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## Pay-As-They-Get-In: Attitudes Towards Migrants and Pension Systems

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# Pay-As-They-Get-In: Attitudes Towards Migrants and Pension Systems

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## ABSTRACT

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# Pay-As-They-Get-In: Attitudes Towards Migrants and Pension Systems\*

We study whether a better knowledge of the functioning of pay-as-you-go pension systems and recent demographic trends in the hosting country affects natives' attitudes towards immigration. In two online experiments in Italy and Spain, we randomly treated participants with a video explaining how, in pay-as-you-go pension systems, the payment of current pensions depends on the contributions paid by current workers. The video also explains that the ratio between the number of pensioners and the number of workers in their countries will grow substantially in the future. We find that the treatment improves participants' knowledge about how a pay-as-you-go system works and the future demographic trends in their country. However, we find that only treated participants who do not support populist and anti-immigrant parties display more positive attitudes towards migrants, even though the treatment increases knowledge of pension systems and demographic trends for all participants.

**JEL Classification:** C90, D83, H55, J15, F22

**Keywords:** information provision, experiment, immigration, pay-as-you-go pension systems, population ageing, populism

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# 1 Introduction

Progress in medicine and reduced fertility rates are leading to unprecedented population aging in most OECD countries and many emerging economies. For many of these countries, this will translate into a significant increase in the old-age dependency ratios (the ratio between the number of individuals older than 65 and those between 20 to 64) in the near future. The average EU-27 average dependency ratio, for instance, is estimated to double over the next 30 years, jumping from about 30% to almost 60% by 2050 (OECD). While these demographic trends are a potential concern for many countries (for example, because of their implication for healthcare and long-term care costs), they pose particular challenges to those relying almost entirely on pay-as-you-go (PAYG) public pension systems in providing retirement income. Under PAYG systems, current retirement benefits are financed by contributions paid by current workers (as opposed to fully funded systems, where the contributions paid by workers will be used to finance future benefits). Hence, these systems can be sustained if the size of the retired population is not too large compared to the current working population. In some countries, however, the imbalance between contributors and receivers is expected to grow significantly. For example, the number of retired individuals for every 100 workers is expected to increase from 68.6 in 2018 to 105.7 by 2050 in Italy, and from 51.7 to 88.6 in Spain.<sup>1</sup>

Immigration can help alleviate the pressure on PAYG systems. Immigrants tend to be young (the median age within the population of migrants in Europe was 30.3 years in 2020, Eurostat) and have lower reservation wages than natives, and as such are likely to join the working population of the hosting country. Estimates by the Italian National Institute for Social Security (INPS) indicate that the net social security contributions of migrants in Italy amounted to around 7bn euros in 2017. In addition, INPS estimates that a full closure of borders in Italy would lead to a 38bn euros deficit in the social security system by 2040. In Spain, the government has openly recognized that the pension system will not be sustainable without the contribution of foreign workers (and might actually collapse anyway).<sup>2</sup>

Yet, anti-immigrant sentiments have been growing in many countries. Far-right and anti-immigrant parties or movements have widened their electoral support (think for example of the League and Brothers of Italy in Italy, Vox in Spain, Rassemblement National in France, Freedom Party in Austria or the “leave” campaign in the Brexit referendum) and national surveys show increased support for tighter restrictions to immigration. In the Spring 2018 Global Attitudes Survey (Pew Research Center), the median share of Europeans replying “Fewer” or “None” to the question “In your opinion, should we allow more immigrants to move to our country, fewer immigrants, or about the same as we do now?” was 51%. This share was 71% in Italy. Both in Italy and Spain, the share has increased since 2014. Existing

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<sup>1</sup>OECD (2019), Working Better with Age, Ageing and Employment Policies, OECD Publishing, Paris, <https://doi.org/10.1787/c4d4f66a-en>.

<sup>2</sup>See for example El Mundo, 18/01/2020 (in Spanish): “Se buscan 270.000 inmigrantes al año para salvar las pensiones” (270.000 migrants wanted to save pensions) and the official report “España 2050: Fundamentos y propuestas para una Estrategia Nacional de Largo Plazo” (Spain 2050: Foundations and proposals for a long-term National Strategy), by the Oficina Nacional de Prospectiva y Estrategia of the Spanish Government.

literature identified both economic reasons (Scheve et al. 2001; Mayda, 2006; Facchini and Mayda, 2009; Malhorta et al., 2013) and cultural reasons (Citrin et al. 1997; Sides and Citrin, 2007) for these negative attitudes. Most importantly, the evidence seems to indicate that they stem from sociotropic concerns rather than individualistic interests (Hainmueller and Hiscox, 2010; Hanmueller and Hopkins, 2014, 2015; Bansak et al., 2016).

Drawing on all these observations, this paper studies whether a better knowledge of the functioning of PAYG pension systems and current demographic trends can make natives more willing to accept migrants. If individuals have limited knowledge of the challenges faced by PAYG systems, they might underestimate migrants’ positive contribution to the welfare of their country. Hence, correcting this lack of information may change attitudes towards immigration and lead to a higher willingness to accept migrants. We test this hypothesis through an online experiment on a representative sample of the Italian and Spanish populations between 40 and 85 years old.<sup>3</sup> The experiment was conducted separately in Italy and Spain in September 2021.<sup>4</sup> We first asked a set of questions related to socio-economic characteristics, political attitudes, beliefs about immigration, and knowledge of PAYG systems and demographic trends. Our treatment then consisted of a short video explaining how the payment of current pensions in PAYG pension systems depends on the contributions paid by current workers. The treatment also provided information about the future demographic trends of the country where the experiment was run, explaining how the ratio between the number of pensioners and the number of workers will grow substantially. Most importantly, the treatment did not include any mention to immigration and its positive contribution to the sustainability of pension systems. Finally, after the treatment, we asked a second set of questions about the functioning of PAYG systems and opinions about immigration.

Our results show that the treatment increased (significantly) individuals’ knowledge of their country’s pension systems and demographic trends. On the other hand, among the four post treatment questions related to migration, the treatment increased respondents’ willingness to accept migrants (by around 2.6 percent) relative to the average response in the control group, but on the other three questions on attitudes there has been no effect on average: Respondents’ opinion on benefits of immigration on the pension system, the economy, and their country’s culture in general, was not affected. To explain this lack of significant results, we study whether the effect is heterogeneous among supporters of different political parties. The reason for this heterogeneity analysis comes from the literature (Andre et al., 2022; Galasso et al., 2022), which shows the importance of political stances in affecting the results of information provision experiments.

More in detail, we split the sample into three groups. The first group comprises respondents voting for parties with clear anti-immigrant stances (Lega, Brothers of Italy, Vox) or with ambiguous and populist positions towards immigration (Five Stars Movement). The second group consists of the voters of all other parties who do not support anti-immigrant stances. Finally, the third group is composed of undecided voters, who did not indicate

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<sup>3</sup>Italy and Spain are countries with high youth unemployment rates. The decision to exclude those aged less than 40 from the survey was aimed at capturing individuals who likely had already contributed to the pension system and presumably have some expectations about their retirement savings.

<sup>4</sup>A smaller second round was run in Italy in December 2021. We provide more details in Section 2.

any favorite party in their answers to our questions. Our results show that the treatment increases the knowledge of pension systems and demographic trends for all three groups, with a stronger effect on supporters of anti-immigrant and populist parties and undecided voters. Regarding opinions about migrants and their willingness to accept them, however, the treatment only affects individuals not supporting anti-immigrant and populist parties. The effect is not statistically significant for the other two groups, and, in some cases, the coefficients are negative.

Our paper contributes to the literature on information provision experiments in the context of attitudes towards migration (see Haaland et al. 2021 for a review of the literature on information provision experiments). Within this literature, a number of papers have attempted to mitigate anti-immigrant sentiments by correcting respondents’ misperceptions of the size and characteristics of the migrant population (Alesina et al., 2018; Hopkins et al., 2019; Grigorieff et al., 2020; Lergetporer et al., 2021). In general, these interventions have generated muted responses. Other work has shown that the provision of positive narratives about migrants can be more successful at improving individuals’ attitudes towards immigration (Haaland and Roth, 2020; Facchini et al., 2022; Cattaneo and Grieco, 2021). Our paper constitutes the first attempt to test the effectiveness of a more objective, indirect message. As already described above, our treatment does not mention immigration, but only provides information that is helpful in evaluating its positive contributions. We believe this design has two main advantages. First, while anti-immigration parties can find alternative narratives to counteract positive messages about immigration, contradicting objective information like the one in our treatment should be more challenging. In addition, this type of information is less likely to be associated with specific pro-immigration parties, making the message less political and therefore more likely to be accepted by a wider set of individuals. Second, by not mentioning immigration at all, this type of treatment reduces concerns of experimenter demand effects (de Quidt et al., 2018; Mummolo and Peterson, 2019). At the same time, changes in attitudes towards migration induced by our treatment can only come by connecting the dots, that is, actively processing the different pieces of information provided in the experiment. This allows us to test whether the experiment is effective not only in providing information, but also in inducing logical connections between facts among different groups of individuals.

