the level of inequality (Crossley *et al.*, 2021), the mental health (Banks and Xu, 2020; Swaziek and Wozniak, 2020), the gender (Hupkau and Petrongolo, 2020), the political trust (Bargain and Aminjonov, 2020; Eichengreen *et al*., 2021), the education (Aucejo, *et al.*, 2020) and the environmental preferences (Hynes *et al.*, 2021). Forenmy *et al.* (2022) study the impact of the COVID-19 pandemic on the demand for public health services in Spain, in particular when they have relatives in the risk groups or live in regions with higher infections. In a similar vein, Olivera and Van Kerm (2022) asks participants in a survey about the introduction of new personal taxes (including a one-time wealth tax) to cover the costs of the COVID-19. Hence, they explicitly relate their question over tax preferences "to finance measures supporting the economy and protecting households who have faced income losses" (p. 1399), and their responses are collected around the peak of the pandemic (May-July 2020). On the one hand, our novelty is the estimate of the impact of the pandemic on fiscal knowledge and, on the other hand, estimating MWTP still within one year later the peak of the pandemic and without explicitly affecting extra revenue to the costs of the pandemic.

3. Survey Data

3.1. *Waves and personal information included*

We have conducted four waves of a survey whereby we aimed, first, at identifying to what

[3] https://www.who.int/health-topics/infodemic#tab=tab_1

[4] https://onu.delegfrance.org/IMG/pdf/cross-regional_statement_on_infodemic_final_with_all_endorsements.pdf

extent society is correctly informed about basic facts of the public sector. And second, estimating their marginal willingness to pay taxes. Table 1 shows the basic characteristics of each wave. In total, we have slightly more than 8,400 observations[5].

[INSERT TABLE 1 AROUND HERE]

The first wave was realised in May 2020 during the official lockdown ruled by the Spanish government as a consequence of the COVID-19, which ran from March 13th till June 25th 2020. The three subsequent surveys were conducted every six months when the impact of the pandemic was more or less pronounced. As we will explain, we will take advantage of this variation along time, but also across provinces, for our testing purposes. Each one of the surveys was on-line and monitored and processed by a professional survey firm *Netquest*, which has a high-quality wide panel of potential respondents[6]. Participation is only by invitation and those taking part in one wave are excluded from the rest. During the survey (see Appendix for more information), there is a question about the sincerity in responding and a quality check question to secure respondents' attention. Moreover, those responses such that the time of response was 20% less time than expected were dropped. Respondents are above the age of 18 and reside in Spain and are rewarded through a program of in-kind contribution.

We included a set of questions about personal characteristics, as shown in Table 2. Although a priori the sample is representative at the national level, we check the validity of this assumption. In the last column of Table 2 for each characteristic we show the difference between the mean value in our sample and the real one from several official statistical sources. In Table 3, we show the territorial distribution of respondents by province. Again, in the last column we show the difference between the share of respondents by province and the distribution of residents aged 18 to 75 by province. From these data, we observe respondents from the province of Madrid are overrepresented in our sample, and some bias also arises for some personal characteristics at the national level. To account for these sample biases, we will also run weighted regressions

[5] The survey includes 25 questions, as there are also questions regarding respondent's opinion about other fiscal issues, and in the fourth wave, there are three more questions.

[6] https://www.netquest.com/en/online-surveys-investigation

as a robustness check.

[INSERT TABLE 2 AROUND HERE]

[INSERT TABLE 3 AROUND HERE]

3.2. *Questions on Fiscal Knowledge and Revealed MWTP*

To elicit the factual knowledge of the surveyed people, we asked the following three questions:

Tax-to-GDP-ratio. *The tax-burden indicates the importance of taxes and social security contributions in each economy (as a share of GDP). What do you think the tax-to-GDP ratio is in Spain?*[7]

According to Eurostat data[8], this ratio was 37.7% in 2020, and 39.0% in 2021. As it is quite unrealistic to assume people know the precise point data, we offered several possibilities of response by ranges: below 25%, between 25-35%, between 36-45% (correct threshold for all waves of the survey), between 46-55%, and above 55%. Till 2017, the ratio was at the upper bound of the 25-35% threshold; since then on, it has always been above 35%. In any case, it has never been below 25%, or above 40%. However, as we see in Figure 1, a non-negligible percentage of responses (38.23%) are within ranges never seen in contemporaneous Spain: 30.9% respond the ratio is above 46%, and a minority (7.33%) respond the ratio is below 25%. All in all, only 32.88% responses are correct; 36.22% undervalue the correct ratio, and the rest overvalue it. Hence, there is quite a lot of dispersion.

Public debt-to-GDP. *Public debt indicates the amount owed by the public sector because their expenditures have been above their revenues. What do you think the level of public debt (as a*

[7] In Spanish, "*La presión fiscal indica el peso que tienen en la economía de un país (expresado como porcentaje del PIB) los impuestos y las cotizaciones sociales que se pagan. ¿Cuál crees que es el nivel de presión fiscal en España?".*

[8] https://ec.europa.eu/eurostat/databrowser/view/GOV_10A_TAXAG/default/table?lang=en&category=gov.gov_gfs10.gov_10a

share of GDP) in Spain was at the beginning of 2020?[9]

This ratio has evolved from 98.2 at the end of 2019 (before the pandemic) to 120.4 in 2020 and to 118.3 in 2021, according to Eurostat data[10]. Therefore, as in all countries, the impact of COVID-19 on public finances has been huge. To avoid this reference point, in the question we explicitly mention "beginning of 2020", that is, before COVID-19. The minimum of this ratio for the last 10 years was 90.0% in 2012; since then, it increased till 105.1% in 2014, and then slightly decreased till 98.2% (2020) right before COVID-19. We offered to the survey respondents the following possibilities of response: below 50%; between 50 and 75%; between 76% and 100%, between 101 and 125%; between 125 and 150%; and above 150%. The distribution of correct answers is shown in Figure 2. 36.89% of the respondents think the ratio is below 75%, which has never been the case in the last decade; and 12.09% think it is above 125%. Hence, almost half of the population (48.98%) have very little knowledge about a key indicator of public finances. The rest either correctly respond (23.21%) or slightly overvalue the ratio (27.81%), since they respond the 101-125% threshold, which was the correct one for the 2013-2018 period.

Underground economy-to-GDP. *The underground economy is usually employed as an indicator to approximate the level of tax fraud. As a share of GDP, what is the level of the underground economy in Spain?*[11]

There is no official data for this ratio, although there is a lot of debate about the importance of the underground economy, in particular, because of its potential impact on progressivity and on

[9] In Spanish, "*La deuda pública indica el importe total que las administraciones públicas deben por haber gastado más de lo que ingresan. ¿Cuál crees que era al inicio de 2020 el nivel de deuda pública en España en relación con la economía (% del PIB) del país?".*

[10] https://ec.europa.eu/eurostat/databrowser/view/GOV_10DD_EDPT1__custom_3867339/default/table?lang=en

[11] In Spanish, "*La economía sumergida se suele utilizar como indicador para conocer el nivel aproximado de fraude fiscal. Como porcentaje del PIB, ¿cuál crees que es el nivel de la economía sumergida en España?".*

tax revenue lost, and therefore on tax setting[12]. We offered four possibilities of response: below 10%; between 10 and 20%; between 21 and 30%; and above 30%. Just to take a benchmark study, we use Medina and Schneider's (2018) estimations. The ratio of the underground economy-to-GDP in Spain between 1991 and 2015 ranged from 21.53% to 27.98%, with a 24.52% average for that period. From Figure 3, we see 33.45% of the responses are correct. By definition, the estimation of the underground economy suffers from measurement error; however, responses below 10% (4.65% of the sample) or above 30% (36.27%) seem well out of the standard ranges.

Our measure of marginal willingness to pay taxes (MWTP) is obtained from the following question:

MWTP. *Some people think that public services and social benefits should be improved, although this implies higher taxes (group 1). Others think it is more important to pay less taxes, although this implies a lower level of public services and social benefits (group 2). Others consider that the current level of taxes and of public services and social benefits is adequate (group 3). Which group is closer to your preferences?*"[13]. We will code responses as follows: positive marginal willingness to pay equal to +1 for group 1; MWTP=0 for group 3; and MWTP=-1 for group 2. Thus, in our setting, MWTP is a discontinuous variable ranging from -1 to +1.

Figure 4 shows the average values of MWTP across waves. There is a modest linear increase of those in favour of higher taxes, from 36.41% (first wave) to 39.75% (fourth wave), being 38.03% the average value of the period. The share of people who wants less taxes is a minority, 25.62% for the whole period. In Figure 5, we compare the MWTP across the four individual characteristics we will systematically consider in our empirical analysis: political colour,

[12] A recent law, Act 11/2021 from the 9th of July, to prevent and fight against tax fraud, commands the government to appoint an independent commission to analyse and realise an official assessment of the underground economy in Spain.

[13] In Spanish, "*Algunas personas piensan que deberían mejorarse los servicios públicos y las prestaciones sociales, aunque haya que pagar más impuestos (grupo 1). Otras piensan que es más importante pagar menos impuestos, aunque eso signifique reducir los servicios públicos y prestaciones sociales (grupo 2). Otras consideran que ya está bien el nivel actual de impuestos y de servicios públicos y prestaciones sociales (grupo 3) ¿En qué grupo se situaría Ud.?*"

education, gender, and income.[14] We observe the greatest polarization between right-wing and left-wing individuals. Per 1 rightist (leftist) individual who prefers higher (lower) taxes there are 2.9 (2.2) leftist (rightist) individuals.

[INSERT FIGURE 1 AROUND HERE]

[INSERT FIGURE 2 AROUND HERE]

[INSERT FIGURE 3 AROUND HERE]

[INSERT FIGURE 4 AROUND HERE]

[INSERT FIGURE 5 AROUND HERE]

Do people care about public finances? This is a necessary condition for being informed and, depending on the source of information, having fiscal knowledge. In Figure 6, left axis, we show the intensity of searches in Spain according to *Google Trend* for each of the key survey concepts along time (between 2020 and 2022): *Impuestos* ("Taxes"), *Deuda Pública* ("Public Debt"), and *Economía sumergida* ("Underground Economy"). By far, in relative terms the number of searches for Taxes is much more important than those for the other two terms (the relative comparison is not shown in the graphs).

We then relate the intensity of Google searches with national exposure to COVID-19, measured by the number of COVID-19 cases per capita. For those two series we identify the peak points. We apply Harding and Pagan's (2002) approximation to the Bry-Boschan algorithm (Bry and Boschan, 1971) to identify peak points[15]. This algorithm identifies the peak as local maxima $((y_{t-k}, \dots, y_{t-1} < y_t > y_{t+1}, \dots, y_{t+k})$ for each window, considering the duration of the cycle. We choose 5-week window in the reference series. We set 3 weeks as a minimum period for the duration of a phase of the cycle (peak to trough or trough to peak). Finally, we set 3 weeks as parameter for the minimum duration of the complete cycle (peak to peak). There is evidence of more intensity in searches when COVID-19 exposure is more pervasive (first 3 waves). In particular, before the third wave, the Google peaks for the tax burden and the underground

[14] We report the description of these variables in Table 2.

[15] We apply the Bry-Boschan algorithm using the Stata command *sbbq* (Bracke, 2012).

economy hold within one to two weeks from the peak of COVID-19 cases per capita. Hence, the interest in public finance issues seems to be concentrated at the beginning of the pandemic when there was a lot of uncertainty, including regarding the performance of the economy.

[INSERT FIGURE 6 AROUND HERE]

3.3. *Basic Analysis of the Survey Data*

In Figure 7, we show how responses to elicit knowledge about the tax burden are distributed across ranges and by individual characteristics. Figure 8 and Figure 9 illustrate the results for public debt and for underground economy, respectively. For example, if we focus on the tax burden, per one rightist individual who undervalues the tax-to-GDP ratio there are 1.41 leftists. There is where we observe the greatest polarization, since the ratio is 1:1 for highly educated individuals *vs* the rest and for high-income *vs* the rest. The ratio is 1.25:1 between men and women, that is, the former undervalue the real tax-to-GDP ratio more than women.

[INSERT FIGURE 7 AROUND HERE]

[INSERT FIGURE 8 AROUND HERE]

[INSERT FIGURE 9 AROUND HERE]

In figures 10 to 12, we show the results of a relative distribution analysis. For an outcome variable, we test the over or underrepresentation of specific categorical values in one subsample with respect to the over or underrepresentation of the same outcome variable with respect to another subsample (Jann, 2021). From those figures, we can see the density function of the relative distribution for tax-to-GDP, public debt, and underground economy answers, respectively. A relative density equal to one (red line) means knowledge for a particular item is equally distributed in the two subsamples. A relative density larger than one means that the knowledge answer of the first subsample is overrepresented with respect to the second subsample, while values lower than one indicate that the knowledge answer for the first subsample is underrepresented.

[INSERT FIGURE 10 AROUND HERE]

[INSERT FIGURE 11 AROUND HERE]

[INSERT FIGURE 12 AROUND HERE]

Regarding tax burden, Figure 10 shows that undervaluation is overrepresented within left-wing people with respect to right-wing people, and the reverse happens for overvaluation. The correct answer in the subsample of people with a university degree is overrepresented with respect to people without a university degree, and the overvaluated answer is also underrepresented. For women with respect to men, undervaluated answer is underrepresented, while overvaluation is overrepresented. Finally, the overvaluation of tax burden is underrepresented in the high-income subsample with respect to the low-income subsample.

Figure 11 shows the relative distribution of the public debt answer. We notice the undervaluation answer is overrepresented for leftist, while overvaluation is underrepresented. The undervaluation answer is overrepresented for women with respect to men, and also for highly educated people with respect to low educated. Regarding the underground economy (Figure 12), we observe that undervaluation answer is underrepresented for leftist and women, while undervaluation is overrepresented for the subsample with a university degree. The correct answer for the underground economy is underrepresented only for the women subsample, and the overvaluation of the underground economy is also overrepresented only for the women subsample.

Having said this, while we expected polarization between rightist and leftist individuals –basically, because they receive information from different channels or agents –, we did not expect this to be the case depending on the level of education or on the gender of the respondent. In the regression analysis, we will perform a multivariate analysis to control for all simultaneous factors and so will be able to infer to what extent individual characteristics drive biases in information. This is one of the purposes of the next section. First, though, we will estimate the determinants of the errors, independently of the potential existence of biases.

4. Empirical Analysis

4.1. *Are there personal traits that explain differences in fiscal knowledge between groups of individuals?*

To elicit the level of knowledge, we estimate a linear probability model[16]. For each one of the questions detailed in Section 3.2, the dependent variable is equal to one if the response is correct, and zero otherwise. We also define a dependent variable equal to the share of correct responses for the three questions (continuous variable from 0 to 1). In the regression, we include as explanatory variables all personal characteristics listed in Table 2. We also control for provincial fixed effects, time (wave) fixed effects, and the interaction between provincial and wave effects, and between personal characteristics and wave effects. Results are shown in Table 4.

