

Does information increase political support for pension reform? *

Tito Boeri

Guido Tabellini

Bocconi University and IGER

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Abstract

An opinion poll on a representative sample of Italian citizens suggests that it does. We focus on reforms that would lengthen retirement age and /or cut pension benefits. After controlling for individual features of the respondent, we find that individuals who are more informed about the costs and functioning of the Italian pension system are more willing to accept reforms. This result holds with a variety of estimation methods, including matching based on the propensity-score and instrumental variables. We do not find that exposure to media coverage of pension issues significantly improves information, possibly because individuals read newspaper articles or watch TV programs on these issues just to confirm their priors. Finally we perform a controlled experiment asking a random subsample of individuals to read a descriptive note on the Italian pension system before answering the questionnaire. We find that citizens reading the note are more informed about the costs and functioning of the Italian pension system and more willing to support pension reforms.

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1. Introduction

Why is it so difficult to reform the unsustainable and overly generous European pension systems? A simple answer is that a majority of elderly European voters wants to gain at the expenses of younger or future generations. But this is not fully convincing, as it presupposes that voters are egoistic and do not care about their offspring. This paper explores the role of a second possible answer: opposition to pension reform also stems from lack of information about the true costs of the pension system, and lack of understanding of the consequences of “pay as you go” public pensions.

We study empirically the opinions of a representative sample of Italian citizens about the desirability of alternative pension reforms. Lack of information about basic features and costs of public pensions is widespread. Our central finding is that better information is associated with more willingness to accept reforms. Of course, individual information is not random. The correlation between individual information and policy preferences could reflect an unobserved common determinant (such as wealth, or family background). Measurement errors may also make information endogenous to policy preferences. The main contribution of this paper is threefold: i.) to document that voters are poorly informed about the costs and redistribution operated by pension systems, ii.) to relate these informational gaps to willingness to accept reforms; and iii.) to show that, under specific identification assumptions and alternative estimation methods, the estimated correlation reflects a causal effect: informed individuals are more willing to accept pension reforms *because* of their better information about the costs and consequences of the pension system. This inference is also supported by the results of a controlled experiment, where individuals who have read a neutral descriptive note on the functioning of the pension system are systematically better informed and more willing to accept reforms.

If valid, this conclusion would have important policy implications. To increase public support for pension reforms, governments in countries with large and unsustainable public pension systems ought to devote more effort and resources to inform citizens about the basic functioning of pay-as-you-go pensions, its actual costs, and the net position of individual contributors. But media coverage, by itself, may not be sufficient to inform citizens. We find that individuals who have read newspaper articles or watched TV debates on pension reform are not better informed than the other citizens. Governments who seriously want to improve citizens’ knowledge about the consequences of public pensions ought to find other ways to convey information to voters. The concluding section discusses some concrete examples of how this information can be provided on a large scale, by drawing from the experience of Sweden.

The implications of our findings go beyond the pension system. A standard assumption in political economics is that voters can evaluate the implications of alternative policy proposals, and that they know which policy alternatives are in their best interest. The empirical results of this paper cast doubts on the validity of this assumption. Not only voters are vastly uninformed, but their lack of information has a systematic impact on

policy preferences and induces a bias in favour of the status quo. Whatever determines voters' information is an important determinant of policy preferences, and hence of the policies that ultimately get implemented by politicians.

The idea that voters' information (or lack thereof) is a key determinant of public policies and of policymakers' decisions dates back at least to Puviani (1897). Inspired by Schumpeter, Downs (1957) elaborates on the concept of "rational ignorance", referring to how voters lack incentives to base their voting decisions on accurate information. And Brennan and Buchanan (1984) go as far as saying that, since voting is more like an expressive act than an instrumental one, the link between voters' economic interests and how they vote is "at best logically arbitrary". This early literature is reviewed by Mueller (1989).