The results of our heterogeneity analysis are in line with the recent literature on the importance of political views for the determination of individual beliefs and their reaction to information provision. For example, this literature shows that Republicans are more likely than Democrats to blame the government for inflation (Andre et al., 2022). In an experiment conducted during the campaign for a referendum on the number of Italian MPs, Galasso et al. (2022) show that the information treatment deconstructing the populist narrative on the benefits of reducing the number of MPs does not affect populist voters. In addition, the literature on the importance of confirmation bias explains how positive messages on the effect of immigration affect only those with mild and positive initial beliefs, while it can backfire on those with initial negative beliefs (Cattaneo and Grieco, 2021). Our results indicate that this reluctance to absorb and process new information might be topic-related. Indeed, populists and undecided voters in our sample respond to the more “neutral” information about pension

systems and demographic trends. However, they do not seem to use this new information to update their opinions on a more sensitive topic like immigration. Besides, even though our experiment does not provide direct evidence on all the main factors driving the behavior of populist and undecided voters, in Section 3.3, we discuss how distrust towards mainstream parties and institutions may represent the more likely explanation. We also describe how the political ideology of populist and undecided voters and their cognitive skills, compared to those of non-populist voters, should play a limited role. Finally, our data allows to assess the relevance of priming effects among voters revising their attitudes towards migrants based on the new information provided to them (see Section 3.4). We find that revisions of attitudes are stronger among individuals who had, before the treatment, a wrong perception of the contribution of migrants to the sustainability of PAYG pension systems and welfare systems in general. This evidence is consistent with an updating of beliefs driven by rational processing of new information, rather than the byproduct of unaware and unconscious responses to the treatment.

Finally, in Section 3.5, we present an interesting side result of our experiment. The analysis of the post-treatment knowledge of the pension system reveals that treated respondents are less likely to believe that the system is in deficit. This is likely due to the way information was presented in the treatment and constitutes an example of cross-learning in information provision experiments (Haaland et al. 2021).

The remainder of the paper is organized as follows. Section 2 describes the experiment, the data, and the empirical strategy. Section 3 contains the results of our analysis and Section 4 concludes.

## 2 Experiment, data and empirical model

We conducted two separate experiments in Italy and Spain. In both countries, the experiments were carried out by professional marketing research companies (Ce&Co in Italy and Netquest in Spain). Both experiments were run in September 2021.<sup>5</sup> In Italy, we conducted a smaller second round (collecting only 100 observations) in January 2022.<sup>6</sup> In total, we recruited 2053 Italian and 1434 Spanish respondents, randomly sampled from the population of individuals between 40 and 85 years old in the respective countries.<sup>7</sup> Questionnaire and treatment were fully administered in the country’s language.

Appendix A2 contains the questionnaire used in the survey, translated from Italian and Spanish into English. We began the questionnaire by collecting respondents’ socio-economic characteristics and political attitudes. Next, the questionnaire contained a set of questions about immigration, the functioning of PAYG pension systems, and demographic trends in

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<sup>5</sup>Both started on the 1st September and ended on the 8th.

<sup>6</sup>Due to a bug in the sampling system, 22 survey responses of the Italian survey in September were duplicated, and one was triplicated. To correct the mistake, Ce&Co offered to replace these observations with 100 new responses. These responses were collected between the 3rd and the 10th of January 2022. All regressions include date fixed effects to control for daily shocks but also for these observations collected in January 2022.

<sup>7</sup>The sample was stratified by gender, age, and geographical area.



their countries. The first question about immigration asked participants to estimate the number of migrants legally living in the country as a share of its total population. Data from the Italian National Institute of Statistics (ISTAT) place this value at 8.8% (8.7%) at the beginning of 2022 (2021). The next two questions required participants to state whether the majority of migrants arrived legally or illegally and whether the taxes and social contributions they pay are higher, lower, or equal to the subsidies they receive. The correct answers for these questions were legally and higher, respectively. The question about the functioning of PAYG pension system asked whether, in the respondent’s opinion, contributions paid by current workers are used to finance current pensions (the correct answer), future ones, or both. Finally, the question about demographic trends asked whether the respondent thought that the number of pensioners in their country will increase more, less, or the same as the number of workers. The correct answer to this question was more. Except for the question about the share of immigrants, all questions were multiple-choice. All questions testing respondents’ knowledge included the option “I don’t know”.

After this initial set of questions, half of our sample was randomly selected to be treated with a 1-minute video.<sup>8</sup> The control group saw no video and proceeded directly to the second part of the questionnaire. The video showed five slides, which we report in Appendix A3, translated from Italian and Spanish into English. The first three slides explained, with words and pictures, that the pension system used in the country is a PAYG one and that current pensions are financed by the contributions paid by current workers. Then, the last two slides presented the issue of population ageing. More precisely, the last slide reported OECD estimates predicting that the number of retired individuals for every 100 workers in Italy (Spain) will increase from 68.6 (51.7) in 2018 to 105.7 (88.6) in 2050. The statistics were reported both in words and with a graph and were followed by a sentence clarifying that, in the future, there will be a lower number of workers to finance a higher number of pensions. Participants could not skip the video.

The most important feature of our treatment, which distinguishes our work from existing literature, is that we introduced no mention of immigration in the video. This allowed us to test the indirect effect of providing useful information for the evaluation of immigrants’ contribution to the hosting country, without explicitly stating such contribution. We believe this type of message has the advantage of being more immune to politics. Indeed, for such a sensitive topic as immigration, it can be easy for anti-immigration parties to portray positive narratives (Haaland and Roth, 2020; Facchini et al., 2022; Cattaneo and Grieco, 2021) as just one version of the facts, and counteract them with alternative stories. Furthermore, even when the narratives refer to the positive effect of immigration on the pension system, as in Facchini et al. 2022, a direct mention of immigration might induce respondents to associate the treatment with leftists (or, more generally, pro-immigrants) parties, biasing the effectiveness of the treatment. The information we provide in our video is more “neutral”, and therefore less subject to this type of issues. Furthermore, providing a treatment that does not mention the main topic of our analysis reduces the concerns of experimenter demand effects

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<sup>8</sup>Before starting with the treatment, all participants were asked a question completely unrelated to the survey, which we introduced to check their level of attention.

(i.e., respondents’ tendency to interpret the treatment as a cue for the experimenter’s objective and adapt their responses accordingly, de Quidt et al., 2018; Mummolo and Peterson, 2019).

The post-treatment part of the questionnaire consisted of seven questions. The first two were true/false questions, directly relating to the content of the treatment. They asked whether it is true that current pensions are financed by current workers and whether it is true that, by 2050, the number of pensioners will increase more than the number of workers. For both questions, “True” was the correct answer. In the third question, respondents were asked whether they thought the pension system is in surplus, in deficit (the correct answer), or in budget balance. For all these first questions, we still included “I don’t know” as a possible answer. The last four questions referred to immigration. In particular, respondents were asked to state the extent to which they agreed with the following statements: their country should accept fewer migrants, migrants are bad for the pension system, migrants are bad for the economy and migrants are a threat to Italian/Spanish culture. The possible answers ranged from 1 (strongly agree) to 4 (strongly disagree).<sup>9</sup>

To estimate the effect of our treatment on respondents’ knowledge and opinions, we run the following model:

$$y_i = \beta_0 + \beta_1 Treatment_i + \beta_2 X_i + \varepsilon_i \quad (1)$$

In equation (1),  $y_i$  is participant  $i$ ’s response to the survey question of interest (i.e., knowledge of the functioning of PAYG pension system and demographic trends, willingness to accept more migrants, or beliefs about the effects of migration on the pension system, the economy and the culture of their country),  $Treatment_i$  is a dummy variable equal to 1 if individual  $i$  was treated and  $X_i$  is the set of controls. The next section reports the results of our estimations.

## 3 Results

### 3.1 Descriptive statistics and balance tests

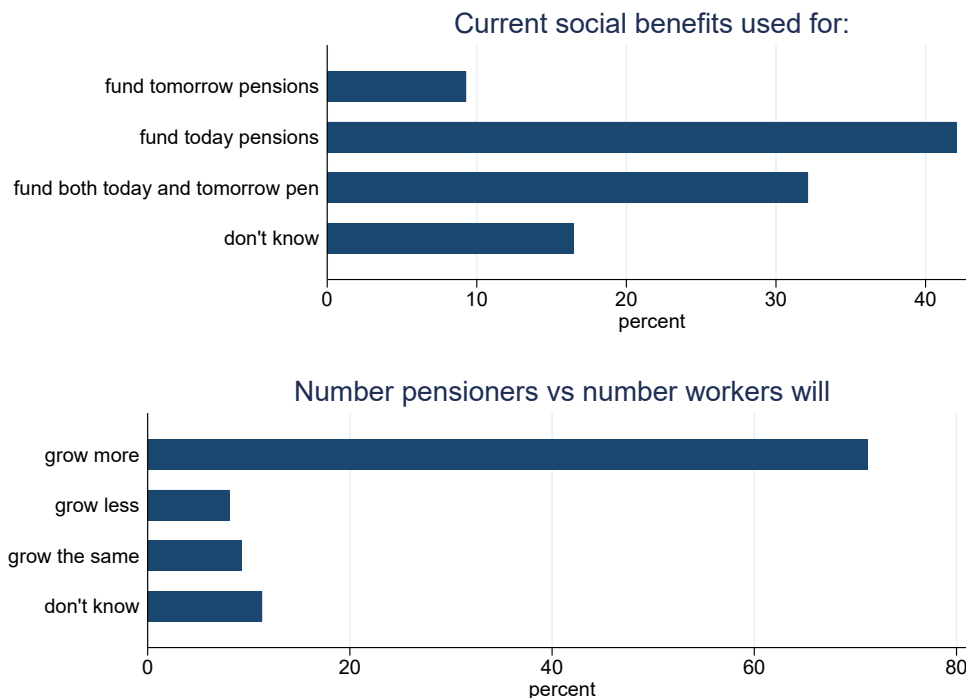
We report in this section the descriptive statistics relative to our sample of Italian and Spanish respondents. We also show that the randomization worked properly, such that the observable characteristics of the respondents are balanced across the treatment and control groups. Table A1 contains the descriptive statistics for our sample, distinguishing between

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<sup>9</sup>With respect to the main (September) experiment, the second round conducted in Italy in January 2022 contained slightly different questions. First, we added a pre-treatment question that asked whether the Italian pension system is *currently* in deficit, in surplus, or in budget balance. Second, we rephrased some of the post-treatment questions to induce respondents to think about future trends, rather than the present. More precisely, in this second version, the questions about the financial situation of the pension system and about the effect of migrants on pension system, economy, and culture were written in future tense, and they explicitly stated that they referred to the future. The change was implemented in response to a result that emerged during the analysis of first-round data, namely that the treatment reduces the probability that respondents think that the pension system is currently in deficit. We discuss this result more in detail in Section 3.

treatment and control groups. As we can see, the average age is around 56 in a sample where the minimum age is 40, and the maximum is 85. An interesting feature that emerges from Table A1 is the share of populist and undecided voters, which are categories that we use in the heterogeneity analysis below. Around 26% of the respondents in our sample declared to be supporters of populist and anti-immigrant parties, while approximately 35% are undecided and do not declare which their favorite party is.<sup>10</sup> As for the knowledge about pension systems and demographic trends, Figure 1 reports respondents’ pre-treatment knowledge about PAYG pension systems and trends in the ratio between pensioners and workers. As the figure highlights, participants seem to be significantly better informed about demographic developments than the functioning of PAYG pension systems. Only 43% of them correctly believe that current contributions are used to finance current pensions, against a 72% of correct answers for the question about trends in the dependency ratio.