[INSERT TABLE 4 AROUND HERE]

As expected, highly educated individuals have more general knowledge about public finance issues (column 4 of Table 4); with respect to the rest of the respondents, their share of correct responses is +.118 points higher. The average value of the dependent variable is .2985. Regarding the aggregated level of knowledge, no other clear deterministic pattern arises. It is interesting to note, though, the estimate for the group of individuals who prefer not to reveal their political ideology is negative and very precisely estimated. The impact, with different sign, is almost double the estimated impact for highly educated individuals. Hence, it seems that variable is implicitly identifying those with little interest in the *res publica*[17].

Throughout the paper, we focus our interest in four key individual variables (in italics in Table 4): *Left*, *High Education*, *Woman* and *High Income*. Regarding the first one, in the regressions we

[16] Qualitative results remain if we run logit or probit regressions. These estimations are available upon request. The same applies for weighted regressions, as explained in Section 3.1.

[17] In a specially-designed survey about economic policy, Blinder and Krueger (2004) refer to a similar group as non-political, and they turned out to be the most anti-tax group (70% said taxes are too high in the United States).

are also controlling for those individuals coded as Centre and those who hide their political ideology. Hence, the estimates of *Left* have to be interpreted with respect to the base category, rightist individuals. Out of the three considered variables to elicit the level of knowledge (columns 1 to 3), we only observe a clear deterministic pattern for the Tax Burden. For that variable, we observe again that knowledge of highly educated individuals is relatively larger (+.113), while leftist individuals show less knowledge than rightist ones (-.139). Note the nature of the question is factual, it is not about preferences. This means, thus, *ceteris paribus*, across the political spectrum, leftist individuals have less knowledge than rightists. In any case, for all three dependent variables, the percentage of correct responses never reaches 35%. In the next regressions, we only show the estimates of those four variables, although we control for all the individual characteristics listed in Table 2.

We extend this analysis about the determinants of knowledge to account for the potential impact of COVID-19. This impact is measured by the number of per capita deaths in the province of residence of the surveyed. We split exposure to COVID-19 into two variables: the number of provincial deaths per capita within the last 30 days, and the number of provincial deaths per capita from past 31 to 120 days before the survey. Hence, the first estimate will only account for the short run impact of COVID-19, and the sum of both estimates for its long-run impact. Logically, as we previously said, the pandemic provoked a surge in news consumption (e.g., Nielsen *et al.*, 2020) and we wonder if it might have also created incentives to collect more information about fiscal issues; for example, the huge impact on the public debt-to-GDP ratio might raise people's concern about the sustainability of the public finances or about future tax increases. However, more information does not necessarily mean more knowledge if there is misinformation, an event that causes great concern. Misinformation occurs when people hold incorrect factual beliefs and do so confidently (Kuklinski *et al*., 2000). If large segments of the public are misinformed in the same direction, shared misperceptions can bias collective opinion and even challenge representative democracy (Jerit and Zhao, 2020). Indeed, in recent years, there has been a widespread concert that misinformation is damaging societies and democratic institutions (Allcott *et al*., 2019). From the early stages of the COVID-19 pandemic, misinformation played an important role, affecting behaviour and health outcomes (Bursztyn *et al.* (2020). To go deeper in the impact of the pandemic, we will interact exposure to COVID-19 with our four key independent variables to implicitly check whether different groups of individuals are able to filter correct information differently or simply their sources of information differ.

[INSERT FIGURE 13a AROUND HERE]

[INSERT FIGURE 13b AROUND HERE]

[INSERT FIGURE 13c AROUND HERE]

Before that, we show in Figure 13a, 13b and 13c the differences in COVID exposure across provinces and along time. In those graphs, we have aggregated provincial exposure by deciles, from more to less exposure provinces. Figure 13c shows aggregate exposure (i.e., previous 120 days to the survey), and observe a clear decreasing evolution of exposure. Differences among provinces were particularly acute during the first two waves of our survey (May and November 2020). In the last two waves the short run impact of COVID-19 is very low in comparison with the first two waves. Across waves there are interesting asymmetries that we aim at exploiting: for example, for the first wave, the most recent exposure (within last 30 days) is less important than what happened 31-120 days ago, and the reverse happens for the second wave. Differences are not so acute for the other waves, since as we said before the impact of COVID was much less relevant than at the beginning of the pandemic. Hence, this heterogeneity should allow us to test whether the impact of COVID-19 on knowledge, if any, is dependent on more or less recent exposure.

[INSERT TABLE 5 AROUND HERE]

As shown in Table 5, for the aggregate level of knowledge, the impact of COVID-19 is negative. Remember exposure to COVID-19 is number of deaths per capita in the province of residence of the surveyed. The linear combination of both estimates (1-30 and 31-120 days) is -5.954 and statistically significant. Hence, one more death per 1,000 inhabitants within the last 120 days implies fiscal knowledge decreases by 0.16. This negative impact on aggregate level is basically driven by misinformation regarding the tax-to-GDP ratio; no significant patterns arise with respect to the other two variables. At the end of Section 3.2, from the *Google Trend* analysis, we concluded people searched much more information for taxes than for the other two categories. Hence, it seems that these basic searches, among other sources of information, produce misinformation that paradoxically reduces the level of knowledge. In times of COVID, if people are more concerned about these issues, those searches just generate misinformation.

In tables 6 to 9, we replicate the regressions shown in Table 5, but interacting COVID exposure with our key independent variables. All the other control variables are also interacted with COVID. In this way, we can check whether some groups collect more reliable information than others, that is, whether misinformation is not uniformly distributed. From these regressions, we only observe that highly educated people have better knowledge than the rest of society due to higher exposure to COVID for the last 31-120 days. However, the total estimate impact of COVID for this group (-5.937) is not statistically different from that on the rest of society (-6.129). All in all, exposure to COVID, if anything, has provoked a lower level of knowledge more or less to the same extent for all groups of society.

[INSERT TABLE 6 AROUND HERE]

[INSERT TABLE 7 AROUND HERE]

[INSERT TABLE 8 AROUND HERE]

[INSERT TABLE 9 AROUND HERE]

4.2. *Are there biases in the level of knowledge, and what are their determinants?*

The next question we pose is, given the existence of errors, which we know they are pervasive (less than 35% of correct responses), whether these are random or follow a deterministic pattern. By deterministic pattern, we mean they depend on the four personal traits we are analysing. Hence, this analysis will be complementary to the previous one. By now, we know highly educated people have in general more knowledge, while leftist people have less regarding our key variable: the tax-to-GDP ratio.

In order to test for this hypothesis, we now redefine the endogenous variable. It is equal to zero if the response (about tax burden, public debt or underground economy) is correct, +1 if there is overvaluation and -1 if there is undervaluation. A positive (negative) estimate implies the impact of that variable (with respect to the base category) is such that implies the overvaluation (undervaluation) of the real value of the dependent variable. Basic results are shown in Table 10. The average value of each one of the dependent variables is -0.0531 for tax burden, 0.0301 for public debt, and 0.0599 for underground economy.

With respect to right-wing people, on the one hand, leftists not only have less knowledge regarding the tax-to-GDP ratio, but they tend to undervalue it. Although they have the same knowledge than rightist (according to the results discussed in the previous section), leftists tend to undervalue the public debt-to-GDP ratio and overvalue the importance of the underground economy with respect to GDP[18]. Hence, we observe polarized views across the political spectrum. Highly educated individuals have more knowledge than the rest of society, particularly for the tax-to-GDP ratio. However, those who commit errors tend to undervalue it (almost 7 times smaller, though, than the estimate for *Left*). In contrast to leftist, highly educated ones overvalue the public debt-to-GDP and undervalue the importance of the underground economy. All in all, the existence of a relatively lower share of errors (highly educated) is compatible with biases of information; and these biases go in the contrary direction between highly educated and leftist, but for the tax burden.

[INSERT TABLE 10 AROUND HERE]

High income individuals only show biased information regarding the level of public debt: they overvalue (as highly educated people), but the point estimate is almost one third the estimate of highly educated. Women show strong biases in their wrong perceptions: in contrast with leftist and with highly educated, overvalue the tax-to-GDP ratio (in absolute value, it is almost four times larger than for highly educated individuals); and behave as leftists for the other two dimensions: undervalue the public debt-to-GDP ratio (more than twice the estimate of *Left*) and overvalue the importance of the underground economy (almost three times the estimate of *Left*).

As we did in the previous section, we test for the impact of COVID, in this case, on the existence of biases. From Table 11, we only observe an impact of short run COVID exposure on the misperception of the public debt-to-GDP ratio. A greater exposure produces more undervaluation of that ratio. The estimate for the last 120 days is -5.336 and statistically significant at 1%. This value means one more death due to COVID per 1,000 inhabitants increases undervaluation of the public debt-to-GDP ratio by -5.336, holding all other factor constant. In tables 12 to 15, we try to infer whether the potential impact is contingent on personal characteristics. We do not find any pattern here. That is, on the one hand, exposure to COVID

[18] Here we do not include an aggregate measure of fiscal knowledge, as would not make sense to sum undervaluation and overvaluation of different variables.

does not affect the biases regarding the tax burden or the underground economy not even for particular groups of the population. On the other hand, the bias regarding the public debt caused by COVID is present; its impact is slightly more acute for women (-5.77) than for men (-5.301), but the difference is not statistically significant (see Table 14). All in all, it seems that COVID-19 and the corresponding lax fiscal policy (in particular, during the first wave of the pandemic just when there is a peak of Google Searches of this term) have provoked that people undervalue the problem of the public debt, and so its value. For policymakers, this probably is an undesired consequence of the expansionary fiscal policy during the pandemic.

[INSERT TABLE 11 AROUND HERE]

[INSERT TABLE 12 AROUND HERE]

[INSERT TABLE 13 AROUND HERE]

[INSERT TABLE 14 AROUND HERE]

[INSERT TABLE 15 AROUND HERE]

5. Revealed MWTP and Fiscal Knowledge

Does the existence of errors, and in particular biased information, impact the revealed MWTP? A priori, the answer is yes. Information creates a reference point such that, ceteris paribus, undervaluation (overvaluation) should provoke a higher (lower) MWTP. This is the hypothesis we will test in this section, and implicitly also whether the importance of the reference points varies across social groups as identified in the previous sections.

[INSERT TABLE 16 AROUND HERE]

[INSERT TABLE 17 AROUND HERE]

The errors or the biases will only refer to the tax-to-GDP ratio. This seems coherent with the definition of the endogenous variable: willingness to pay taxes as defined in Section 3.2, which recall ranges from -1 (in favour of less taxes) to +1 (in favour of higher taxes). That is, there should be a direct relationship between those two variables. Although we control for a bunch of variables, we cannot discard that our key estimates are biased due to reverse causality. Hence,

in absence of experimental data or of any instrument to perform an IV estimation, we cannot infer causality from the estimated statistical relationships. Basic results are shown in Table 16.

The existence of wrong responses is associated with a higher MWTP; this is shown in column 1. As expected, ceteris paribus, leftists show a higher MWTP, and this is also the case for highly educated individuals. Women and high-income individuals' preferences versus taxation are not different from the rest. When we interact wrong information with individual characteristics, we see from column 3 that the positive correlation is only associated with highly educated. In Table 17, within errors, we distinguish between undervaluation and overvaluation (the base category, thus, is correct response). The correlation only holds between MWTP and undervaluation, with the expected positive sign, but this only occurs for highly educated and high-income individuals. The estimated higher preferences for leftist and highly educated are confirmed (not shown in the table).

In Table 16 and Table 17, we also control for COVID-exposure. We see that exposure to COVID-19 has increased the MWTP, in particular, if the exposure was during the last 31-120 days. The short run impact is also positive but imprecisely estimated such that the total impact turns out to be statistically insignificant.

6. Conclusions

We have tested the impact of personal characteristics like political affiliation, education, gender, and income on the determinants of basic fiscal knowledge. We have employed survey data. The size of the sample is slightly more than 8,400 adult individuals residing in Spain along four temporal waves, from May 2020 (still during the COVID lockdown) until December 2021. We have also tested for the existence of biases in the wrong responses across social groups, and the impact of errors on the marginal willingness to pay (MWTP).

The percentage of correct responses to basic questions about the macro level of tax burden, of public debt, and of the underground economy (defined within broad ranges) never reaches 35%. This is compatible with a higher level of knowledge for high-educated people. Errors, though, are not randomly distributed. With respect to right-wing individuals, for example, left-wing individuals systematically undervalue the real level of the tax burden and of public debt, while

they overvalue the level of the underground economy. Responses to factual questions show political biases. This creates political polarization and, in any case, the resulting fiscal policies will be biased as long as they are based on wrong information by the electorate.

Misinformation might be caused by the different channels of information used by individuals, being so particularly across the political spectrum, where mass-media are themselves politically polarized. Curiously, although the shock provoked by COVID-19 generates greater interest to collect information, including about fiscal issues, the results we obtain point to a consequent decrease in the level of fiscal knowledge. Hence, the pandemic seems to have produced an excess of information up to the extent of creating misinformation. Also, the pandemic and the fiscal policies carried out during that period, in particular a lax fiscal policy, seem to have provoked individuals to undervalue the real level of public debt. Undoubtedly, this is an unexpected distortion created by COVID, while the risks of debt sustainability are real.

As we said, misinformation and its biases distort fiscal policies. As a first attempt to test for this, we aimed at estimating their impact on the MWTP. Unfortunately, though, we cannot ensure causality, such that we only estimate correlations: a higher level of undervaluation of the tax-to-GDP ratio is positively correlated with MWTP. We are currently working with experimental data to test for the impact of biases on MWTP.