More recently, Winter and Mouritzen (2001) capture some of the early ideas of Puviani: they consider how the process of information acquisition affects preferences for public policies by reducing both fiscal illusion (the underestimation of the costs of these services), and asymmetrical illusion (the fact that users of public services are more spending minded than ordinary taxpayers). Similarly, Martinelli (2006) attempts to formalize Down's notion of rationally ignorant voter. In his model, voters can acquire costly information about political platforms and a significant fraction of the populations rationally decides to remain ignorant as the number of voters increases.

Closer to the topic of this paper, Gavazza and Lizzeri (2009), show that transparency of fiscal policy affects the equilibrium outcomes of a probabilistic voting model. If voters perceive the current individual net benefits of a policy but not its aggregate implications, in equilibrium they reward myopic policies that provide wasteful redistributive transfers financed by government borrowing. In the context of social security, the same logic implies that individuals uninformed about the pension deficit, or who under-estimate the individual costs imposed by pay-as-you-go pensions on current taxpayers, are more likely to oppose reforms reducing the generosity of pension systems.

Several empirical papers have investigated the relevance of voters' information on a variety of political phenomena. To name a few: based on survey data from the 1997 British General Election Study, Larcinese (2007), shows that political knowledge has a sizeable influence on the probability of voting and that mass media play an important role in influencing political participation. Bartels (1996) argues that voters' misinformation is responsible for a relevant fraction of the incumbency advantage in US Presidential elections. Althaus (1998) shows that systematic differences in information across groups can create significant distortions in aggregate measures of collective opinions; if politicians respond to such surveys, this can have systematic effects on public policies. Gerber, Karlan and Bergan (2009) conduct a field experiment by providing free subscriptions to different types of newspapers to voters in the Washington DC area, and show that media readership has a strong effect on opinions and vote intentions.

Several papers have also examined the political determinants of pension reforms. In particular, Browning (1975) and Tabellini (2000) consider simple median voter models of social security. Ratts and Sorensen (2004) study the role of public employees as swing voters in the implementation of reforms in general. Wang and Davis (2003) consider the determinants of how countries choose between different types of pension systems. Krieger (2008) investigates preferences for pension reform and migration policies, suggesting that the contributions provided by migrants to the sustainability of pension systems are not perceived by the voters, and this results in a systematic bias against immigration.

A few empirical papers have focused in particular on the role of information in shaping policy preferences on pension reforms. Boeri, Boersch-Supan and Tabellini (2001), (2002), drawing on surveys of European citizens, pointed to i) a systematic overestimation of benefits and underestimation of costs of public pension systems and ii) a positive correlation between the support to reforms allowing for a partial privatisation of pension systems and a correct information about the net costs of social security. Blinder and Krueger (2004) studied opinion polls in the US, and also noted that more informed individuals are more likely to support pension reforms. Unlike in this paper, however, these earlier contributions assume that information is exogenous, and do not investigate the possible joint determination of policy preferences and information acquisition. An in depth analysis of this joint determination is one of the main contribution of this paper.

The outline of the paper is as follows. Section 2 illustrates the estimation strategy. The data are defined in section 3. Section 4 estimates the effect of information on policy opinions assuming that information is exogenous, using parametric and non-parametric (propensity score) methods. Section 5 relaxes the exogeneity assumption, and estimates a causal effect of information by means of joint maximum likelihood methods. Section 6 discusses the role played by the media in learning about the true costs of pension systems. Section 7 describes the results of a controlled experiment. Section 8 summarizes and concludes.

2. General estimation strategy

Our goal is to estimate an equation of the following type:

$$Y_i = F(X_i, I_i) + e_i \quad (1)$$

where Y_i is a binary variable that measures the policy opinions of individual i , X_i denotes his general attributes (such as age, education, gender, and so on), I_i is a measure of how informed he is about the costs and the functioning of the pension system, and e_i is an unobserved error term. We are interested in the effect of information on policy preferences.

We view information as determined by an equation of the following type:

$$I_i = G(X_i, Z_i) + u_i \quad (2)$$

where Z_i is a set of additional observable individual features that determine the information possessed by each individual, and u_i is an unobserved determinant of information.