Figure 1: Pre-treatment knowledge demographic trends and pension systems



Notes. The top graph shows the answers to the question “How are social contributions paid by today’s workers used?”. The bottom graph reports the answer to the question “In your opinion, will the number of retired people grow more, less or the same relative to the number of workers?”

We report the balance tests from the randomization in Tables 1, 2, and A2. More pre-

<sup>10</sup>Comparisons with other public opinion surveys, such as the European Social Survey and Itanes, indicate that a large share of undecided voters is a common feature of surveys eliciting political preferences.

cisely, Table 1 looks at pre-treatment knowledge of PAYG pension systems and demographic trends, and Table 2 at the knowledge about immigration. Table A2 focuses on personal characteristics. No significant difference emerges between the treatment and control groups. Therefore, all these variables appear to be balanced across treatment and control groups, which suggests that the randomization worked properly in the online experiment.

Table 1: Balance test pre-treatment knowledge demographic trends and pension system

	(1)	(2)	(3)
Dep. Var.	=1 pre-treatment correct answer pension system	=1 pre-treatment correct answer demographic trends	=1 correct both answers
Treatment	-0.024 (0.017)	-0.016 (0.015)	-0.025 (0.016)
Observations	3,487	3,487	3,487
R-squared	0.001	0.000	0.001
Outcome mean	0.433	0.720	0.354
Controls	No	No	No
Province FE	No	No	No
Date FE	No	No	No

Notes. OLS regressions. Standard errors robust to heteroskedasticity in parentheses, \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Table 2: Balance test pre-treatment knowledge migrants

	(1)	(2)	(3)
Dep. Var.	guessed % legal migrants	=1 think most migrants illegal	=1 think migrants contribute less to welfare
Treatment	0.319 (0.663)	-0.006 (0.017)	0.002 (0.017)
Observations	3,487	3,487	3,487
R-squared	0.000	0.000	0.000
Outcome mean	22.27	0.559	0.507
Controls	No	No	No
Province FE	No	No	No
Date FE	No	No	No

Notes. OLS regressions. Standard errors robust to heteroskedasticity in parentheses, \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

## 3.2 Main results

We begin by analyzing the effect of our treatment on respondents’ knowledge of PAYG pension systems and demographic trends. Table 3 reports the results of our estimations. In the first column, the dependent variable is a dummy variable equal to 1 if the respondent correctly answered the question “Current pensions are financed by contributions paid by current workers. In your opinion, is this statement true or false?” (correct answer = true). In column 2, the dependent variable is a dummy variable equal to 1 if the participant correctly responded to the question “By 2050, the number of pensioners in Italy/Spain could increase more than the number of workers. In your opinion, is this statement true or false?” (correct answer = true). Finally, in the last column, we study the effect of our treatment on the probability of answering *both* questions correctly. The results indicate that the treatment increases the probability of a correct response to the first question by almost 6 percentage points, to the second by 4.6 percentage points, and to both by about 10 percentage points. All results are significant at the one-percent level.

Table 3: Effect of treatment on knowledge pension system and demographic trends

	(1)	(2)	(3)
Dep. Var.	=1 post-treatment correct answer pension system	=1 post-treatment correct answer demographic trends	=1 correct both answers
Treatment	0.058*** (0.014)	0.046*** (0.012)	0.102*** (0.015)
Observations	3,487	3,487	3,487
R-squared	0.161	0.353	0.275
Outcome mean	0.743	0.743	0.595
Controls	Yes	Yes	Yes
Province FE	Yes	Yes	Yes
Date FE	Yes	Yes	Yes

Notes. OLS regressions. Standard errors robust to heteroskedasticity in parentheses, \*\*\* p<0.01,

\*\* p<0.05, \* p<0.1.

Next, we turn to the effect of our treatment on individuals’ attitudes and beliefs about immigration. We report these results in Table 4. The dependent variables in the four columns of the table correspond to participants’ responses to our four post-treatment questions on immigration. The possible values range from 1 to 4, where 1 means that the participant strongly agrees with the statement (the country should accept fewer migrants, migrants are bad for the pension system, migrants are bad for the economy, and migrants are a threat to culture), 4 that they strongly disagree. Results in column 1 show that the treatment increases respondents’ willingness to accept migrants. More specifically, treated individuals responded more positively to the question “the country should accept fewer migrants” (column 1),

suggesting that the treatment pushed them to be more willing to accept more migrants into their country. In terms of magnitude, the treatment increases respondents’ willingness to accept migrants into their country by approximately 2.6 percent relative to the average response in the control group. In contrast, we do not find statistically significant effects on the other three questions about migration (columns 2 to 4).

Table 4: Effect of treatment on migration policies and attitudes

	(1)	(2)	(3)	(4)
Dep. Var.	Country should accept less migrants?	Migrants bad for pension system	Migrants bad for economy	Migrants bad for culture
Answers	1=strongly agree, 2=agree, 3=disagree, 4=strongly disagree			
Treatment	0.058** (0.027)	0.006 (0.027)	0.011 (0.027)	0.026 (0.028)
Observations	3,487	3,387	3,387	3,387
R-squared	0.377	0.336	0.346	0.313
Outcome mean	2.226	2.560	2.526	2.666
Controls	Yes	Yes	Yes	Yes
Province FE	Yes	Yes	Yes	Yes
Date FE	Yes	Yes	Yes	Yes

Notes. OLS regressions. Standard errors robust to heteroskedasticity in parentheses, \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

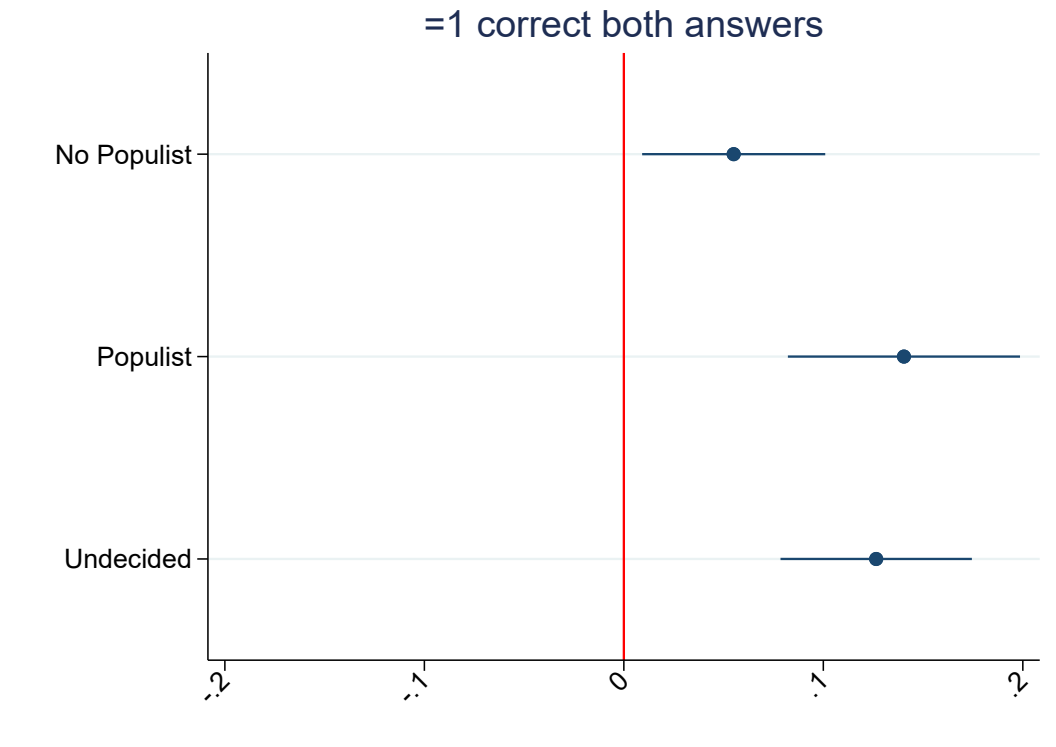
To explain this lack of significant results in columns 2-4 of Table 4, we analyze whether the effect is heterogeneous for voters of anti-immigrant and populist parties versus individuals supporting other parties. The motivation for this heterogeneity analysis comes from the literature (Andre et al., 2022; Galasso et al., 2022), which shows how political narratives can affect the results of information provision experiments. Using the pre-treatment question on respondents’ vote intentions, we split our sample into three groups. In the first group, we include voters of parties with clear anti-immigrant stances (Lega and Brothers of Italy in Italy, Vox in Spain) or ambiguous and populist positions towards migrants (Five Stars Movement in Italy). The second group contains voters of all other parties, who do not defend anti-immigrant stances. Finally, in the third group (undecided), we include individuals that did not express a clear political support.<sup>11</sup> We then repeat the same analysis as in Tables 3 and 4, separately for each group.<sup>12</sup> Figure 2 shows that the treatment increases the knowledge of pension systems and demographic trends for all three groups, and the effect is even stronger for supporters of anti-immigrant and populist parties. At the same time, Figure 3 shows that the treatment improves opinions about migrants and willingness to accept them only for individuals in the second group (i.e., those supporting parties without clear anti-immigrant

<sup>11</sup>This group contains individuals who are undecided, who would not vote, or who would cast a blank ballot.