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Figure 1: Distribution of correct responses for the tax-to-GDP ratio

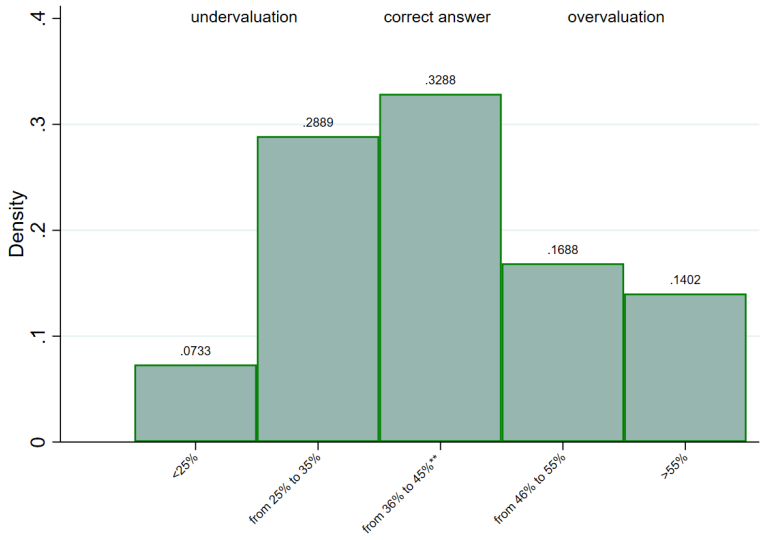


Figure 2: Distribution of correct responses for the public debt-to-GDP ratio

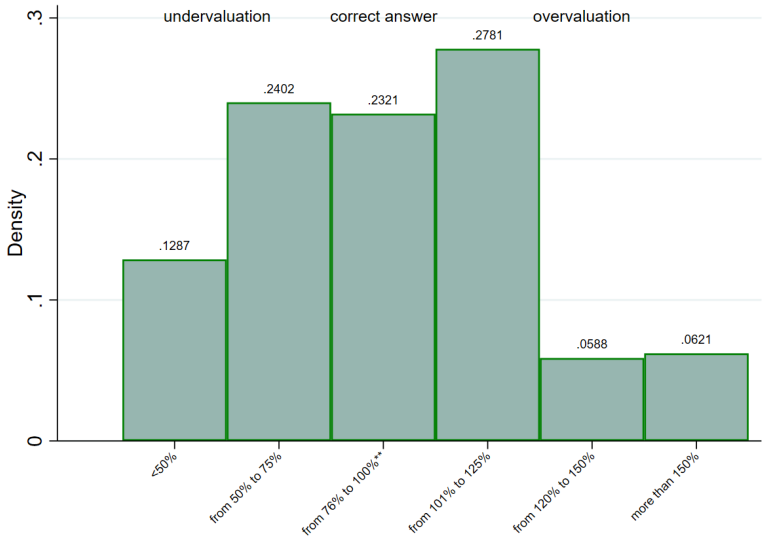


Figure 3: Distribution of correct responses for the underground economy-to-GDP ratio

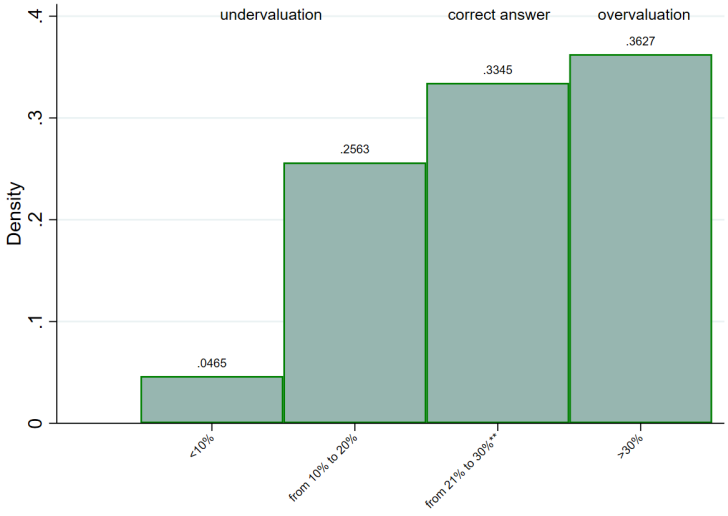


Figure 4: Distribution of MWTP, by waves.

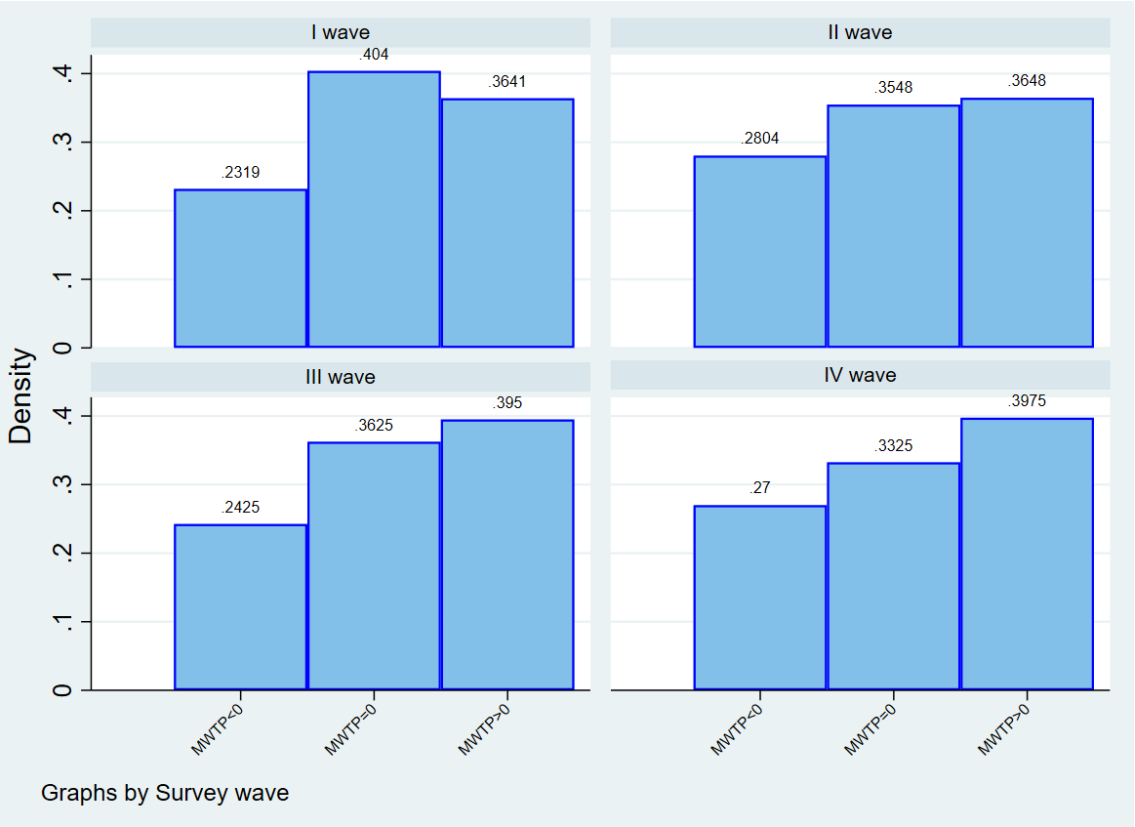


Figure 5: Distribution of MWTP across key individual characteristics.

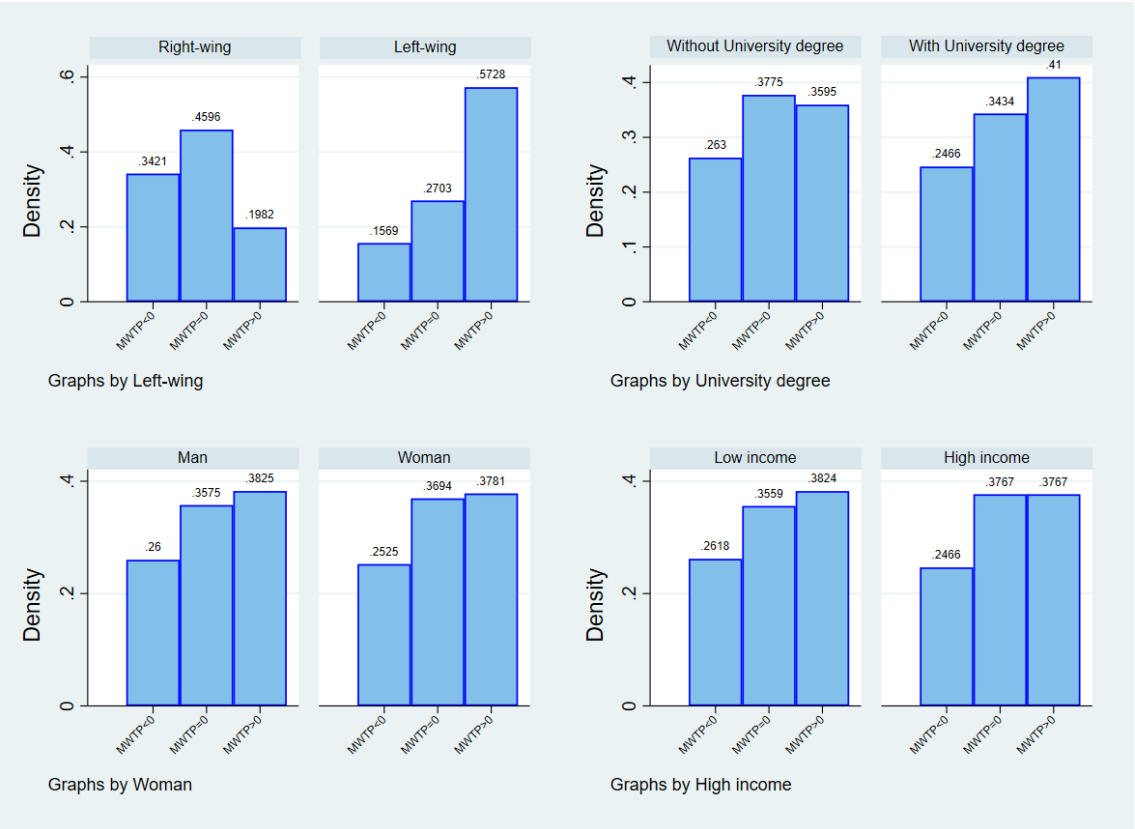
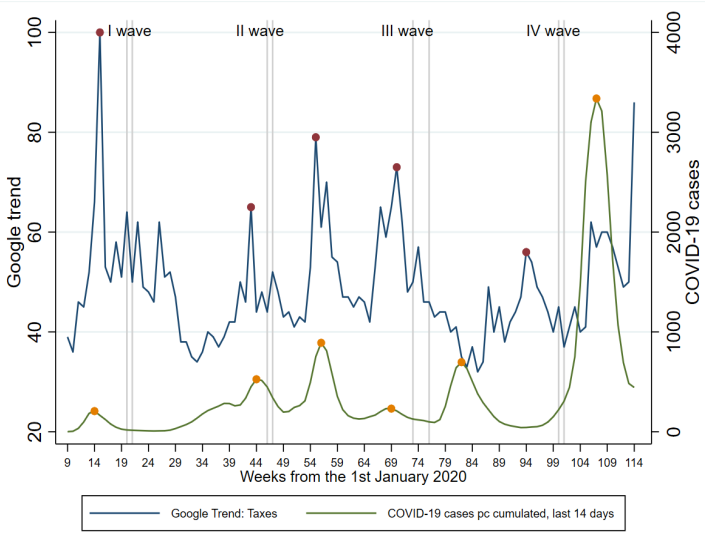
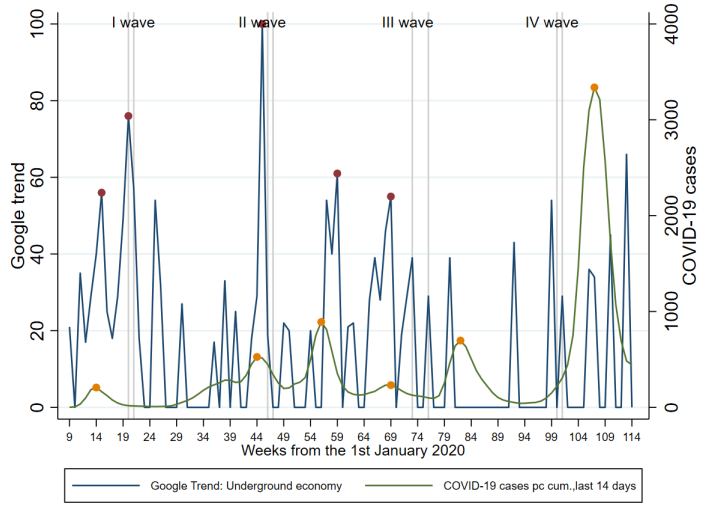
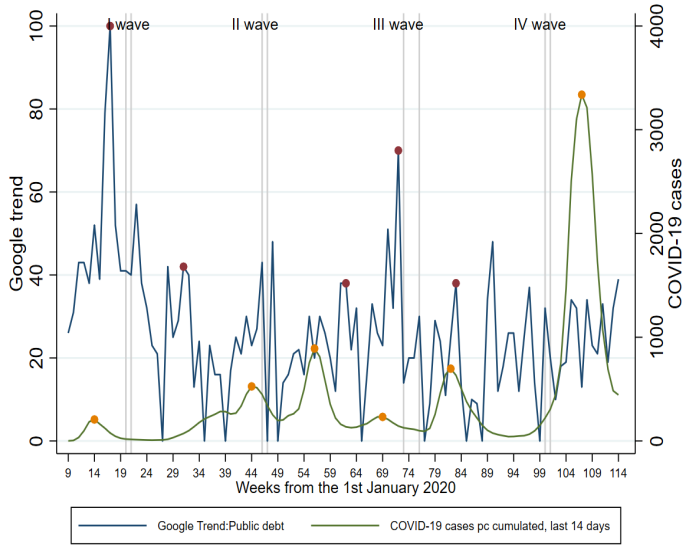


Figure 6: Intensity of Google Searches for key concepts of public finances and COVID-19.







Note: Left axis: Google trend, from 0 minimum search intensity to 100 maximum search intensity. Right axis: COVID-19 cases per capita cumulated last 14 days

Figure 7. Distribution of Tax Burden responses, by key individual characteristics.

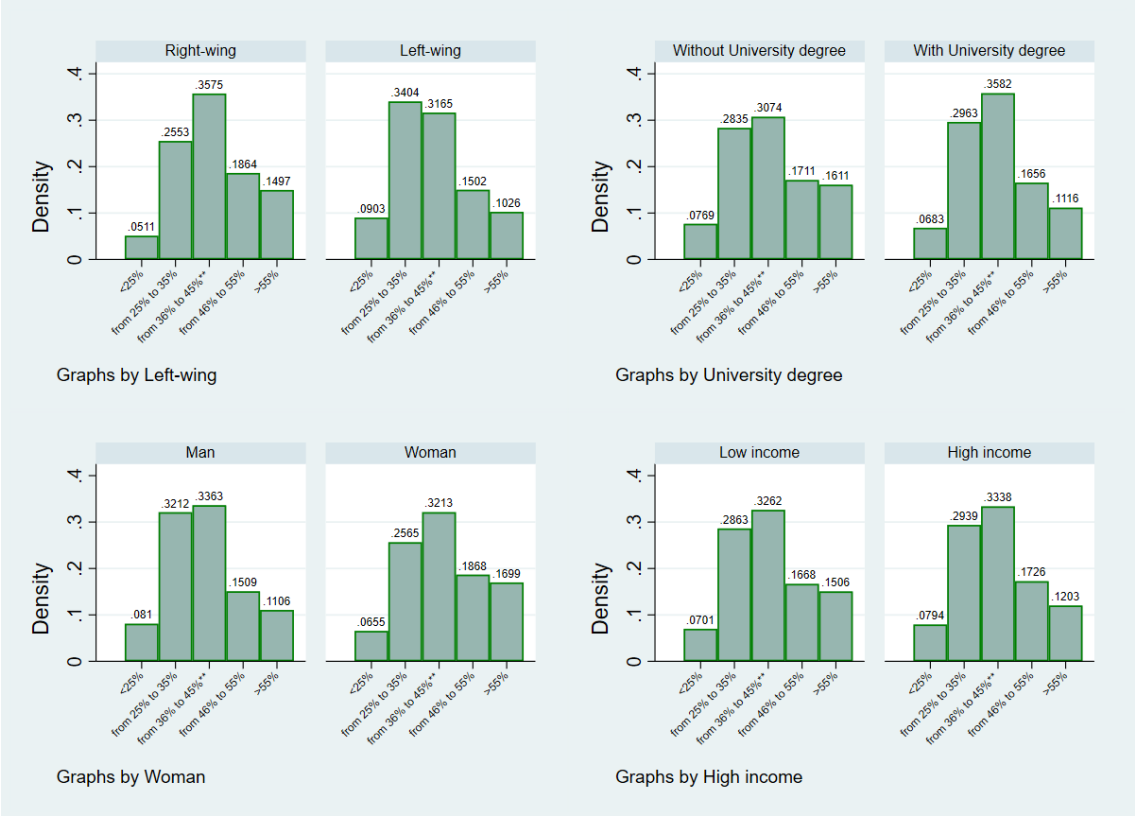


Figure 8. Distribution of Public Debt responses, by key individual characteristics.