Our first step is to assume that the error terms u and e are uncorrelated, and that Z_i is uncorrelated with both e_i and u_i . In this case, the model is recursive and we can treat information as exogenous in equation (1). We also check whether our estimates are robust to alternative assumptions about the functional form $F(\cdot)$. In particular, the effect of information on policy opinions could interact with other individual attributes, such as age or income. For instance, older vs young individuals have opposite economic interests on pensions, and so better information about the functioning of pension systems could induce opposite reactions in these two groups. To cope with this problem, we also estimate the effect of information by means of semi-parametric methods based on the propensity score. These estimates assume again exogeneity of information, after conditioning on the variables in X , but allow the functional form $F(\cdot)$ to be totally unrestricted.

Under additional assumptions, the recursivity assumption can be tested. We do it, and we reject it. This means that some unobserved individual features determine both the preferences and the information of individuals. Assuming exogeneity, in this case, would lead to biased estimates of the coefficients of interest.

To cope with this problem, we allow e to be correlated with Z and u , but we assume that e and u are jointly normally distributed and that $F(\cdot)$ and $G(\cdot)$ are linear. We also impose an exclusion restrictions and assume that the variables Z are uncorrelated with e , the error term of the policy opinions equation. Under these assumptions, and measuring information (I) also as a binary variable, we can jointly estimate (1) and (2) by means of maximum likelihood methods.

3. Data and background institutional information

3.1 The Italian pension system

Italy's pension system is running a deficit of about 3% of 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 2 base points in the next 25 years. Pensions are already taxing labour at a rate of roughly 45%, which crowds out complementary pensions and prevents the financing of other types of welfare payments (Italy is the EU country spending less on unemployment insurance and social assistance in spite of its relatively high jobless rate).

The main reason for the large budget are an early average retirement age (59 years) and a high effective replacement rate (86.3%). 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.

Italy, together with Japan, will experience a particularly pronounced change in the age structure of the population. The severity of the demographic transition in Italy has two causes: a sharp rise in life expectancy, partly due to a relatively low level in the 1970s, and an equally sharp drop in fertility (the fertility rate is currently between 1.2 and 1.3 children per woman). Consequently, the ratio of elderly to working age persons – the old age dependency ratio – will increase steeply. According to the latest OECD projections, the share of elderly (aged 65 and above) will exceed a quarter of the population in 2030, and the old age dependency ratio will almost double from 26.9 to 49.1 percent in 2030.

The threat of insolvency led to several pension reforms over the last two decades. In 1992, the so called Amato reform modified the indexation of pensions, linking them to CPI rather than to the average wage. In 1996 the so called Dini reform introduced a notionally defined contribution system, very similar to that introduced later in Sweden. These two reforms entailed a strong reduction in the generosity of pensions (with a reduction of about 25 base points of replacement rates with respect to the current, defined-benefit, system), they strengthened incentives for later retirement (there are actuarial reductions for retirement before the age of 65) and aligned the equilibrium contribution rate to the nominal rate. But the second reform was phased in very gradually, letting a large increase of pension spending to occur in the next 25 years, before the first generations with pensions computed entirely on the basis of the new rules retire. Moreover, some of the provisions of the law have not yet been implemented. This explains why pension reform is still on the policy agenda and debate.

3.1 *The survey*

The survey was carried out by Carlo Erminero & Co. in March 2004 over a representative samples of 1500 Italians aged 16 to 80 out by means of Computer Assisted Telephone Interviews (CATI). In addition to the standard set of socio-economic background variables such as age, education, and income, the questionnaire included questions that elicited the information and the preferences about the current pension systems and potential reform options. The questionnaire is in Annex 4. Compared to existing surveys on the same issues, we do not ask open questions (“Do you want more benefits?”), but we posed specific trade-offs among specific policy options (“Are you willing to pay x% higher contributions in order to obtain y% higher benefits”). These type of questions are in the tradition of “contingent valuation”, and we use the “stated preference” questionnaire techniques described in Louviere, Hensher and Swait (2000).