<sup>12</sup>For the full set of estimates, see Tables A3 and A4.

positions). For individuals supporting anti-immigrant and populist parties and undecided voters, the treatment appears not to have a statistically significant effect. In some cases, the coefficients are negative, signaling a potential backlash in line with the confirmation bias literature (Cattaneo and Grieco, 2021). As mentioned above, this result is in line with the evidence on the role of political views in shaping individual beliefs and their reaction to information provision (Andre et al. 2022; Galasso et al. 2022; Cattaneo and Grieco, 2021). In the following two sections, we discuss which factors may drive the behavior of populist and undecided voters and whether the main results are due to the provision of new information or the priming of pre-existing information.

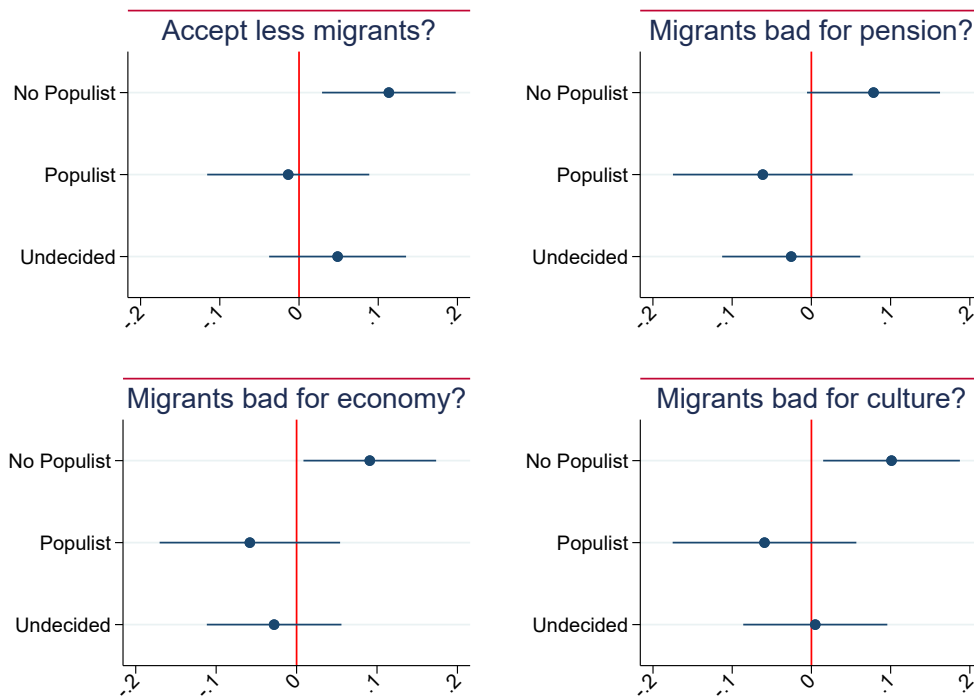
Figure 2: Heterogeneity: knowledge pension system and demographic trends



### 3.3 What does explain the behavior of populists and undecided voters?

In this section, we discuss which factors may explain the behavior of populist and undecided voters compared to the behavior of the voters of non-populist parties. The finding that the three groups (i.e., no populists, populists, undecided) respond similarly in terms of updating beliefs to the direct message about the knowledge of pension systems and demographic trends

Figure 3: Heterogeneity: migration policies and attitudes





(Figure 2), while the populist supporters and undecided voters are unwilling to make the connection with immigration and to change their view on that dimension (Figure 3), could be interpreted as consistent with (1) the ideology channel (see, e.g., papers on the strength of anti-immigration stances in the radical right such as Barone et al., 2016; Dinas et al., 2018; Hangartner et al., 2018; Dustmann et al., 2019; Tabellini, 2020; Gamalerio and Negri, 2023); (2) the lower cognitive skills or unsophisticated reasoning assumption (see, e.g., Levy et al., 2022); or (3) the distrust and commitment channel (see Morelli et al., 2022 and references therein).

Starting from the first potential channel (i.e., ideology), among the populist parties identified, three (i.e., Lega, Brothers of Italy, Vox) are far-right parties, and one (i.e., the Five Stars Movement) is a catch-all populist party more difficult to place on the left-right axis. Therefore, to study the role of ideology, we create a separate dummy variable for the supporters of the Five Stars Movement and another dummy variable for the supporters of the three far-right parties (i.e., Lega, Brothers of Italy, Vox). In Figure 4, we provide evidence of the self-reported political orientation of the respondents to the survey, distinguishing them between supporters of non-populist parties, the Five Stars Movement, far-right parties, and undecided voters. To produce this evidence, we exploit a survey question that asks participants to locate their political orientation on a scale from 1 (extreme-left) to 11 (extreme-right). As we can see from Figure 4, the supporters of the Five Stars Movement tend to be more centrist and more similar to those of non-populist parties. More in detail, the supporters of non-populist parties report an average political orientation score equal to 4.86 with a median of 5 and a standard deviation of 2.23. The supporters of the Five Stars Movement report an average of 5.10, a median equal to 5, and a standard deviation of 1.90. Interestingly, the undecided voters appear to be relatively centrist, with an average political orientation score of 5.65, a median of 6, and a standard deviation of 1.80. Conversely, the voters of far-right parties report an average political orientation score equal to 8.39, with a median equal to 9 and a standard deviation of 1.67. Therefore, Figure 4 confirms that the supporters of the Five Stars Movement and undecided voters appear to be ideologically different from the voters of far-right parties, and, if anything, they seem to be closer to the voters of non-populist parties.

Based on the evidence in Figure 4, we repeat the heterogeneity analysis reported in Figure 3 by separating the supporters of the Five Stars Movement from the voters of far-right parties. If ideology plays a role, we should expect the behavior of the supporters of the Five Stars Movement and those of the far-right parties to differ. We should also expect the behavior of the supporters of the Five Stars Movement voters to be more similar to the reaction of the non-populist voters. However, the results reported in Figure 5 and Table A5 show that this is not the case, given that the voters of the Five Stars Movement behave more similarly to the voters of far-right parties. Based on this evidence, ideological orientation does not appear to explain the behavior of the populist supporters and undecided voters.

The effectiveness of our treatment in increasing knowledge about pension systems and demographic trends among all groups (Figure 2) suggests that the second possible channel, i.e., lower cognitive skills of populist and undecided voters compared to non-populist ones, should play a smaller role in explaining our findings. Specifically, as described above, Figure 2

Figure 4: Ideology of respondents based on political parties

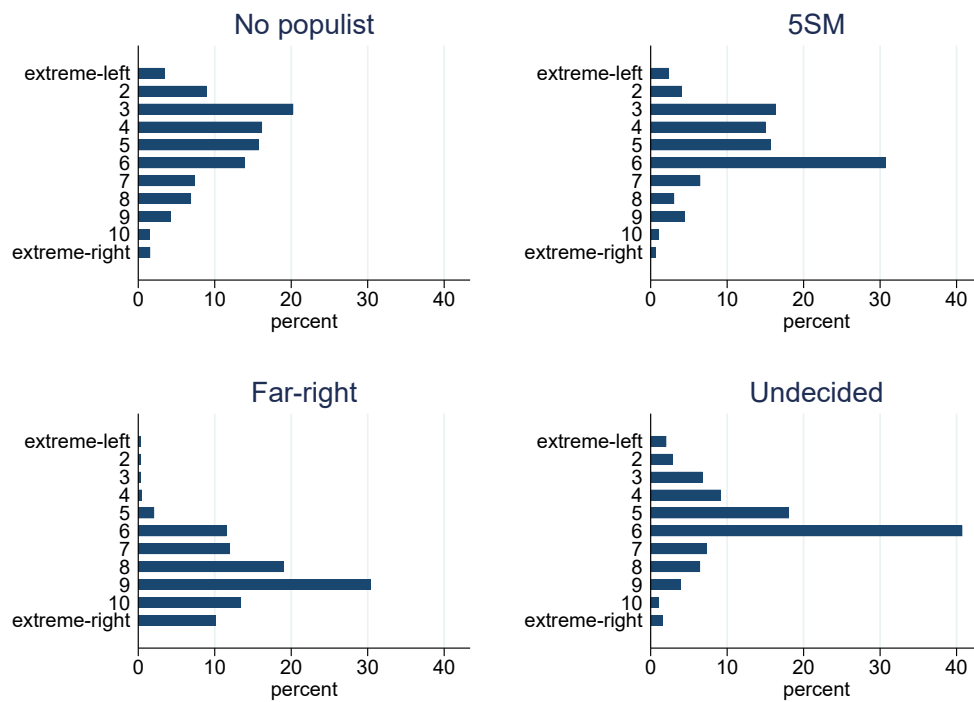
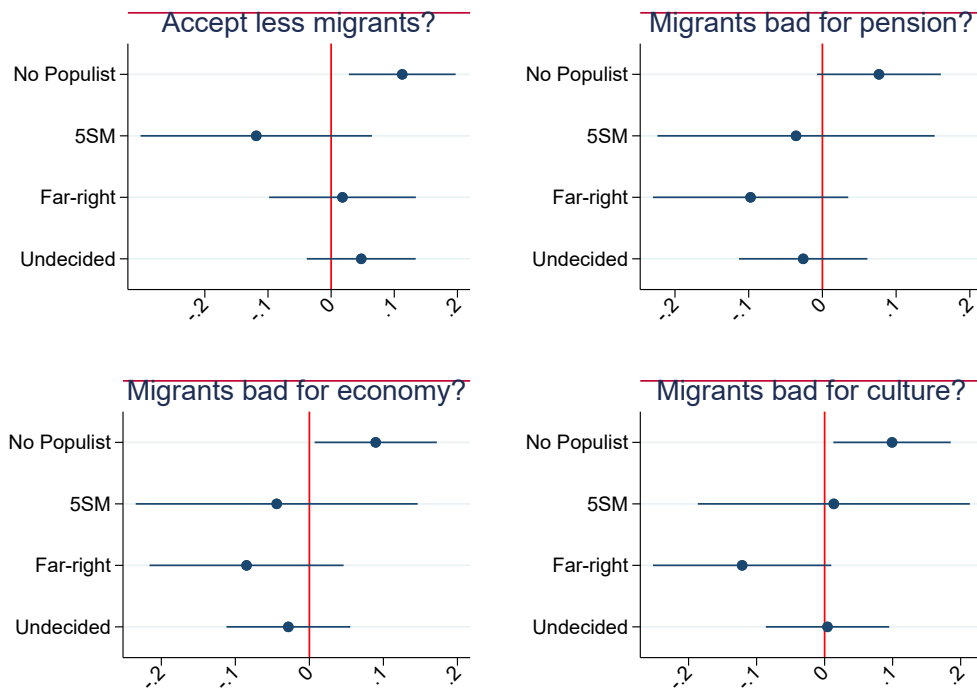