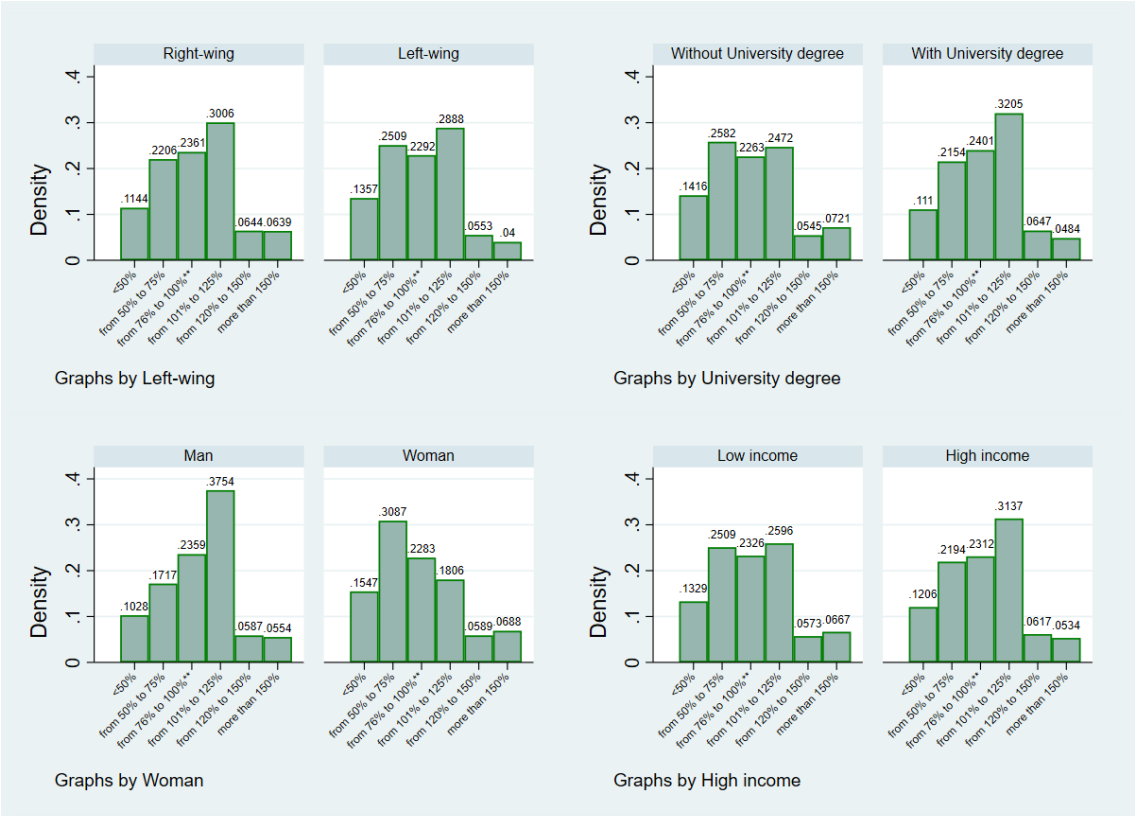


Figure 9. Distribution of Underground Economy responses, by key individual characteristics.

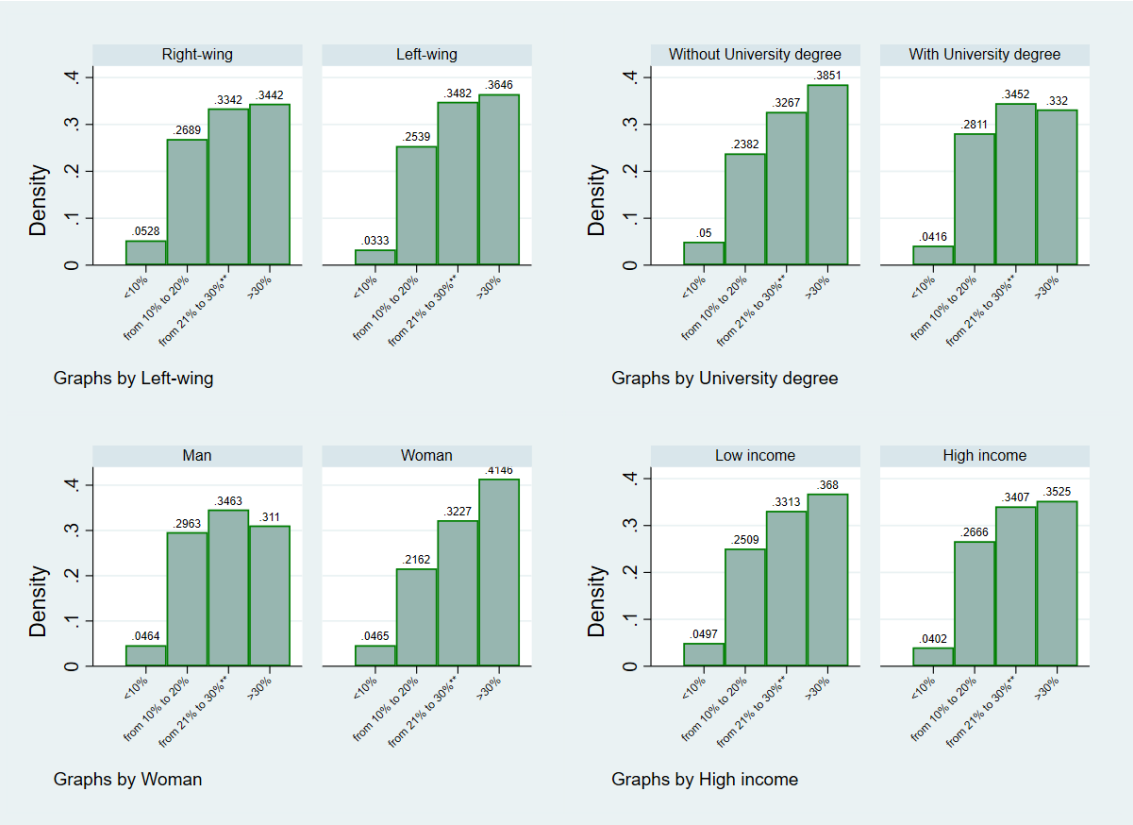
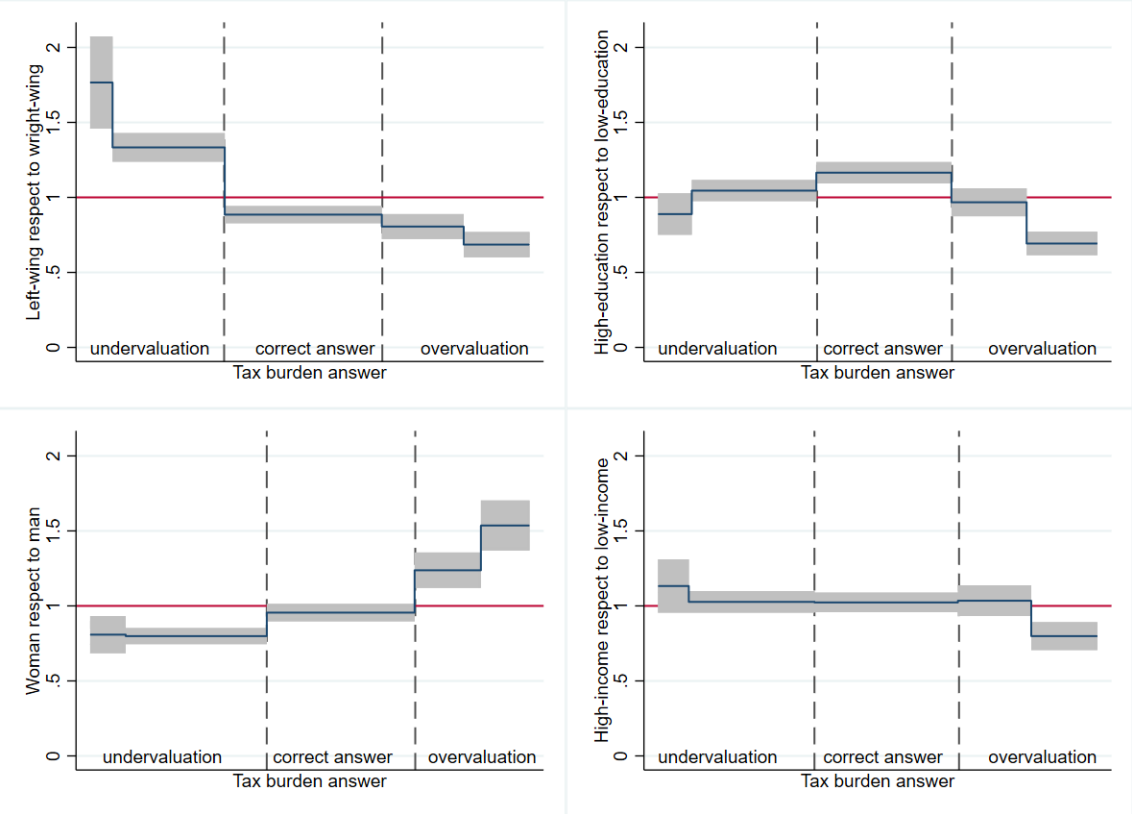
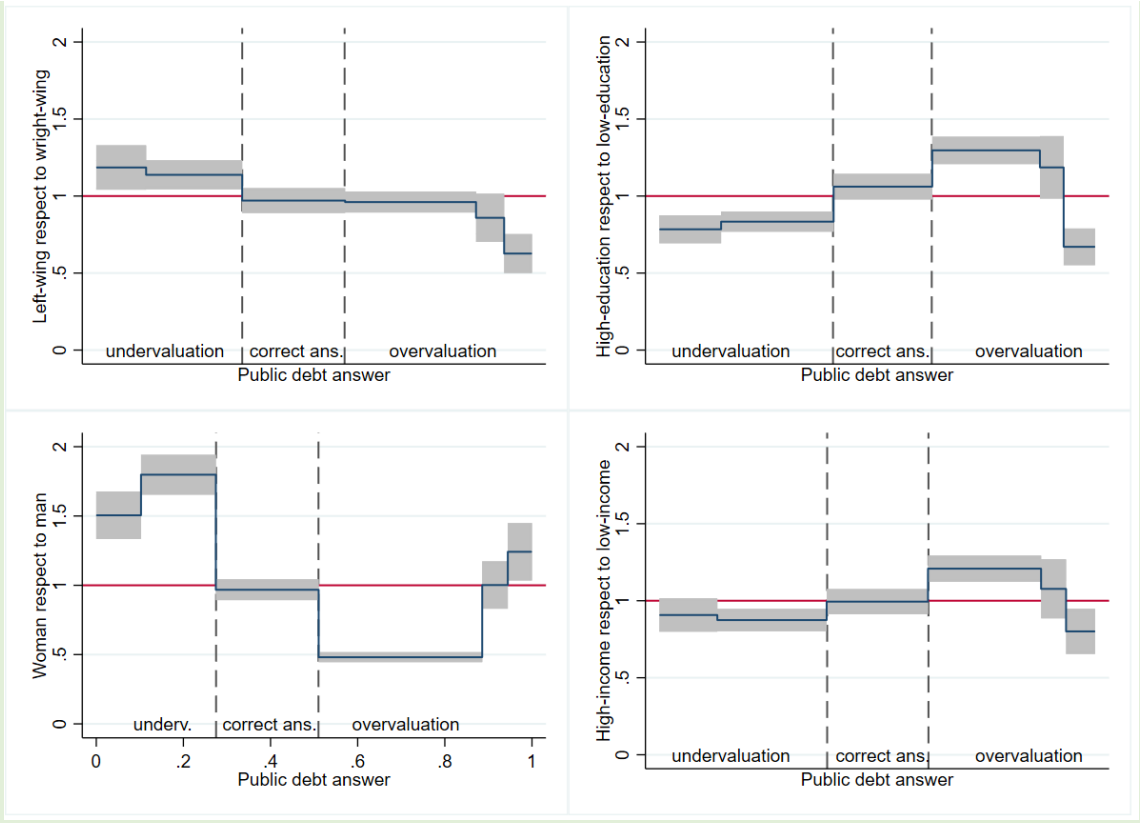


Figure 10. Density function of the relative distribution: Tax Burden.



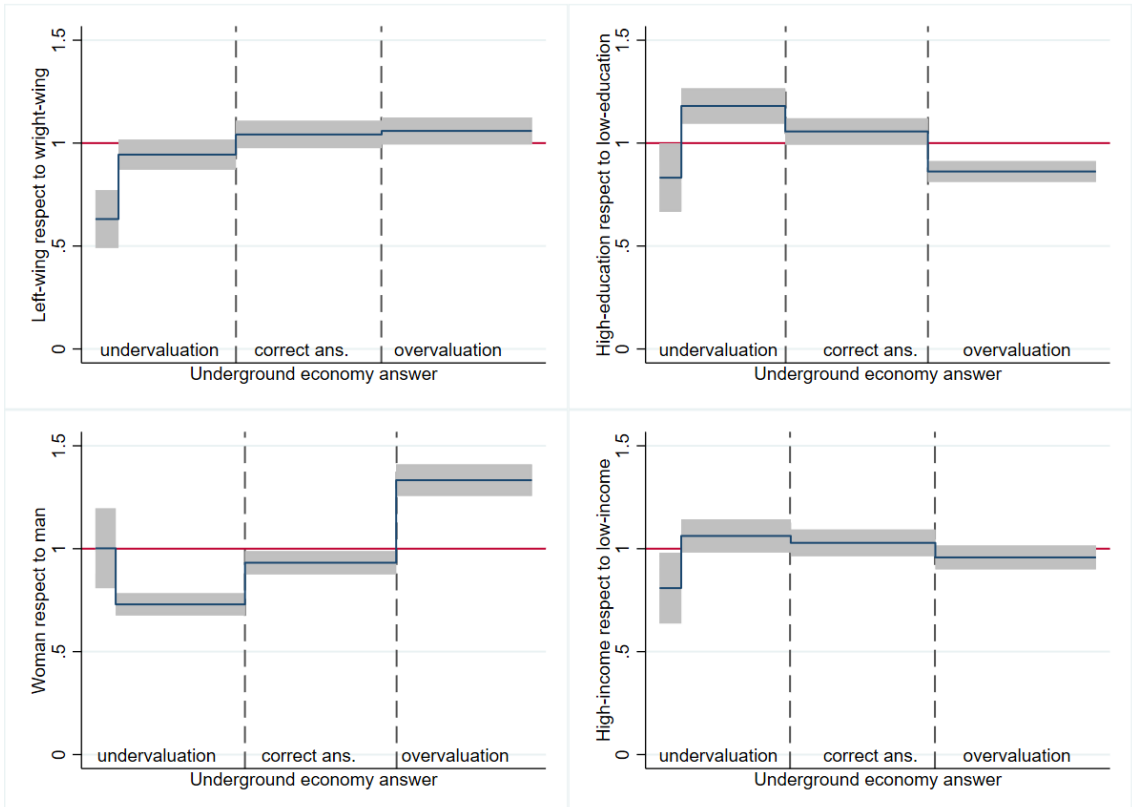
Note*:* On the y-axis we report the density function of the relative distribution of subsample k with respect to the subsample z. The four subsamples analysed are: left-wing with respect to right-wing, high education with respect to low education, woman with respect to man, and high-income with respect to low-income. On the x-axis, we report the categories of the survey answer variable. The grey area is the confidence interval at 95 percent level. The horizontal red line indicates the answer is equally distributed in the two subsamples. A relative density value larger than one means that the survey answer in the k subsample is overrepresented with respect to the z subsample, while a relative density value smaller than one means that the survey answer in the k subsample is underrepresented with respect to the z subsample.