A common difficulty faced when asking about opinions is that answers to such questions are particularly prone to framing biases. For this reason, we tried to avoid suggestive formulations. Where we wanted to ascertain the individual’s answer on what is good for her or him, rather than on what she or he thinks is good for society at large, we took great care in describing the applicable situation for the respondent and the corresponding offers in detail. Finally, we tried to avoid hypothetical situation bias by anchoring the answers around realistic numbers, e.g., pension benefit levels, and by varying potential answers by socio-economic situation, e.g., between employed and unemployed.

Table 1 provides summary statistics of all the variables used in the paper. A precise definition of these variables is in Annex 3. We now turn to a discussion of the main variables of interest.

(insert Table 1 about here)

3.2 *Opinions on reforms*

Opinions on pension reform (the variable Y above) are summarized in a single variable. We exploit two questions eliciting opinions about hypothetical reforms that would reduce the size of the public pension system via an increase of the retirement age or a reduction of pension benefits (see Annex 4 for a precise formulation of the questions). The dummy variable *shrink* equals 1 if the respondent is *either* in favor of increasing the retirement age *or* of reducing pension benefits, independently of the answer provided to the other question. *Shrink* takes the value zero instead if the respondent is strictly against one of the two reforms *and* does not approve the other. Thus, we only focus on reforms that would reduce the size of pension expenditures, leaving aside pension reforms that increase social security contributions. Inspection of the first line of Table 1 indicates that less than 40 per cent of the individuals taking a stance on these reforms was favorable to either cutting benefits or increasing retirement age, or both.

About 50 individuals out of 1500 answer don't know / no answer to *both* questions. These individuals are treated as randomly missing throughout. To check that this censoring does not induce selection bias, Annex 1 reports estimates of a model with censoring on the binary variable *shrink*, with a Heckman two step procedure that allows for non-randomly missing observations. Annex 1 also estimates a multinomial logit specification, where the dependent variable can take three values (the third possible value being those that answer don't know / no answer to both questions). The results are similar to those displayed in Table 2 below.

3.3 Information

We measure information about individual and aggregate costs of pension systems (the variables *I* above) by means of several indicators.

Info_deficit is a dummy variable equal to one if the respondent is aware of the fact that the pension system is in deficit (the sum of contributions is lower than the sum of all pensions being paid) and zero otherwise. This variable is available for all respondents. As shown in Table 1, about 65% of the respondents know that the system is in deficit.

Info_payg is a dummy variable equal to one if the respondent understands that current pension benefits are paid out of social security contributions of currently working individuals, and zero otherwise. This question has only been asked to the respondent holding a job, and hence contributing to the public pension system at the time of the interview. Here, the data reveal more ignorance: about half of the respondents understand the basic functioning of a pay-as-you-go pension system. Such a low rate could also reflect a misunderstanding of the question, which however was quite straightforward (see Annex 4).

Finally, *Info_rate* is a dummy variable equal to one if the respondent is aware of the percentage of her/his wage that goes to pay pension contributions, adding up the contributions paid by employer and employee (we chose a large interval, 25%-40%, around the correct answer of 32,7%). Only employees were asked this question. Despite the generous interval for a correct answer, only about 25% of respondents answer correctly according to our definition and less than 10% state that the contribution rate is in the 30 to 35% range. Hence, there is huge misinformation about the true costs of public pensions¹. Note that here respondents are only the employees, not the public at large; presumably employees are more informed about what they pay into the system, compared to individuals out of the labor force or unemployed. Yet, more than one respondent out of two does not know the answer², another 12 per cent underestimates the true contribution rate while only about 4 per cent overestimates it.

¹ Jappelli, Padula and Bottazzi (2003) also found that Italians overestimate the level of benefits at retirement as they have not yet internalised the effects of the pension reforms of the 1990s.