Figure 5: The role of ideology



shows that the supporters of populist parties and undecided voters update their beliefs about the knowledge of the pension systems and demographic trends after receiving the treatment, with an effect that is even stronger compared to non-populist voters. Therefore, even though we cannot entirely exclude that the lack of connection between the treatment and attitudes towards migrants among populist and undecided voters is due to lower cognitive skills (Figure 3), we think that the fact that populist and undecided voters could understand the direct message of the treatment suggests that this second channel should play a relatively minor role in explaining the behavior of populist and undecided voters.

Thus, even though different individuals may be affected by different combinations of the three channels, we expect the distrust channel to play the most significant role. As explained in Algan et al. (2017), Guiso et al. (2017), Guiso et al. (2022), Morelli et al. (2022) and references therein, the sequence of crises of the last two decades has reduced trust in institutions significantly. The strategic response of populist parties who entered political competition has been to offer simple policy commitments (including walls and closure of harbors) to capture the vote of the disillusioned voters with the lowest levels of trust in representative democracy. Hence, the populist voters in our representative group are likely to show low trust and a high focus on the existing commitments. The same argument is likely to apply to the undecided voters, who are probably the most disillusioned with mainstream institutions and parties. In fact, in Table A6, using data from the European Social Survey (Round 9, 2018), we provide descriptive evidence that, both in Italy and Spain, populist and undecided voters have lower levels of trust in their country’s Parliament, politicians, political parties, and the EU Parliament compared to non-populist voters (the default category in the regressions).<sup>13</sup> Therefore, they prefer to remain mute about their political preferences. For these voters, any message aimed at increasing the knowledge of a “potential” benefit from immigration goes astray because (1) the potential benefit may not arrive to them given the distrust in elites and policies proposed by mainstream parties and (2) they are subscribing politically exactly to parties that make commitments of anti-immigration policies unconditional on any information they may receive.

### 3.4 New information vs. Priming

In this section, we investigate whether the baseline and heterogeneity results reported in Section 3.2 are due to new information or priming of pre-existing information. To do so, we exploit the pre-treatment question in which we asked the respondents whether they think migrants contribute more or less compared to what they receive from the welfare system. The possible answers are: (1) contribute more; (2) contribute less; (3) contribute the same; (4) do not know. Given that the hidden message behind our indirect treatment is that migrants

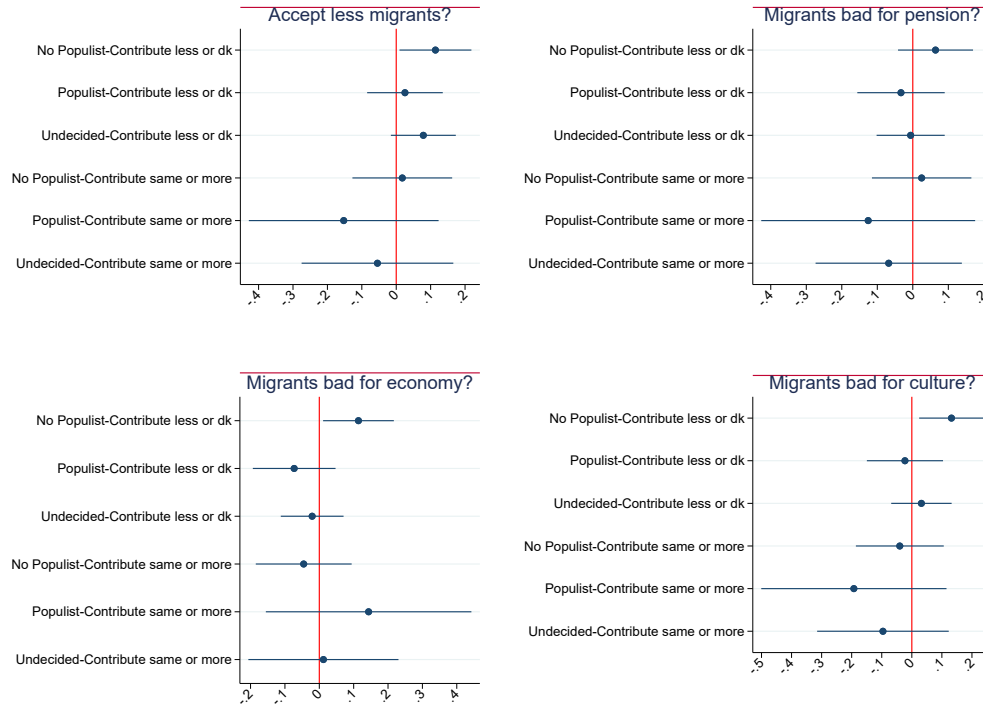
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<sup>13</sup>More in detail, in Table A6, we use data from Round 9 (2018) of the European Social Survey, because this is the most recent round with questions on politics for both Italy and Spain. To identify non-populist, populist, and undecided voters, we use the question asking about to which political party the respondent felt closer. As done above, we identify as populist voters those who felt closer to Lega, Brothers of Italy, Five Stars Movement, and Vox. We classify as undecided those who did not express being close to one specific political party and the remaining individuals as non-populist voters.

contribute to the sustainability of the pension system and to the welfare system in general, we can classify the respondents that answered that migrants contribute more or the same as those being already aware of the contribution of migrants. Conversely, we can classify those who answered that migrants contribute less or do not know as those unaware of this contribution. If the latter group drives the results, we can think that the treatment effects are due to new information. On the opposite, if it is the first group to drive the results, we can think of them as due to the priming of pre-existing information.

To develop this analysis, we separate the respondents into six groups using two criteria. First, whether they declared to be supporters of non-populist and populist parties or whether they did not declare their favorite party. Second, we distinguish between those that said that migrants contribute more or the same to the welfare system and those that answered that migrants contribute less or do not know. This analysis's results are reported in Figure 6, and all the estimated coefficients in Table A7. As we can see, non-populist voters with poor pre-existing information on the contribution of migrants to the welfare system appear to be driving the results. Hence, we conclude that the results are due to new information rather than the priming of pre-existing information.

Figure 6: New information vs. Priming



### 3.5 Cross-learning effect

An interesting side result that emerges from our analysis is that the treatment reduces the likelihood that respondents think that the pension system is in deficit. In Table 5, we report the results of four regressions where the dependent variables are dummy variables equal to 1 if the respondent thinks that the pension system is in equilibrium (column 1), surplus (column 2), deficit (column 3), or whether she does not know (column 4). As we can see, the treatment increases the probability that the respondents answer that the pension system is either in equilibrium or in surplus. At the same time, the treatment reduces the probability that the respondents answer that the pension system is in deficit or do not know. We believe this might be an example of cross-learning (when information changes beliefs about variables that were not the object of interest in the analysis), which is a common effect in information provision experiments (Haaland et al. 2021). More precisely, the result might be due to the way we presented the information in the video and framed the questions in the post-treatment part of the survey. Since the treatment focused on the number of pensioners and workers rather than total funds needed versus total funds available to finance pensions, participants might have been induced to think in terms of “one worker equals one pensioner” when evaluating the sustainability of the pension system. Hence, when told that in 2018 the ratio between pensioners and workers was still below one, they may have thought that the financing of current pensions was not an issue.<sup>14</sup>

To understand why the results in Table 5 are interesting, it is useful to report some information about the current status of pension systems in Italy and Spain. Italy’s pension system is currently running a deficit of about 3% of the GDP per year. It absorbs the largest share of domestic product among the OECD countries, and this share (currently 14%) is bound to increase by another two basis points in the next 25 years. Pensions are already taxing labor at a rate of roughly 45%, which crowds out complementary pensions and prevents financing other types of welfare payments (Italy is the EU country spending the least on unemployment insurance and social assistance in spite of its relatively high jobless rate). The main reasons for the large budget are an early average effective retirement age (62 years) and a highly effective replacement rate (above 80%). About 85% of the average retiree’s income is provided through the public pension systems, and only 15% from other sources such as occupational pensions or private savings. The Spanish pension system runs an annual deficit of more than 2% of the GDP. The average effective retirement age is lower than in Italy (about 61), while the net replacement rate is about 80% for an average income worker. All this explains why about 40% of labor incomes are taxed to fund the pension system.