Figure 11. Density function of the relative distribution: Public Debt.



Note: See Figure 10.

Figure 12. Density function of the relative distribution: Underground Economy.



Note: See Figure 10.

Figure 13a. COVID-19 exposure: provincial deaths per capita within last 30 days

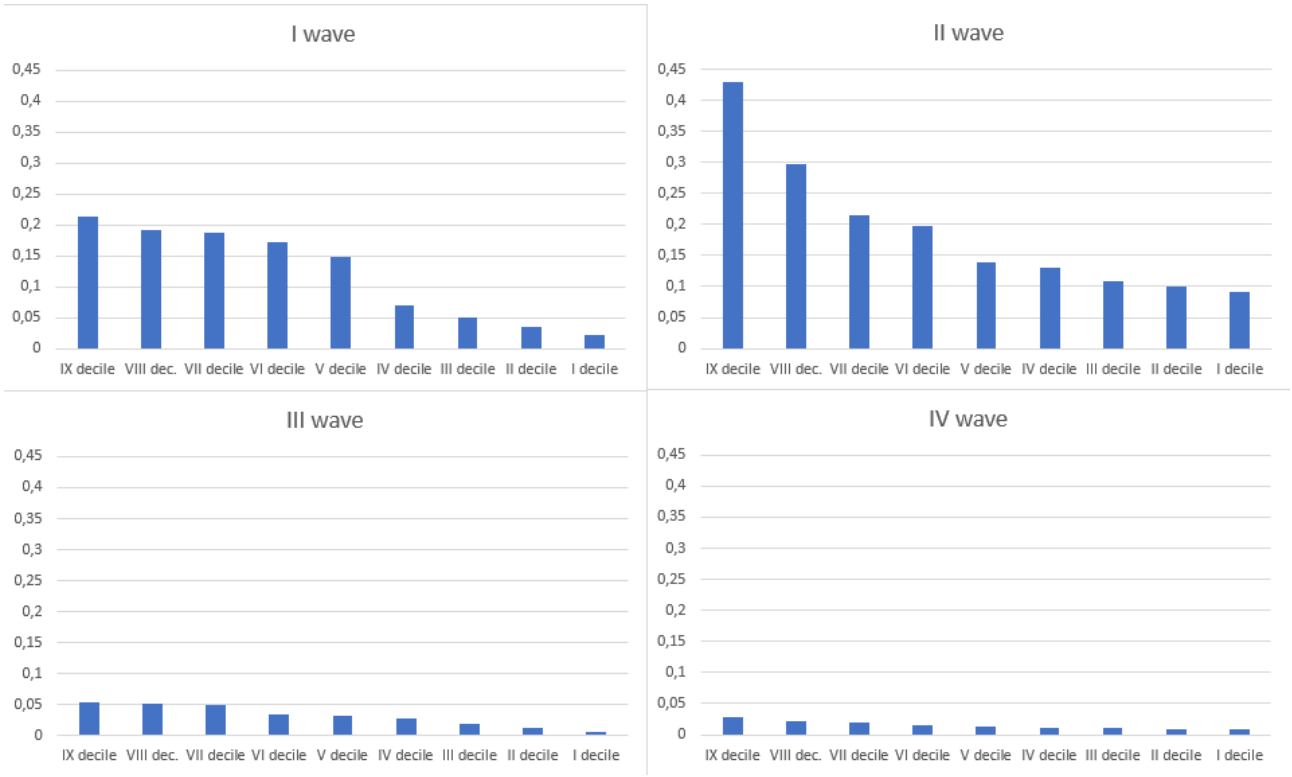


Figure 13b. COVID-19 exposure: provincial deaths per capita within last 31 to 120 days

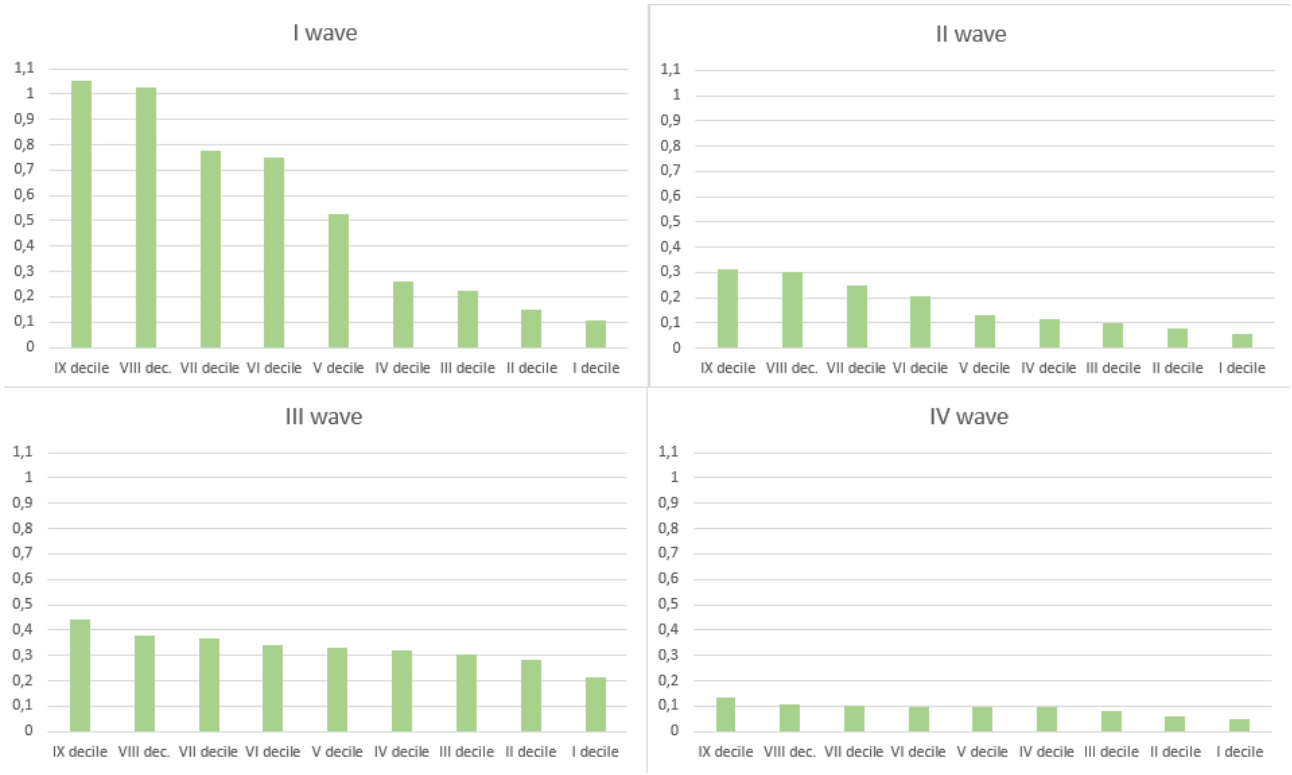


Figure 13c. COVID-19 exposure: provincial deaths per capita last 120 days

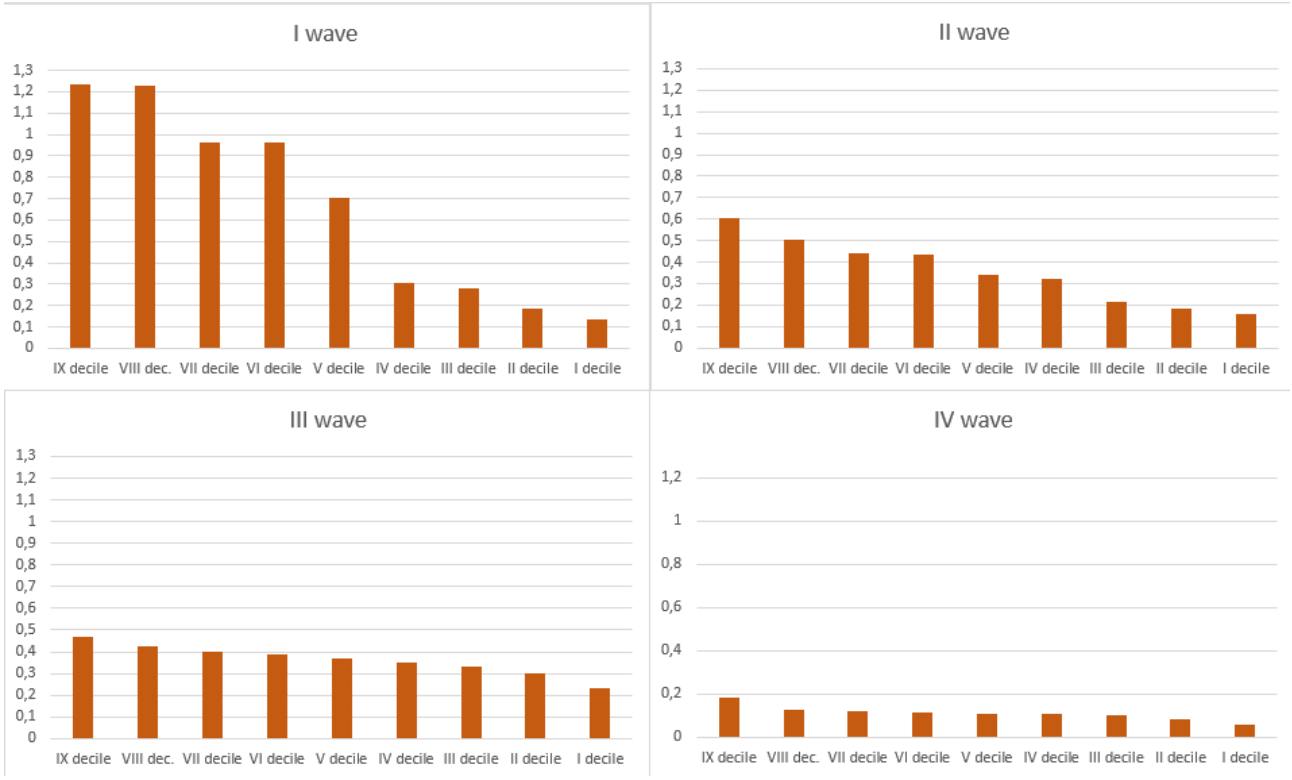


Table 1. Waves of the Survey

Wave	Date	Number of responses	Average time of response
1st	May 20-26, 2020	2,003	11 minutes 5 seconds
2nd	November 20-25, 2020	2,024	10 minutes 46 seconds
3rd	May 26 to June 7, 2021	2,001	10 minutes 16 seconds
4th	December 3-9, 2021	2,409	11 minutes 36 seconds

Table 2. Descriptive Statistics of personal characteristics

	Description variable	Survey sample	Spain total population	Difference
Woman	Dummy equal to 1 if the respondent is a female	0.4995	0.5043[19]	-0,0048
18-24 years old	Dummy equal to 1 if the respondent is between 18 and 24 years old	0.1188	0.0949	+0.0239
25-34 years old	Dummy equal to 1 if the respondent is between 25 and 34 years old	0.1526	0.1530	-0.0004
35-44 years old	Dummy equal to 1 if the respondent is between 35 and 44 years old	0.2200	0.2092	+0.0108
45-54 years old	Dummy equal to 1 if the respondent is between 45 and 54 years old	0.2055	0.2169	-0.0114
55-65 years old	Dummy equal to 1 if the respondent is between 55 and 65 years old	0.1712	0.1807	-0.0095
Over65	Dummy equal to 1 if the respondent is over 65 years old	0.1319	0.1453[20]	-0.0134
1st quantile income distribution[21]	Dummy equal to 1 if the actual expected monthly household income is less than or equal to 900€	0.0653	0.0655	-0.0002
2nd quantile income distribution	Dummy equal to 1 if the actual expected monthly household income is between 901€ and 1,200€	0.0937	0.1275	-0.0338
3rd quantile income distribution	Dummy equal to 1 if the actual expected monthly household income is between 1,201€ and 1,800€	0.1755	0.1775	-0.0020
4th quantile income distribution	Dummy equal to 1 if the actual expected monthly household income is between 1,801€ and 2,400€	0.2002	0.2385	-0.0383
Top quantile income distribution (*High income*)	Dummy equal to 1 if the actual expected monthly household income is more than 2,400€	0.4654	0.3910	+0.0744

[19] Population between 18 and 75 years old

[20] Population between 65 and 75 years old

[21] Share of income per quantile

Hidden Income	No info about expected monthly household income provided by the respondent.	0.1065	Non applicable (n.a.)	n.a.
Student/housewives/other	Dummy equal to 1 if the current employment status of the respondent is student, housewives or other	0.1309	0.0820[22]	+0.0489
Worker in ERTE	Dummy equal to 1 if the current employment status of the respondent is worker in ERTE, temporary employment regulation which enables companies to make suspensions of employment contracts or reduce their working hours due to force majeure (as COVID-19 lockdown)	0.0216	0.0292[23]	-0.0076
Unemployed	Dummy equal to 1 if the current employment status of the respondent is unemployed	0.1826	0.0948	0.0878
Retired	Dummy equal to 1 if the current employment status of the respondent is retired	0.1665	0.2293	-0.0628
Self-employed	Dummy equal to 1 if the current employment status of the respondent is self-employed	0.0513	0.0906	-0.0393
Employed	Dummy equal to 1 if the current employment status of the respondent is public employee or private employee	0.4471	0.4741	-0.0270
High education (HE)	Dummy equal to 1 if the respondent has an undergraduate degree or a master or a PhD	0.4159	0.360[24]	+0.0559
Right-wing	Dummy equal to 1 if the political ideology of the respondent is between 7 and 10, in a 1-10 range	0.1746	0.249[25]	-0.0744
Left	Dummy equal to 1 if the political ideology of the respondent is between 1 and 4, in a 1-10 range	0.4412	0.395	+0.0462

[22] Statistical Source: *Encuesta de Población Activa* (INE) (https://www.ine.es/dyngs/INEbase/es/operacion.htm?c=Estadistica_C&cid=1254736176918&menu=ultiDatos&idp=1254735976595).

[23] Statistical Source: *BBDD ESTADÍSTICAS TGSS* (https://w6.seg-social.es/PXWeb/pxweb/es/).