In light of these entitlements and wage tenure profiles, the equilibrium number of workers per pensioner in the two countries is between 2 and 3. However, these details are difficult to communicate to the layperson in large-scale information campaigns. In addition to these information difficulties due to the complexity of the topic, the results in Table 5 suggest

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<sup>14</sup>As explained above, this result prompted us to apply small changes to the questionnaire in the second round of the Italian experiment. Due to the limited number of observations (100), we cannot perform any meaningful analysis on this sample.

that information campaigns should be careful in selecting the wording used to convey the information about the current status of the pension systems in order to avoid side effects as the one detected in the Table.

Table 5: Cross-learning effect

	(1)	(2)	(3)	(4)
Dep. Var.	=1 if think pension system in equilibrium	=1 if think pension system in surplus	=1 if think pension system in deficit	=1 if do not know
Treatment	0.033*** (0.011)	0.048*** (0.011)	-0.054*** (0.016)	-0.027** (0.012)
Observations	3,387	3,387	3,387	3,387
R-squared	0.106	0.084	0.180	0.202
Outcome mean	0.0935	0.0829	0.636	0.187
Controls	Yes	Yes	Yes	Yes
Province FE	Yes	Yes	Yes	Yes
Date FE	Yes	Yes	Yes	Yes

Notes. OLS regressions. Standard errors robust to heteroskedasticity in parentheses, \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .

## 4 Conclusions

We investigate the extent to which improving individuals’ knowledge about the functioning of PAYG pension systems and demographic trends can change natives’ attitudes towards migrants. Our analysis indicates that, on average, the answer is positive, as treated individuals in our experiment show a higher willingness to accept migrants. We believe this is a promising result for the identification of an effective communication strategy in the context of immigration. The effectiveness of alternative interventions explicitly highlighting migrants’ positive contributions (as in Haaland and Roth, 2020; Facchini et al., 2022; Cattaneo and Grieco, 2021) can be hindered by the high political salience of the topic. Indeed, outside the protected environment of an academic experiment, these interventions could be easily counteracted by alternative narratives offered by anti-immigration parties, or they might be perceived as too “leftist” by respondents with a more center-right political leaning. The absence of any mention of immigration in our treatment, makes our message more “neutral” and therefore less likely to be affected by these considerations. At the same time, our results reassure us that such an indirect message still has a positive effect on people’s attitudes.

Unfortunately, however, our results also show the limitations of our intervention. More precisely, our indirect and less politicized message is still unable to improve the attitudes toward migration of individuals supporting populists and anti-immigrant parties. Treated individuals within this group do show an improved knowledge of the functioning of PAYG pension systems and demographic trends, which is a sign that the treatment was effective

for them (as a matter of fact, it was even more effective for them than for other individuals). However, this improved knowledge does not seem to translate into an increased willingness to accept migrants or a more favorable opinion about them. Our results suggest that this might be mostly due to a lack of trust by these voters, even though we are unable to exclude other possible channels like lower cognitive skills.

Finally, our analysis highlights the importance of a correct framing of information in the design of policy interventions. Because of the way information was presented in the video, our treatment reduced the probability that individuals believe that the pension system in their country is currently in deficit. In a real policy intervention, such cross-learning behavior can have unintended consequences that might affect its overall effectiveness.

## References

- [1] Algan, Y., Guriev, S., Papaioannou, E. and E. Passari. (2017): “The European trust crisis and the rise of populism”, Brookings Papers on Economic Activity, Fall.
- [2] Andre, P., Haaland, I., Roth, C. and Wohlfart, J. (2022): “Narratives about the Macroeconomy.” CEBI Working Paper 18/21.
- [3] Alesina, A., Miano, A. and Stantcheva, S., (2018): “Immigration and redistribution” (No. w24733). National Bureau of Economic Research.
- [4] Bansak, K., Hainmueller, J. and Hangartner, D. (2016): “How economic, humanitarian, and religious concerns shape European attitudes toward asylum seekers.” *Science*, 354, 217–222.
- [5] Barone, G., A. D’Ignazio, G. de Blasio, and P. Naticchioni (2016). “Mr. Rossi, Mr. Hu and politics. The role of immigration in shaping natives’ voting behavior.” *Journal of Public Economics*, 136(8228).
- [6] Cattaneo, C. and Grieco, D., (2021): “Turning opposition into support to immigration: The role of narratives.” *Journal of Economic Behavior & Organization*, 190, 785–801.
- [7] Citrin, J., Green, D. P., Muste, C. and Wong, C. (1997): “Public Opinion Toward Immigration Reform: The Role of Economic Motivations.” *Journal of Politics*, 59, 858–881.
- [8] de Quidt, J., Haushofer, J. and Roth, C., (2018): “Measuring and bounding experimenter demand.” *American Economic Review*, 108(11), 3266–3302.
- [9] Dinas E., Matakos K., Xefteris D. and Hangartner D., (2018). “Waking Up the Golden Dawn: Does Exposure to the Refugee Crisis Increase Support for Extreme-right Parties?” *Political Analysis*, 2018 Mar 29.
- [10] Dustmann, C., Vasiljeva K. and Piil A. (2019). “Refugee migration and electoral outcomes.” *Review of Economic Studies*, Volume 86, Issue 5, October 2019, Pages 2035–2091.



- [11] Facchini, G., Margalit, Y. and Nakata, H., (2022): “Countering public opposition to immigration: The impact of information campaigns.” *European Economic Review*, 141, 103959.
- [12] Facchini, G., and Mayda, A. M. (2009). “Does the welfare state affect individual attitudes toward immigrants? Evidence across countries.” *The review of economics and statistics*, 91(2), 295-314.
- [13] Galasso, V., Morelli, M., Nannicini, T. and Stanig, P. (2022): “Fighting Populism on its Own Turf: Experimental Evidence.” CESifo Working Paper No. 9789, Available at SSRN: <https://ssrn.com/abstract=4136954> or <http://dx.doi.org/10.2139/ssrn.4136954>
- [14] Gamalerio, M. and Negri, M. (2023): “Not welcome anymore: the effect of electoral incentives on the reception of refugees”, *Journal of Economic Geography*, lbad002.
- [15] Grigorieff, A., Roth, C. and Ubfal, D., (2020): “Does Information Change Attitudes Toward Immigrants?” *Demography*, 57(3), 1117–1143.
- [16] Guiso, L., Herrera, H., Morelli, M., and Sonno T. (2018): “Populism: Demand and Supply.” CEPR Discussion Paper No. DP11871, Available at SSRN: <https://ssrn.com/abstract=2924731>
- [17] Guiso, L., Morelli, M., Sonno, T. and Herrera, H. (2022): “The Financial Drivers of Populism in Europe.” CEPR Discussion Paper No. DP17332.
- [18] Haaland, I. and Roth, C., (2020): “Labor market concerns and support for immigration.” *Journal of Public Economics*, 191, 104256.
- [19] Haaland, I., Roth, C., and Wohlfart, J., (2021): “Designing Information Provision Experiments.” *Journal of Economic Literature*, forthcoming.
- [20] Hainmueller, J. and Hiscox, M.J., (2010): “Attitudes toward highly skilled and low-skilled immigration: Evidence from a survey experiment.” *American political science review*, 104(1), 61-84.
- [21] Hangartner D., Dinas E., Marbach M., Matakos K. and Xefteris D. , (2018). “Does Exposure to the Refugee Crisis Make Natives More Hostile?” *American Political Science Review*, 1-14. doi:10.1017/S0003055418000813.
- [22] Hainmueller, J. and Hopkins, D. J. (2014): “Public Attitudes Toward Immigration.” *Annual Review of Political Science*, 17, 225–249.
- [23] Hainmueller, J. and Hopkins, D. J. (2015): “The Hidden American Immigration Consensus: A Conjoint Analysis of Attitudes toward Immigrants.” *American Journal of Political Science* 59, 529–548.

- [24] Hopkins, D. J., Sides, J. and Citrin, J., (2019): “The Muted Consequences of Correct Information about Immigration.” *Journal of Politics* 81(1), 315–320.
- [25] Lergetporer, P., Piopiunik, M. and Simon, L., (2021): “Does the education level of refugees affect natives’ attitudes?.” *European Economic Review*, 134, 103710.
- [26] Levy, G., Razin, R., and Young, A. (2022): ”Misspecified Politics and the Recurrence of Populism.” *American Economic Review*, 112 (3): 928-62.
- [27] Malhotra, N., Margalit, Y. and Mo, C. H., (2013): “ Economic Explanations for Opposition to Immigration: Distinguishing between Prevalence and Conditional Impact.” *American Journal of Political Science*, 57(2), 391–410.
- [28] Mayda, A. M. (2006): “Who is against immigration? A cross-country investigation of individual attitudes toward immigrants.” *The review of Economics and Statistics*, 88(3), 510-530.
- [29] Morelli, M., Nicolò, A., and Roberti, P. (2022): “A commitment theory of populism.” CEPR dp no. 16051 (2nd version);
- [30] Mummolo, J. and Peterson, E., (2019): “Demand effects in survey experiments: An empirical assessment.” *American Political Science Review*, 113(2), 517-529.
- [31] Scheve, K. F. and Slaughter, M. J., (2001): “Labor Market Competition and Individual Preferences Over Immigration Policy.” *Review of Economics and Statistics*, 83(1), 133–145.
- [32] Sides, J. and Citrin, J., (2007): “European Opinion About Immigration: The Role of Identities, Interests and Information.” *British Journal of Political Science*, 37(3), 477-504.
- [33] Tabellini M., (2020). “Gifts of the Immigrants, Woes of the Natives: Lessons from the Age of Mass Migration.” *Review of Economic Studies*, Volume 87, Issue 1, January 2020, Pages 454–486.

# Appendix A1 - Tables and Figures

Table A1: Descriptive statistics

	(1) Treatment	(2) obs	(3) Control	(4) obs	(5) p-value
<i>Personal characteristics</i>					
native	0.982	1737	0.985	1750	0.403
female	0.519	1737	0.493	1750	0.122
age	56.558	1737	56.719	1750	0.655
university degree	0.348	1737	0.344	1750	0.817
married	0.617	1737	0.627	1750	0.554
# dependent children	0.678	1737	0.638	1750	0.212
pensioner	0.278	1737	0.278	1750	0.981
pensioner other household member	0.241	1737	0.222	1750	0.185
> median income	0.442	1737	0.425	1750	0.311
receive public subsidies	0.092	1737	0.094	1750	0.871
home owner	0.799	1737	0.793	1750	0.633
foreign colf	0.033	1737	0.033	1750	0.967
populist	0.267	1737	0.258	1750	0.553
undecided	0.352	1737	0.348	1750	0.761
religious person	0.636	1737	0.645	1750	0.580
tv main source info	0.488	1737	0.494	1750	0.744
<i>Pre-treatment knowledge</i>					
guessed % legal migrants	22.586	1737	22.268	1750	0.630
=1 think most migrants illegal	0.553	1737	0.558	1750	0.739
=1 think migrants contribute less to welfare	0.509	1737	0.507	1750	0.902
=1 correct answer pension system	0.408	1737	0.432	1750	0.154
=1 correct answer demographic trends	0.704	1737	0.720	1750	0.299
=1 correct answers pension system and demographic trends	0.328	1737	0.353	1750	0.119

Notes. *Treatment* = respondents in the treatment group. *Control* = respondents in the control group. Columns (1) and (3) report the mean values for the two samples; *obs* is the number of observations; *p-value* is the p-value of the difference between the means of the two samples.

Table A2: Balance tests personal characteristics

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dep. Var.	native	female	age	university degree	married	# dependent children	pensioner	pensioner other household memeber
Treatment	-0.004 (0.004)	0.026 (0.017)	-0.161 (0.361)	0.004 (0.016)	-0.010 (0.016)	0.039 (0.032)	0.000 (0.015)	0.019 (0.014)
Observations	3,487	3,487	3,487	3,487	3,487	3,487	3,487	3,487
R-squared	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.001
Outocome mean	0.986	0.494	56.72	0.345	0.627	0.639	0.278	0.222
Dep. Var.	> median income	receive public subsidies	home owner	foreign colf	populist	undecided	religious	tv main source info
Treatment	0.017 (0.017)	-0.002 (0.010)	0.007 (0.014)	0.000 (0.006)	0.009 (0.015)	0.005 (0.016)	-0.009 (0.016)	-0.006 (0.017)
Observations	3,487	3,487	3,487	3,487	3,487	3,487	3,487	3,487
R-squared	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Outocome mean	0.426	0.0943	0.793	0.0331	0.259	0.348	0.646	0.494
Controls	No	No	No	No	No	No	No	No
Province FE	No	No	No	No	No	No	No	No
Date FE	No	No	No	No	No	No	No	No

Notes. OLS regressions. Standard errors robust to heteroskedasticity in parentheses, \*\*\* p<0.01,  
 \*\* p<0.05, \* p<0.1.

Table A3: Heterogeneity: knowledge pension system and demographic trends

	(1)	(2)	(3)
Dep. Var.	=1 post-treatment correct answer pension system	=1 post-treatment correct answer demographic trends	=1 correct both answers
Treatment*No Populist	0.034 (0.022)	0.006 (0.019)	0.055** (0.023)
Treatment*Populist	0.061** (0.028)	0.091*** (0.025)	0.140*** (0.030)
Treatment*Undecided	0.082*** (0.024)	0.059*** (0.021)	0.127*** (0.024)
Observations	3,487	3,487	3,487
R-squared	0.162	0.354	0.277
Controls	Yes	Yes	Yes
Province FE	Yes	Yes	Yes
Date FE	Yes	Yes	Yes

Notes. OLS regressions. Standard errors robust to heteroskedasticity in parentheses, \*\*\* p<0.01,  
 \*\* p<0.05, \* p<0.1.

Table A4: Heterogeneity: migration policies and attitudes

	(1)	(2)	(3)	(4)
Dep. Var.	Country should accept less migrants?	Migrants bad for pension system	Migrants bad for economy	Migrants bad for culture
Answers	1=strongly agree, 2=agree, 3=disagree, 4=strongly disagree			
Treatment*No populist	0.113*** (0.043)	0.078* (0.043)	0.091** (0.042)	0.101** (0.044)
Treatment*Populist	-0.014 (0.052)	-0.061 (0.058)	-0.058 (0.057)	-0.059 (0.059)
Treatment*Undecided	0.049 (0.044)	-0.025 (0.044)	-0.028 (0.043)	0.005 (0.046)
Observations	3,487	3,387	3,387	3,387
R-squared	0.378	0.337	0.348	0.314
Controls	Yes	Yes	Yes	Yes
Province FE	Yes	Yes	Yes	Yes
Date FE	Yes	Yes	Yes	Yes

Notes. OLS regressions. Standard errors robust to heteroskedasticity in parentheses, \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Table A5: The role of ideology

	(1)	(2)	(3)	(4)
Dep. Var.	Country should accept less migrants?	Migrants bad for pension system	Migrants bad for economy	Migrants bad for culture
Answers	1=strongly agree, 2=agree, 3=disagree, 4=strongly disagree			
Treatment*No populist	0.113*** (0.043)	0.077* (0.043)	0.090** (0.042)	0.099** (0.044)
Treatment*5SM	-0.119 (0.093)	-0.036 (0.096)	-0.044 (0.097)	0.014 (0.102)
Treatment*Far-Right	0.018 (0.059)	-0.097 (0.068)	-0.085 (0.067)	-0.121* (0.067)
Treatment*Undecided	0.048 (0.044)	-0.026 (0.044)	-0.028 (0.043)	0.004 (0.046)
Observations	3,487	3,387	3,387	3,387
R-squared	0.392	0.354	0.360	0.336
Controls	Yes	Yes	Yes	Yes
Province FE	Yes	Yes	Yes	Yes
Date FE	Yes	Yes	Yes	Yes

Notes. OLS regressions. Standard errors robust to heteroskedasticity in parentheses, \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Table A6: Trust in political parties and institutions  
European Social Survey (Round 9)

	(1)	(2)	(3)	(4)
Dep. Var.	Trust in country's parliament	Trust in politicians	Trust in political parties	Trust in EU Parliament
Answers	1=Not trust at all, 2, 3 ,4 ,5 ,6 ,7 ,8 ,9 , 10, 11=Complete trust			
Panel A: Italy				
Populist	-0.298* (0.161)	-0.332** (0.152)	-0.588*** (0.152)	-1.538*** (0.159)
Undecided	-1.279*** (0.148)	-1.241*** (0.135)	-1.418*** (0.137)	-1.604*** (0.144)
Observations	2,604	2,615	2,608	2,529
R-squared	0.044	0.047	0.051	0.040
Outcome mean	5.087	3.873	3.929	5.718
Panel B: Spain				
Populist	-1.219*** (0.315)	-1.430*** (0.244)	-1.379*** (0.222)	-1.460*** (0.313)
Undecided	-0.710*** (0.130)	-0.595*** (0.115)	-0.782*** (0.113)	-0.636*** (0.133)
Observations	1,536	1,582	1,583	1,441
R-squared	0.024	0.028	0.038	0.025
Outcome mean	4.445	2.883	2.899	4.821

Notes. European Social Survey (Round 9, 2018). OLS regressions. The coefficients must be interpreted in relation to the default category, which is composed by non-populist voters. Standard errors robust to heteroskedasticity in parentheses, \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.



Table A7: New information vs. Priming

Dep. Var.	(1)	(2)	(3)	(4)
	Country should accept less migrants?	Migrants bad for pension system	Migrants bad for economy	Migrants bad for culture
Answers	1=strongly agree, 2=agree, 3=disagree, 4=strongly disagree			
Treatment*No populist-Contribute less or dk	0.114** (0.053)	0.064 (0.054)	0.114** (0.052)	0.132** (0.055)
Treatment*Populist-Contribute less or dk	0.025 (0.056)	-0.033 (0.063)	-0.073 (0.061)	-0.023 (0.065)
Treatment*Undecided-Contribute less or dk	0.079 (0.048)	-0.006 (0.049)	-0.021 (0.047)	0.032 (0.051)
Treatment*No populist-Contribute same or more	0.018 (0.074)	0.025 (0.071)	-0.045 (0.071)	-0.040 (0.075)
Treatment*Populist-Contribute same or more	-0.153 (0.141)	-0.126 (0.154)	0.143 (0.153)	-0.193 (0.157)
Treatment*Undecided-Contribute same or more	-0.055 (0.112)	-0.068 (0.105)	0.012 (0.111)	-0.096 (0.112)
Observations	3,487	3,387	3,387	3,387
R-squared	0.373	0.325	0.341	0.299
Controls	Yes	Yes	Yes	Yes
Province FE	Yes	Yes	Yes	Yes
Date FE	Yes	Yes	Yes	Yes

Notes. OLS regressions. Standard errors robust to heteroskedasticity in parentheses, \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

## Appendix A2 - Questionnaire

Below we report the English translation of the Italian questionnaire. The Spanish questionnaire was practically identical, with only some questions adapted to the Spanish context (Q5 on educational qualification, Q11 on public subsidies, Q15 on political party voted for). More details are available upon request.