[24] Statistical Source: Eurostat (https://ec.europa.eu/eurostat/databrowser/view/edat_lfse_03/default/table?lang=en).

[25] Statistical Source: Barometer October 2020, Spanish Center of Sociological Research (https://www.cis.es/cis/export/sites/default/-Archivos/Marginales/3280_3299/3296/es3296mar.html).

Hidden political ideology	Dummy equal to 1 if the respondent does not inform about her political ideology	0.1321	0.111	+0.0211
Centre	Dummy equal to 1 if the political ideology of the respondent is 5 or 6, in a 1-10 range	0.2521	0.246	+0.0061
Live in a rental house	Dummy equal to 1 if the respondent lives in a rental house	0.2387	0.1730[26]	+0.0657
With dependent children	Dummy equal to 1 if the respondent has at least one child	0.5154	0.4928[27]	+0.0226
Single	Dummy equal to 1 if the marriage status of the respondent is single	0.3509	0.3493[28]	+0.0016
Married or living as a couple	Dummy equal to 1 if the marriage status of the respondent is married or living as a couple	0.5243	0.5107	+0.0136
Separated/divorced	Dummy equal to 1 if the marriage status of the respondent is separated or divorced	0.0995	0.0728	+0.0267
Widower	Dummy equal to 1 if the marriage status of the respondent is widower	0.0254	0.0673	-0.0419

[26] Statistical Source: Encuesta Continua de Hogares (ECH) (https://www.ine.es/dyngs/INEbase/es/operacion.htm?c=Estadistica_C&cid=1254736176952&menu=resultados&idp=1254735572981).

[27] Children in the same family with less than 25 years (INE)

[28] Instituto Nacional de Estadística (INE) https://www.ine.es/dynt3/inebase/es/index.htm?padre=982&capsel=983

Table 3. Sample distribution by provinces

Province	Survey sample	Spain population aged 18-75	% Survey sample	% Spain population aged 18-75	% difference
	(1)	(2)	(3)	(4)	(5) = (3)-(4)
Madrid	1,785	4,969,188	21.16	14.28	6.88
Valladolid	169	383,061	2.00	1.10	0.90
Asturias	260	763,017	3.08	2.19	0.89
Sevilla	405	1,433,801	4.80	4.12	0.68
Valencia	500	1,888,901	5.93	5.43	0.50
León	118	334,500	1.40	0.96	0.44
Salamanca	93	237,851	1.10	0.68	0.42
La Coruña	223	827,815	2.64	2.38	0.26
Zaragoza	193	710,731	2.29	2.04	0.25
Santander	125	431,493	1.48	1.24	0.24
Palencia	49	118,159	0.58	0.34	0.24
Zamora	41	122,809	0.49	0.35	0.13
Burgos	73	258,925	0.87	0.74	0.12
Soria	23	63,992	0.27	0.18	0.09
Albacete	75	285,062	0.89	0.82	0.07
Vizcaya	207	834,634	2.45	2.40	0.06
Ávila	32	113,913	0.38	0.33	0.05
Segovia	31	111,342	0.37	0.32	0.05
Barcelona	1,000	4,110,772	11.85	1.81	0.04
Granada	164	679,333	1.94	1.95	-0.01
Pontevedra	168	699,706	1.99	2.01	-0.02
Toledo	120	501,831	1.42	1.44	-0.02
Cáceres	67	286,295	0.79	0.82	-0.03
Guadalajara	43	190,715	0.51	0.55	-0.04
Huesca	34	159,474	0.40	0.46	-0.06
La Rioja	50	228,941	0.59	0.66	-0.07
Badajoz	114	493,383	1.35	1.42	-0.07
Ceuta	6	59,725	0.07	0.17	-0.10
Melilla	5	57,312	0.06	0.16	-0.11
Álava	48	239,613	0.57	0.69	-0.12
Teruel	13	95,479	0.15	0.27	-0.12
Orense	42	219,151	0.50	0.63	-0.13
Cádiz	214	929,233	2.54	2.67	-0.13
Castellón	88	419,956	1.04	1.21	-0.16
Cuenca	19	144,347	0.23	0.41	-0.19
Lugo	41	236,691	0.49	0.68	-0.19
Lleida	60	316,652	0.71	0.91	-0.20
Jaén	93	461,565	1.10	1.33	-0.22
Ciudad Real	65	360,682	0.77	1.04	-0.27
Navarra	86	474,359	1.02	1.36	-0.34
Huelva	56	391,680	0.66	1.13	-0.46
Tarragona	104	590,867	1.23	1.70	-0.47
Córdoba	98	574,011	1.16	1.65	-0.49
Girona	85	556,768	1.01	1.60	-0.59
Málaga	249	1,248,216	2.95	3.59	-0.64
Guipúzcoa	66	518,889	0.78	1.49	-0.71

Table 4. Determinants of fiscal knowledge

	(1) Tax Burden	(2) Public Debt	(3) Underground Economy	(4) % Correct answers
Left-wing	-0.139***	0.040	0.045	-0.017
	(0.041)	(0.057)	(0.052)	(0.043)
High Education	0.113***	0.032	0.043	0.118***
	(0.028)	(0.036)	(0.031)	(0.019)
Woman	-0.021	-0.027	-0.071	-0.051
	(0.030)	(0.032)	(0.049)	(0.036)
High income	-0.003	0.001	0.001	0.030
	(0.026)	(0.024)	(0.032)	(0.029)
Centre	-0.105*	0.082	0.044	0.005
	(0.060)	(0.072)	(0.068)	(0.065)
Hidden political ideology	-0.307***	0.027	-0.054	-0.267***
	(0.093)	(0.081)	(0.080)	(0.076)
Hidden income	0.044	0.196***	-0.081	0.028
	(0.113)	(0.062)	(0.083)	(0.107)
Worker in ERTE	0.059	-0.443***	-0.222	-0.151
	(0.188)	(0.148)	(0.234)	(0.206)
Unemployed	0.035	-0.180*	-0.182	-0.089
	(0.116)	(0.108)	(0.131)	(0.129)
Retired	0.081	-0.556**	-0.162	-0.314
	(0.172)	(0.224)	(0.173)	(0.310)
Self-employed	0.095	-0.069	-0.311*	-0.015
	(0.151)	(0.161)	(0.169)	(0.172)
Employed	0.046	-0.128*	-0.163*	-0.082
	(0.091)	(0.078)	(0.098)	(0.077)
Live in a rental house	0.039	-0.029	-0.058	-0.006

	(0.061)	(0.060)	(0.069)	(0.053)
With children	0.105	0.027	0.126*	0.146
	(0.124)	(0.077)	(0.064)	(0.130)
Married or living as a couple	-0.073	-0.023	-0.035	-0.085
	(0.102)	(0.094)	(0.086)	(0.130)
Separated/divorced	-0.093	0.007	-0.049	-0.021
	(0.094)	(0.109)	(0.138)	(0.115)
Widower	-0.064	-0.205	0.078	-0.160
	(0.270)	(0.230)	(0.206)	(0.237)
25-34 years old	-0.324**	0.039	-0.067	-0.177*
	(0.130)	(0.132)	(0.097)	(0.103)
35-44 years old	-0.294***	0.001	-0.209*	-0.196*
	(0.091)	(0.141)	(0.126)	(0.110)
45-54 years old	-0.339***	0.025	-0.309**	-0.325***
	(0.124)	(0.137)	(0.144)	(0.104)
55-65 years old	-0.264*	-0.082	-0.226*	-0.249**
	(0.138)	(0.145)	(0.126)	(0.114)
Over 65 years old	-0.170	0.207	0.102	0.180
	(0.170)	(0.241)	(0.230)	(0.183)
Constant	-0.925	-1.742	-2.979	-2.643
	(2.247)	(1.775)	(2.097)	(1.840)
Observations	8,408	8,362	8,420	8,423
Mean dependent variable	0.3288	0.2321	0.3345	0.2985
Provincial FE	YES	YES	YES	YES
Wave FE	YES	YES	YES	YES
Provincial FE x Wave FE	YES	YES	YES	YES
Personal characteristics x Wave FE	YES	YES	YES	YES

*Robust standard errors in parentheses, clustered at provincial level. *** p<0.01, ** p<0.05, * p<0.1*

Table 5. Determinants of fiscal knowledge depending on COVID-19 exposure (provincial deaths pc)

	(1) Tax Burden	(2) Public Debt	(3) Underground Economy	(4) % Correct answers
COVID-19 exposure last 30 days	-2.807	2.937	-5.309*	-2.926
	(2.583)	(2.515)	(3.126)	(2.179)
COVID-19 exposure 31-120 days	-3.574***	-1.546	-2.370	-3.028**
	(1.382)	(1.582)	(1.613)	(1.343)
Constant	0.702	-3.167	-0.193	-0.989
	(2.766)	(2.318)	(2.633)	(2.330)
Observations	8,408	8,362	8,420	8,423
Mean dependent variable	0.3288	0.2321	0.3345	0.2985
Other control variables	YES	YES	YES	YES
Provincial FE	YES	YES	YES	YES
Wave FE	YES	YES	YES	YES
Provincial FE x Wave FE	YES	YES	YES	YES
Personal characteristics x Wave FE	YES	YES	YES	YES

*Robust standard errors in parentheses, clustered at provincial level. Other control variables are: left-wing, high education, woman, high income, center, hidden political ideology, hidden income, worker in ERTE, unemployed, retired, self-employed, employed, live in a rental house, with children, married or living as a couple, separated/divorced, widower, 25-34 years old, 35-44 years old, 45-54 years old, 55-65 years old, and over 65 years old *** p<0.01, ** p<0.05, * p<0.1*

Table 6. Determinants of knowledge depending on COVID-19 exposure (provincial deaths pc) and contingent on education level

	(1) Tax Burden	(2) Public Debt	(3) Underground Economy	(6) % Correct answers
High Education (HE)	0.088	-0.877***	0.398	-0.072
	(0.224)	(0.176)	(0.267)	(0.166)
COVID-19 exposure last 30 days	-3.403	3.092	-4.736	-2.860
	(2.474)	(2.681)	(3.143)	(2.322)
COVID-19 exposure last 30 days *x* HE	-0.016	-0.137	-0.295	-0.223
	(0.541)	(0.535)	(0.721)	(0.564)
COVID-19 exposure 31-120 days	-4.156***	-1.613	-2.518	-3.269**
	(1.400)	(1.654)	(1.559)	(1.324)
COVID-19 exposure 31-120 days *x* HE	0.255	0.340*	0.232	0.415**
	(0.156)	(0.181)	(0.242)	(0.163)
Constant	0.753	-3.315	-0.386	-0.987
	(2.679)	(2.369)	(2.772)	(2.457)
Observations	8,408	8,358	8,420	8,406
Mean dependent variable	0.3288	0.2321	0.3345	0.4363
Other control variables	YES	YES	YES	YES
Provincial FE	YES	YES	YES	YES
Wave FE	YES	YES	YES	YES
Provincial FE x Wave FE	YES	YES	YES	YES
Personal characteristics x Wave FE	YES	YES	YES	YES

*Robust standard errors in parentheses, clustered at provincial level. Other control variables are: left-wing, woman, high income, center, hidden political ideology, hidden income, worker in ERTE, unemployed, retired, self-employed, employed, live in a rental house, with children, married or living as a couple, separated/divorced, widower, 25-34 years old, 35-44 years old, 45-54 years old, 55-65 years old, and over 65 years old all other control variables interacted with HE. *** p<0.01, ** p<0.05, * p<0.1*

Table 7. Determinants of knowledge depending on COVID-19 exposure (provincial deaths pc) and contingent on being leftist

	(1) Tax Burden	(2) Public Debt	(3) Underground Economy	(4) % Correct answers
Left-wing	-0.571***	-0.603***	0.076	-0.369*
	(0.200)	(0.221)	(0.187)	(0.198)
COVID-19 exposure last 30 days	-2.862	3.050	-5.378*	-2.232
	(2.502)	(2.656)	(3.152)	(2.165)
COVID-19 exposure last 30 days *Left	-0.380	0.327	0.110	0.028
	(0.504)	(0.499)	(0.550)	(0.383)
COVID-19 exposure 31-120 days	-3.489**	-2.006	-2.344	-2.885**
	(1.387)	(1.662)	(1.611)	(1.375)
COVID-19 exposure 31-120 days *Left	-0.033	-0.193	-0.071	-0.123
	(0.196)	(0.178)	(0.161)	(0.199)
Constant	0.672	-3.484	-0.319	-1.647
	(2.874)	(2.439)	(2.729)	(2.327)
Observations	8,406	8,361	8,418	7,275
Mean dependent variable	0.3288	0.2321	0.3345	0.4363
Other control variables	YES	YES	YES	YES
Provincial FE	YES	YES	YES	YES
Wave FE	YES	YES	YES	YES
Provincial FE x Wave FE	YES	YES	YES	YES
Personal characteristics x Wave FE	YES	YES	YES	YES

*Robust standard errors in parentheses, clustered at provincial level. Other control variables are: high education, woman, high income, center, hidden political ideology, hidden income, worker in ERTE, unemployed, retired, self-employed, employed, live in a rental house, with children, married or living as a couple, separated/divorced, widower, 25-34 years old, 35-44 years old, 45-54 years old, 55-65 years old, and over 65 years old, and all other control variables interacted with left-wing. *** p<0.01, ** p<0.05, * p<0.1*

Table 8. Determinants of knowledge depending on COVID-19 exposure (provincial deaths pc) and contingent on being woman

	(1) Tax Burden	(2) Public Debt	(3) Underground Economy	(4) % Correct answers
Woman	0.159	0.248	-0.506***	0.130
	(0.196)	(0.226)	(0.184)	(0.220)
COVID-19 exposure last 30 days	-3.729	5.943**	-4.882	-1.784
	(2.612)	(2.881)	(3.082)	(2.288)
COVID-19 exposure last 30 days *Woman	1.233**	-0.645	0.249	-0.162
	(0.542)	(0.619)	(0.555)	(0.485)
COVID-19 exposure 31-120 days	-3.381**	-0.596	-2.088	-2.222*
	(1.405)	(1.531)	(1.639)	(1.301)
COVID-19 exposure 31-120 days *Woman	-0.113	0.154	-0.060	-0.086
	(0.210)	(0.168)	(0.171)	(0.181)
Constant	1.066	-4.316*	-0.386	-1.376
	(2.787)	(2.595)	(2.573)	(2.378)
Observations	8,407	8,358	8,419	8,422
Mean dependent variable	0.3288	0.2321	0.3345	0.2985
Other control variables	YES	YES	YES	YES
Provincial FE	YES	YES	YES	YES
Wave FE	YES	YES	YES	YES
Provincial FE x Wave FE	YES	YES	YES	YES
Personal characteristics x Wave FE	YES	YES	YES	YES

*Robust standard errors in parentheses, clustered at provincial level. Other control variables are: high education, left-wing, high income, centre, hidden political ideology, hidden income, worker in ERTE, unemployed, retired, self-employed, employed, live in a rental house, with children, married or living as a couple, separated/divorced, widower, 25-34 years old, 35-44 years old, 45-54 years old, 55-65 years old, and over 65 years old, and all other control variables interacted with woman. *** p<0.01, ** p<0.05, * p<0.1*

Table 9. Determinants of knowledge depending on COVID-19 exposure (provincial deaths pc) and contingent on *high income*

	(1) Tax Burden	(2) Public Debt	(3) Underground Economy	(4) % Correct answers
High income	-0.561***	0.135	0.693***	0.646***
	(0.158)	(0.217)	(0.227)	(0.167)
COVID-19 exposure last 30 days	-2.060	2.735	-4.554	-2.449
	(2.444)	(2.567)	(3.219)	(2.226)
COVID-19 exposure last 30 days *High income	-0.787	-0.059	-0.754*	-0.735
	(0.583)	(0.614)	(0.415)	(0.534)
COVID-19 exposure 31-120 days	-3.851***	-1.736	-2.291	-3.182**
	(1.419)	(1.636)	(1.607)	(1.333)
COVID-19 exposure 31-120 days *High income	0.287	0.282	-0.049	0.176
	(0.207)	(0.223)	(0.165)	(0.173)
Constant	1.052	-3.486	-0.663	-1.072
	(2.763)	(2.222)	(2.691)	(2.283)
Observations	8,403	8,339	8,414	8,423
Mean dependent variable	0.3288	0.2321	0.3345	0.2985
Other control variables	YES	YES	YES	YES
Provincial FE	YES	YES	YES	YES
Wave FE	YES	YES	YES	YES
Provincial FE x Wave FE	YES	YES	YES	YES
Personal characteristics x Wave FE	YES	YES	YES	YES

*Robust standard errors in parentheses, clustered at provincial level. Other control variables are: high education, woman, left-wing, centre, hidden political ideology, hidden income, worker in ERTE, unemployed, retired, self-employed, employed, live in a rental house, with children, married or living as a couple, separated/divorced, widower, 25-34 years old, 35-44 years old, 45-54 years old, 55-65 years old, and over 65 years old, and all other control variables interacted with high income. *** p<0.01, ** p<0.05, * p<0.1*

Table 10. Biases of knowledge.