### Introduction

Good morning, the following questionnaire is part of a university research study on the current situation of the Italian pension system. There are no right or wrong answers, what is really important is to gather your honest views.

This study is developed in total impartiality and independence from any government or public body.

### Pre-treatment questions

Q1. Please write below: what is your municipality of residence?  
\_\_\_\_\_ (full name of municipality of residence)

Q2. Are you an Italian citizen?

1. Yes
2. No → Please indicate your citizenship: \_\_\_\_\_

Q3. You are...

1. Man
2. Woman
3. Other (specify)

Q4. State your age in completed years.  
\_\_\_\_\_ (age in completed years)

Q5. What is your educational qualification?

1. No title
2. Elementary license
3. Junior high school
4. Diploma professional qualification (2-3 years)
5. Vocational high school diploma (including art school)
6. Technical high school diploma

7. Classical or scientific high school diploma
8. Other high school diploma (teacher training institute, language high school, art high school, socio-psycho-pedagogical high school)
9. Scientific degree (3/4/5 years, undergraduate, graduate) (includes medicine, biology and economics)
10. Humanities degree (3/4/5 years, undergraduate, graduate) (includes psychology, sociology and political science)
11. Master's degree/school of specialization postgraduate
12. Ph.D.

Q6. What is your personal situation?

1. Single
2. I am in a relationship, but I am not living together
3. I am in a relationship and living together
4. Married
5. Separated/Divorced
6. Widowed

Q7. Do you have any dependent children? If yes how many?

\_\_\_\_\_ (enter the number of dependent children, if you have none enter 0)

Q8. What is your work situation?

1. Retired person
2. Student
3. Housewife/househusband
4. Inactive
5. Unemployed or seeking first employment
6. Fixed-term employee
7. Permanent employee
8. Self-employed without employees
9. Self-employed with employees
10. Executive
11. Entrepreneur

Q9. If another person in the family has a source of income besides you, please indicate his/her profession. (If more than one person has a source of income, please indicate the profession of the one with the highest income)

1. Retired person
2. Fixed-term employee
3. Permanent employee
4. Self-employed without employees
5. Self-employed with employees
6. Executive
7. Entrepreneur
8. No other person in the household is in paid work

Q10. Please indicate the annual income of your household, after deductions (taxes, social contributions) and considering any type of income source, including wages, salaries, pensions and any other income.

1. Less than 9.000 Euros
2. From 9.001 to 14.000 Euros
3. From 14.001 to 17.500 Euros
4. From 17.501 to 21.000 Euros
5. From 21.001 to 25.000 Euros
6. From 25.001 to 29.500 Euros
7. From 29.501 to 36.000 Euros
8. From 36.001 to 43.500 Euros
9. From 43.501 to 56.000 Euros
10. More than 56.000 Euros
11. I prefer not to respond

Q11. Are you currently a recipient of any of the following public subsidies?

1. Pension
2. Unemployment benefits
3. Short-time work (Cassa Integrazione)
4. Basic income (Reddito di Cittadinanza)
5. Family allowance (Assegno Familiare)
6. Other (indicate in this case what other type of public subsidy)
7. No subsidy
8. I prefer not to answer

Q12. Can you please indicate whether you own the house in which your family lives or whether you are renting?

1. Owner
2. Rent
3. Another title of possession

Q13. Can you please indicate whether you use domestic helpers and/or caregivers in your household? (In this case please take into consideration the broader family, not just the simple household of cohabitants) [more answers possible].

1. Italian domestic helper
2. Foreign domestic helper
3. Italian caregiver
4. Foreign caregiver
5. None

Q14. It is often used to classify political affiliation or sympathies in terms of left and right. Considering precisely these two extremes, where would you place your political orientation? Click directly on the bar to bring up the cursor. [Estrema Sinistra = Extreme Left, Centro = Center, Estrema Destra = Extreme Right]



Q15. If there were a general election tomorrow, which of these political parties would you vote for?

1. Partito Democratico
2. Movimento Cinque Stelle
3. Forza Italia
4. Lega
5. Fratelli d'Italia
6. Italia Viva
7. Other party (give name)
8. Blank card
9. I haven't decided yet
10. I would not go to vote

Q16. Which of the following statements best describes your relationship with religion?

1. I am religious and practicing
2. I am religious but not practicing
3. I can't tell if I am religious or not
4. I am not a religious person

Q17. What is your main source of information?

1. TV news
2. Social networks (Twitter, Facebook, Youtube,...)
3. Newspapers (online and printed)
4. Radio
5. Blogs by experts such as scientists, politicians, economists, journalists
6. Friends
7. Other (indicate source of information)

Q18. In your opinion, as a percentage, how many immigrants live legally in Italy out of the country's total population? \_\_\_\_\_ (indicate the percentage from 0 to 100)

Q19. In your opinion, most immigrants in Italy are:

1. Arrived illegally
2. Arrived legally
3. Don't know

Q20. In your opinion, do immigrants pay more taxes and social contributions than the benefits they receive from the Italian welfare system or not?

1. They pay more taxes and social security contributions than the subsidies they receive
2. They pay less in taxes and social security contributions than the subsidies they receive
3. The taxes and social security contributions they pay are roughly equal to the subsidies they receive
4. Don't know

Q21. In your opinion, for which of the following purposes are social contributions paid by current workers used?

1. Financing future pensions

2. Financing current pensions
  3. Fund both future and current pensions
  4. Don't know
- Q22. Relative to the demographic trends of the Italian population, in your opinion, which of the following future scenarios is most likely?
1. The number of retirees will increase more than the number of workers
  2. The number of retirees will increase less than the number of workers
  3. The number of retirees and the number of workers will increase equally
  4. Don't know
- Q23. The following question is important to check the level of effort and attention that respondents are devoting to this study. Therefore, we ask you to select the first response option, even if it is not the answer you would like to give to the question.

The question is: Which of the following is your favorite color?

1. Brown
2. Yellow
3. Orange
4. Black
5. Blue

## Randomly assigned treatment

Divide the sample into 2 groups (1 treatment group and 1 control group). The treatment is provided in the form of a short video. These are the 2 groups:

1. First treatment group (video on the pension system and demographic trends): video explaining how a pay-as-you-go pension system works, with a specific focus on the role of current workers' contributions in funding current pensions. The same video provides a description of the demographic decline and declining flows of new contributors relative to the number of retirees in Italy.  
→ Let's resume with the questionnaire. You will now see a short video, watch it carefully then continue with the questions by clicking NEXT.
2. Control group not assigned to any video.  
→ We continue with the questionnaire questions.

## Post-treatment questions

Q24. The pensions of today's retirees are financed by social contributions made by current workers. In your opinion, is this statement true or false?

1. True
2. False
3. Don't know

Q25. Between now and 2050, the number of retirees in Italy may increase more than the number of workers. In your opinion, is this statement true or false?

1. True
2. False
3. Don't know

Q26. Given the social contributions paid by current workers, and given the pensions paid to current retirees, which of the following situations do you think our pension system is in?

1. Budget balance (the sum of social security contributions equals the sum of pension expenditures)
2. Budget surplus (the sum of social contributions is greater than the sum of pension expenditures)
3. Budget deficit (the sum of social contributions is less than the sum of pension expenditures)
4. Don't know

Q27-30. Below you will read some statements. For each indicate whether you agree or disagree.

	Strongly agree	Agree	Disagree	Strongly disagree
Italy should accept fewer immigrants	1	2	3	4
Immigrants are bad for the Italian pension system	1	2	3	4
Immigrants are bad for the Italian economy	1	2	3	4
Immigrants are a danger to Italian culture	1	2	3	4

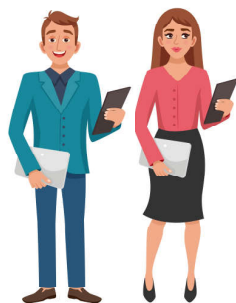


## Appendix A3 - Treatment video

In Italy, the pension  
system is  
**“pay-as-you-go”**

Today's pensions are  
funded with the contributions  
paid by today's  
workers

## Pay-as-you-go pension system



Today's workers



pay social contributions

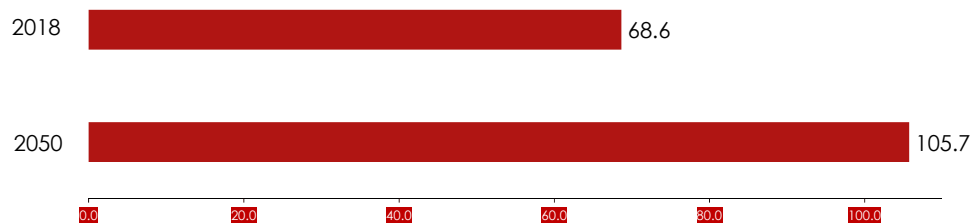


that fund today's pensions

## **Problem:**

The following chart shows  
how we may have  
more **retirees** than **workers**  
in the future

## Number of **retirees** for every 100 **workers** (OECD estimates)



In 2018, there were **68.6 retirees** for every **100 workers**

OECD estimates that in 2050 there will be **105.7 retirees** for every **100 workers**

**Fewer workers** to pay **more pensions**

In the Spanish treatment, the slide was identical but showed data referring to Spain: 51.7 retirees for every 100 workers in 2018 and OECD estimates of 88.6 retirees every 100 workers in 2050.