	(1) Tax Burden	(2) Public Debt	(3) Underground Economy
Left-wing	-0.297***	-0.137***	0.077***
	(0.023)	(0.022)	(0.024)
High Education	-0.043***	0.146***	-0.077***
	(0.014)	(0.020)	(0.020)
Woman	0.156***	-0.312***	0.216***
	(0.025)	(0.018)	(0.017)
High income	-0.001	0.053**	0.013
	(0.016)	(0.021)	(0.022)
Constant	0.557	0.951	-0.440
	(1.541)	(1.513)	(1.566)
Observations	8,436	8,436	8,436
R-squared	0.083	0.117	0.072
Other control variables	YES	YES	YES
Provincial FE	YES	YES	YES
Wave FE	YES	YES	YES
Provincial FE x Wave FE	YES	YES	YES
Personal characteristics x Wave FE	YES	YES	YES

*Robust standard errors in parentheses, clustered at provincial level. Other control variables are: centre, hidden political ideology, hidden income, worker in ERTE, unemployed, retired, self-employed, employed, live in a rental house, with children, married or living as a couple, separated/divorced, widower, 25-34 years old, 35-44 years old, 45-54 years old, 55-65 years old, and over 65 years old. *** p<0.01, ** p<0.05, * p<0.1*

Table 11. Biases of knowledge depending on COVID-19 exposure.

	(1) Tax Burden	(2) Public Debt	(3) Underground Economy
COVID-19 exposure last 30 days	-0.687	-3.966***	0.201
	(1.815)	(1.418)	(1.318)
COVID-19 exposure 31-120 days	-1.154	-1.370	-0.090
	(0.824)	(0.928)	(0.883)
Constant	0.976	3.014*	-0.534
	(2.080)	(1.712)	(1.749)
Observations	8,436	8,436	8,436
R-squared	0.084	0.118	0.072
Other control variables	YES	YES	YES
Provincial FE	YES	YES	YES
Wave FE	YES	YES	YES
Provincial FE x Wave FE	YES	YES	YES
Personal characteristics x Wave FE	YES	YES	YES

*Robust standard errors in parentheses, clustered at provincial level. Other control variables are: left-wing, high education, woman, high income, centre, hidden political ideology, hidden income, worker in ERTE, unemployed, retired, self-employed, employed, live in a rental house, with children, married or living as a couple, separated/divorced, widower, 25-34 years old, 35-44 years old, 45-54 years old, 55-65 years old, and over 65 years old. *** p<0.01, ** p<0.05, * p<0.1*

Table 12. Biases of knowledge depending on COVID-19 exposure and on being high educated.

	(1) Tax Burden	(2) Public Debt	(3) Underground Economy
High Education (HE)	-0.220	0.375**	-0.500***
	(0.147)	(0.147)	(0.137)
COVID-19 exposure last 30 days	-0.261	-3.618**	-0.096
	(1.770)	(1.530)	(1.428)
COVID-19 exposure last 30 days *HE	-0.074	-0.283	0.202
	(0.331)	(0.273)	(0.248)
COVID-19 exposure 31-120 days	-1.044	-1.481	0.005
	(0.765)	(0.935)	(0.863)
COVID-19 exposure 31-120 days *HE	0.134	0.073	0.119
	(0.138)	(0.128)	(0.101)
Constant	0.670	3.262*	-0.523
	(1.955)	(1.784)	(1.675)
Observations	8,436	8,436	8,436
R-squared	0.091	0.129	0.082
Mean dependent variable	0.7860	0.5001	0.3288
Other control variables	YES	YES	YES
Provincial FE	YES	YES	YES
Wave FE	YES	YES	YES
Provincial FE x Wave FE	YES	YES	YES
Personal characteristics x Wave FE	YES	YES	YES

*Robust standard errors in parentheses, clustered at provincial level. Other control variables are: left-wing, woman, high income, centre, hidden political ideology, hidden income, worker in ERTE, unemployed, retired, self-employed, employed, live in a rental house, with children, married or living as a couple, separated/divorced, widower, 25-34 years old, 35-44 years old, 45-54 years old, 55-65 years old, and over 65 years old all other control variables interacted with HE. *** p<0.01, ** p<0.05, * p<0.1*

Table 13. Biases of knowledge depending on COVID-19 exposure and being leftist

	(1) Tax Burden	(2) Public Debt	(3) Underground Economy
Left-wing	-0.378***	-0.217	0.057
	(0.094)	(0.134)	(0.110)
COVID-19 exposure last 30 days	-0.363	-4.360***	0.495
	(1.755)	(1.441)	(1.436)
COVID-19 exposure last 30 days *Left	-0.147	-0.333	0.387
	(0.328)	(0.389)	(0.249)
COVID-19 exposure 31-120 days	-1.391	-1.637*	-0.047
	(0.841)	(0.942)	(0.913)
COVID-19 exposure 31-120 days *Left	0.205**	0.168	0.107
	(0.079)	(0.126)	(0.095)
Constant	1.061	3.566**	-0.573
	(2.048)	(1.717)	(1.776)
Observations	8,436	8,436	8,436
R-squared	0.095	0.124	0.080
Mean dependent variable	0.7860	0.5001	0.3288
Other control variables	YES	YES	YES
Provincial FE	YES	YES	YES
Wave FE	YES	YES	YES
Provincial FE x Wave FE	YES	YES	YES
Personal characteristics x Wave FE	YES	YES	YES

*Robust standard errors in parentheses, clustered at provincial level. Other control variables are: high education, woman, high income, centre, hidden political ideology, hidden income, worker in ERTE, unemployed, retired, self-employed, employed, live in a rental house, with children, married or living as a couple, separated/divorced, widower, 25-34 years old, 35-44 years old, 45-54 years old, 55-65 years old, and over 65 years old, and all other control variables interacted with left-wing. *** p<0.01, ** p<0.05, * p<0.1*

Table 14. Biases of knowledge depending on COVID-19 exposure and being woman.

	(1) Tax Burden	(2) Public Debt	(3) Underground Economy
Woman	-0.504***	-0.561***	0.178
	(0.134)	(0.106)	(0.118)
COVID-19 exposure last 30 days	-1.032	-3.764**	0.061
	(1.825)	(1.494)	(1.343)
COVID-19 exposure last 30 days *Woman	0.289	-0.630*	-0.332
	(0.220)	(0.336)	(0.320)
COVID-19 exposure 31-120 days	-1.500*	-1.537*	-0.211
	(0.849)	(0.862)	(0.880)
COVID-19 exposure 31-120 days *Woman	-0.032	0.161	-0.095
	(0.121)	(0.118)	(0.096)
Constant	1.582	3.123*	-0.190
	(2.106)	(1.721)	(1.786)
Observations	8,436	8,436	8,436
R-squared	0.095	0.130	0.078
Mean dependent variable	0.7860	0.5001	0.3288
Other control variables	YES	YES	YES
Provincial FE	YES	YES	YES
Wave FE	YES	YES	YES
Provincial FE x Wave FE	YES	YES	YES
Personal characteristics x Wave FE	YES	YES	YES

*Robust standard errors in parentheses, clustered at provincial level. Other control variables are: high education, left-wing, high income, centre, hidden political ideology, hidden income, worker in ERTE, unemployed, retired, self-employed, employed, live in a rental house, with children, married or living as a couple, separated/divorced, widower, 25-34 years old, 35-44 years old, 45-54 years old, 55-65 years old, and over 65 years old, and all other control variables interacted with woman. *** p<0.01, ** p<0.05, * p<0.1*

Table 15. Misperceptions determinants, continuous variable with COVID-19 exposure and high income.

	(1) Tax Burden	(2) Public Debt	(3) Underground Economy
High income	-0.139	0.744***	0.282**
	(0.109)	(0.141)	(0.117)
COVID-19 exposure last 30 days	-0.224	-3.941**	0.319
	(1.810)	(1.589)	(1.389)
COVID-19 exposure last 30 days *High income	-0.618**	0.013	-0.111
	(0.298)	(0.358)	(0.304)
COVID-19 exposure 31-120 days	-1.111	-1.442	-0.092
	(0.827)	(0.934)	(0.884)
COVID-19 exposure 31-120 days *High income	0.190*	0.034	-0.101
	(0.102)	(0.139)	(0.116)
Constant	0.837	2.919*	-0.710
	(2.065)	(1.693)	(1.850)
Observations	8,436	8,436	8,436
R-squared	0.092	0.127	0.085
Mean dependent variable	0.7860	0.5001	0.3288
Other control variables	YES	YES	YES
Provincial FE	YES	YES	YES
Wave FE	YES	YES	YES
Provincial FE x Wave FE	YES	YES	YES
Personal characteristics x Wave FE	YES	YES	YES

*Robust standard errors in parentheses, clustered at provincial level. Other control variables are: high education, woman, left-wing, centre, hidden political ideology, hidden income, worker in ERTE, unemployed, retired, self-employed, employed, live in a rental house, with children, married or living as a couple, separated/divorced, widower, 25-34 years old, 35-44 years old, 45-54 years old, 55-65 years old, and over 65 years old, and all other control variables interacted with high income. *** p<0.01, ** p<0.05, * p<0.1*

Table 16. MWTP – wrong answers.

Individual variable to be interacted	(1) MWTP	(2) MWTP Left	(3) MWTP High Education	(4) MWTP Woman	(5) MWTP High income
Tax burden, wrong answers	0.099***	0.087	0.035	0.107*	0.063
	(0.032)	(0.065)	(0.046)	(0.054)	(0.047)
Tax burden, wrong answers**Individual variable*		0.027	0.142**	-0.018	0.096
		(0.119)	(0.070)	(0.094)	(0.083)
Left-wing	0.732***	0.714***	0.728***	0.731***	0.730***
	(0.053)	(0.096)	(0.053)	(0.053)	(0.053)
High Education	0.086***	0.085***	-0.006	0.086***	0.085***
	(0.029)	(0.030)	(0.058)	(0.030)	(0.030)
Woman	0.052	0.052	0.051	0.064	0.052
	(0.049)	(0.049)	(0.050)	(0.079)	(0.049)
High income	0.043	0.043	0.044	0.044	-0.019
	(0.031)	(0.031)	(0.030)	(0.031)	(0.067)
COVID-19 exposure last 30 days	2.472	2.471	2.354	2.466	2.368
	(5.532)	(5.539)	(5.494)	(5.539)	(5.445)
COVID-19 exposure 31-120 days	5.421**	5.440**	5.380**	5.407**	5.559**
	(2.248)	(2.226)	(2.297)	(2.249)	(2.248)
Constant	-3.035	-3.048	-2.838	-3.028	-3.160
	(3.359)	(3.379)	(3.359)	(3.362)	(3.369)
Observations	1,604	1,604	1,604	1,604	1,604
R-squared	0.30	0.30	0.30	0.30	0.30
Other control variables	YES	YES	YES	YES	YES
Provincial & Wave FE	YES	YES	YES	YES	YES
Provincial FE x Wave FE	YES	YES	YES	YES	YES
Personal characteristics x Wave FE	YES	YES	YES	YES	YES

*Robust standard errors in parentheses, clustered at provincial level. Other control variables are: centre, hidden political ideology, hidden income, worker in ERTE, unemployed, retired, self-employed, employed, live in a rental house, with children, married or living as a couple, separated/divorced, widower, 25-34 years old, 35-44 years old, 45-54 years old, 55-65 years old, and over 65 years old. *** p<0.01, ** p<0.05, * p<0.1*

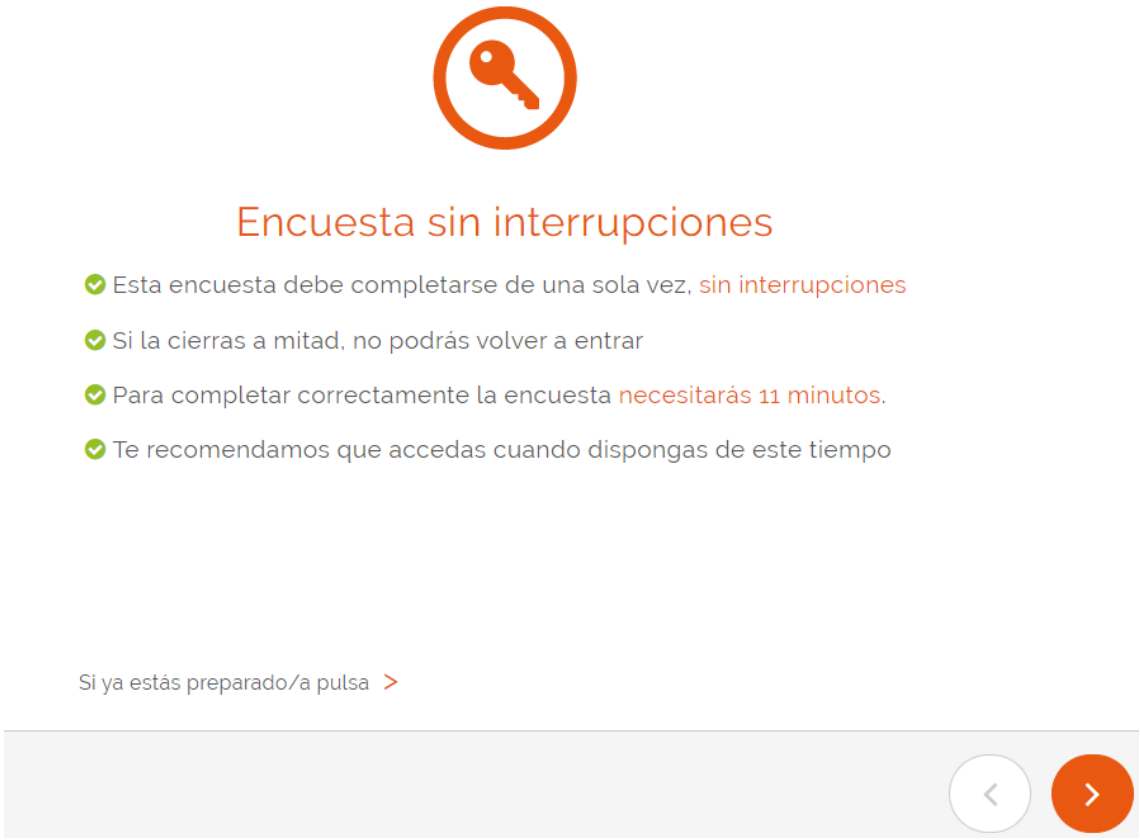
Table 17. MWTP – biases.

Individual variable to be interacted	(1) MWTP	(2) MWTP Left	(3) MWTP High Education	(4) MWTP Woman	(5) MWTP High income
Overvaluation, Tax burden	-0.012	-0.002	-0.058	-0.069	-0.006
	(0.042)	(0.078)	(0.065)	(0.064)	(0.059)
Undervaluation, Tax burden	0.188***	0.171**	0.112**	0.218***	0.118**
	(0.040)	(0.071)	(0.053)	(0.075)	(0.057)
Overvaluation, Tax burden Individual variable***		-0.025	0.097	0.095	-0.028
		(0.135)	(0.101)	(0.104)	(0.089)
Undervaluation, Tax burden Individual variable***		0.034	0.174**	-0.069	0.182**
		(0.116)	(0.071)	(0.120)	(0.085)
COVID-19 exposure last 30 days	2.829	2.867	2.661	2.815	2.884
	(5.384)	(5.368)	(5.363)	(5.295)	(5.123)
COVID-19 exposure 31-120 days	5.778***	5.783***	5.676**	5.767***	6.039***
	(2.117)	(2.105)	(2.166)	(2.069)	(2.073)
Constant	-2.432	-2.466	-2.097	-2.465	-2.578
	(3.483)	(3.492)	(3.563)	(3.484)	(3.416)
Observations	1,604	1,604	1,604	1,604	1,604
R-squared	0.31	0.31	0.31	0.31	0.31
Other control variables	YES	YES	YES	YES	YES
Provincial & Wave FE	YES	YES	YES	YES	YES
Provincial FE x Wave FE	YES	YES	YES	YES	YES
Personal characteristics x Wave FE	YES	YES	YES	YES	YES

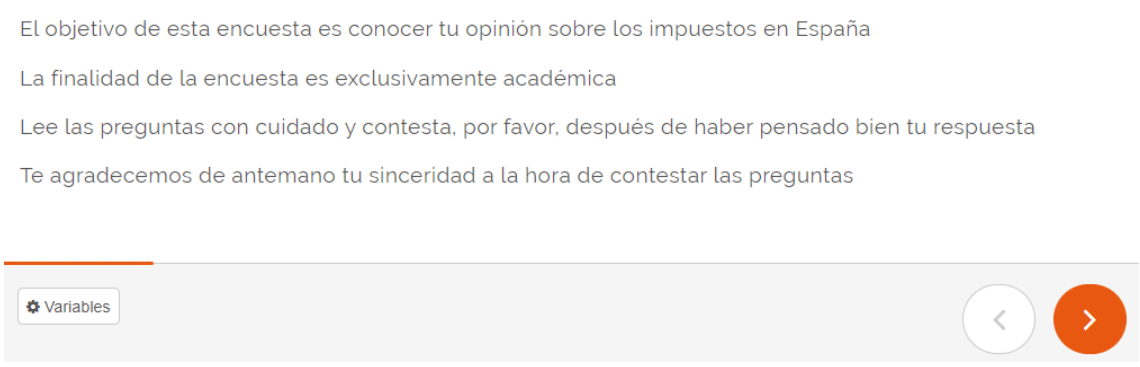
*Robust standard errors in parentheses, clustered at provincial level. Other control variables are: centre, hidden political ideology, hidden income, worker in ERTE, unemployed, retired, self-employed, employed, live in a rental house, with children, married or living as a couple, separated/divorced, widower, 25-34 years old, 35-44 years old, 45-54 years old, 55-65 years old, and over 65 years old. *** p<0.01, ** p<0.05, * p<01.*

Appendix: The on-line survey

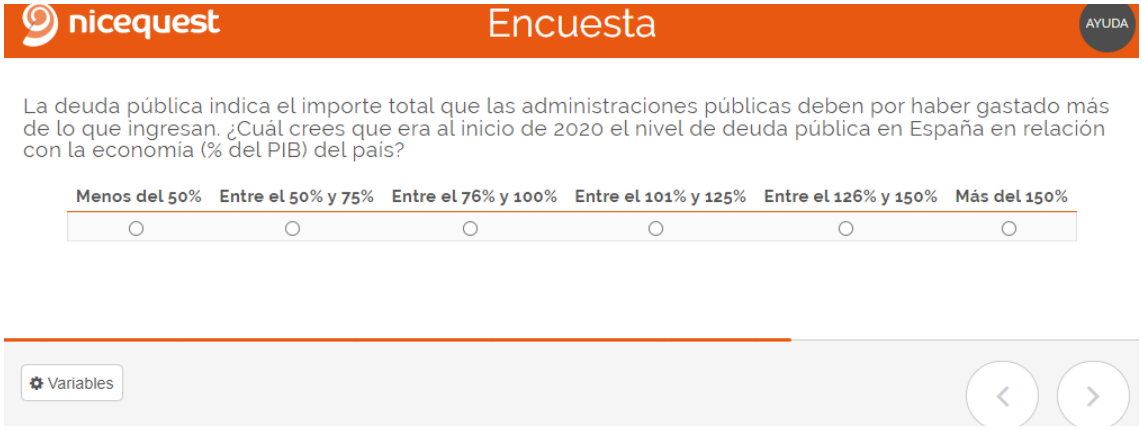
Basic information provided at the beginning: there cannot be interruptions; once log out, it is not possible to log in again; average time of response; and a recommendation: answer when you have some time



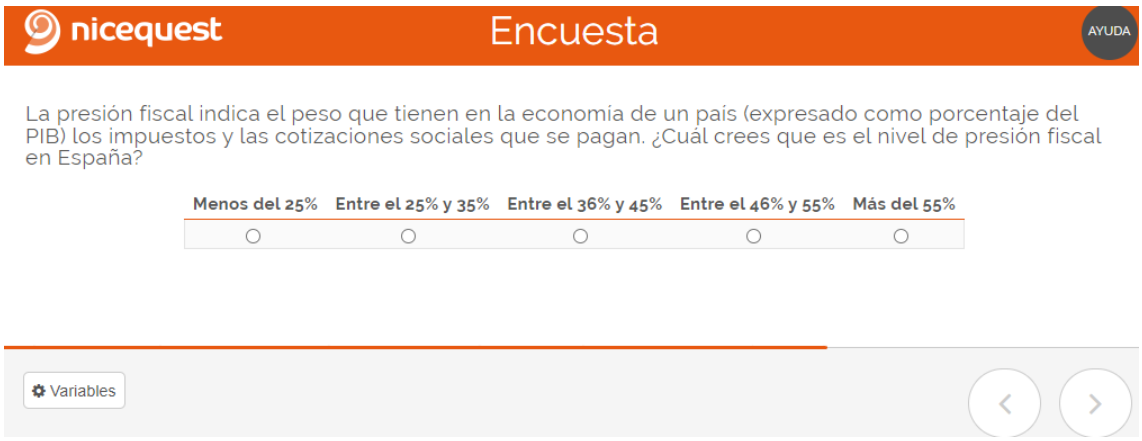
Introduction: survey about taxes in Spain, exclusively academic research aim, read and answer carefully and thanks for your sincerity



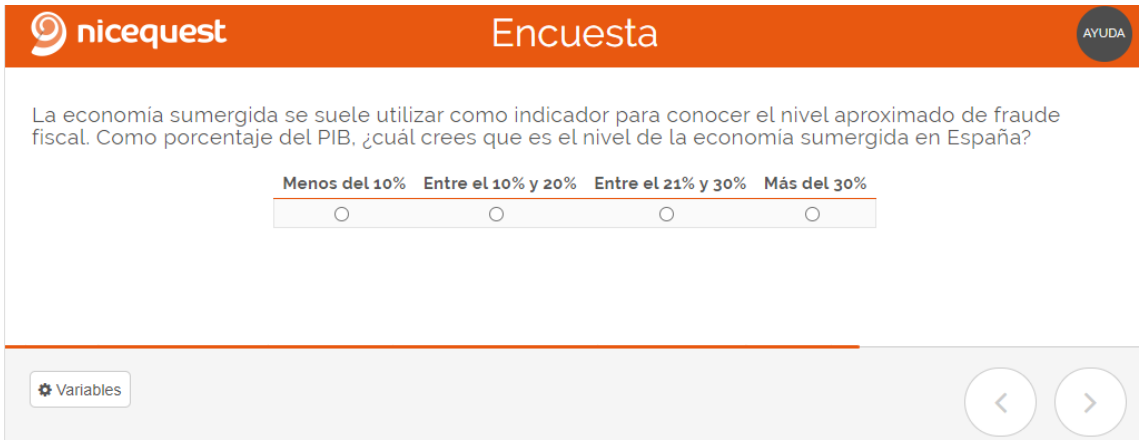
Public debt



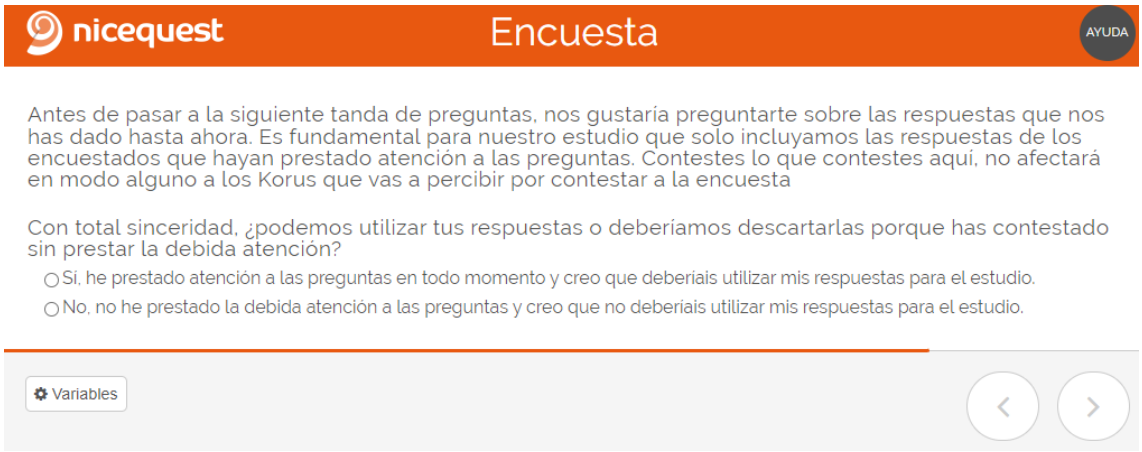
Tax burden



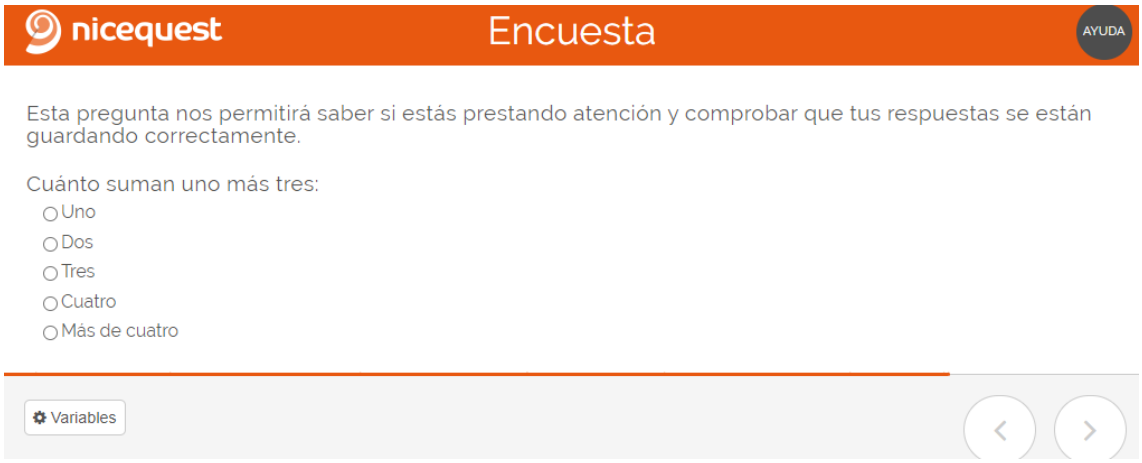
Underground economy



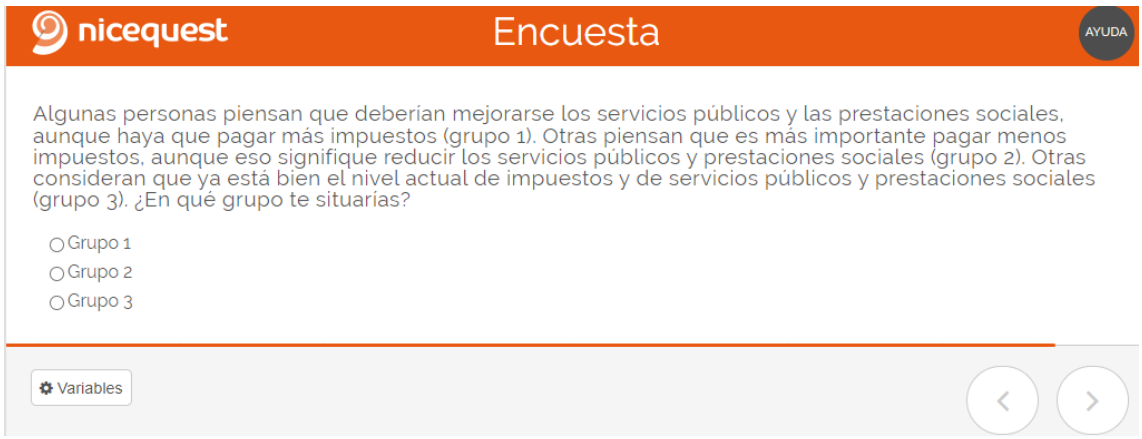
A question about *sincerity*: did you answer paying proper attention? This would not change your reward.



A *quality check* question: choose the right answer



Marginal willingness to pay for public services: more taxes (group 1), less taxes (group 2), keep current taxes (group 3)



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