² This is roughly the same percentage of "don't know" answers which was obtained asking the same question in 2000 and 2001 to a representative sample of Italians. Importantly, the percentage of

We also defined variables combining information on various dimensions. In particular, the variable *info2* is the sum of *info_deficit* and *info_payg*, and thus it measures the number of correct responses to the questions used to code these two variables. Finally, the variable *info3* is the sum of *info_deficit*, *info_payg* and *info_rate*, and thus measures the number of correct responses referring to these three variables. Clearly, given the pattern of the survey, *info2* and *info3* could only be computed for employed and employees respectively.

3.4 Other variables

Throughout the analysis, we condition on several observable features of the respondent that are likely to influence his policy preferences (the variables *X* above), such as his education, age, gender, type of occupation, ideology, and so on. All these variables are defined precisely in Annex 3³.

Finally, as instruments for information (the variables *Z* above) we rely on a variable *noclue*, which counts how many times the respondent answered “I don’t know” to some other questions of the survey. Some of the questions used to construct *noclue* elicit opinions about the sustainability of the pension system, the desirable size of the welfare state and the way in which politicians, unions, experts and EU bureaucrats represent the interests of respondents; the remaining questions seek to capture knowledge of specific features of the welfare state. The variable *noclue* ranges from 0 to 13, with a mean of 2 and a standard deviation of 2.2. Annex 2 lists the questions used to construct *noclue*. To assess the robustness of the results, we also decomposed the variable *noclue* in four components, counting how many times the respondent answered “don’t know” to groups of more similar questions (the variable *noclue* is thus the sum of these four components). As we shall see below, *noclue* and some of its components are strongly correlated with the indicators of individual information. Moreover, after conditioning on other individual features, there is no strong a priori reason why this variable ought to be systematically correlated with unobserved determinants of attitudes in favor or against pension reforms. If so, it can be used as valid instrument for information. We further discuss the identification assumption in context, when commenting on the results.

3.5 Earlier survey

In 2001 we conducted a very similar survey, also on a sample of 1500 individuals. Some of the questions are not worded in exactly the same way, so the two samples are not always exactly comparable. Nevertheless, to increase the number of observations, in

individuals underestimating the contribution rate is increasing over time. Thus, there is no indication that Italians are learning about the costs of their pension system.

³ In some specifications we also controlled for household income and our key results were not affected as the income variables are never statistically significant (perhaps because of multicollinearity with the education variable). Results are not displayed herein as there are many missing observations on income data, reducing the degrees of freedom in our estimates.

a few regressions we pool observations from both surveys. When we do so, we always include as a regressor a dummy variable for the year of the survey, both on its own and interacted with the information variable of interest. Annex 5 provides further detail on the precise difference in the wording of the relevant questions between the two surveys.

3.4 A Controlled experiment

In 2007 we conducted a similar survey, but on a smaller and non-representative sample of respondents, via internet. Here we performed a controlled experiment and, before proceeding with the usual questionnaire, one randomly selected half of the sample was asked to read a brief descriptive note about the Italian pension system. We describe this data set in context in section 7.

4. The model with exogenous information

As stated above, we start by studying the determinants of opinions on pension reforms, assuming that the attribute of being informed is exogenous. In terms of equations (1) and (2) in section 2, this amounts to assuming that the unobserved determinants of policy opinions and information (the error terms u and e) are uncorrelated. Hence, in this section we only report estimates to equation (1), neglecting equation (2).

4.1 Parametric estimates

Table 2 displays the probit estimates. The sample consists of all respondents in column 1, of employed individuals in column 2, and of employees in column 3. Column 4 pools together all respondents from the 2001 and 2004 questionnaires. The last three rows report the estimated coefficients of interest on the variables measuring information, namely *info_deficit*, *info2* and *info3*. The remaining rows report the estimated coefficients of the other controls. The estimated coefficients on the information variables are robust to alternative specifications of the set of controls.

(insert Table 2 about here)

In columns 1-3, not many control variables have statistically significant estimated coefficients. Ideology plays an important role in shaping preferences: individuals with a right wing ideology (*id_right*) are more likely to favour pension reforms. Those advocating a stronger role of trade unions in the pension reform debate (*unioninfl*) are more likely to oppose reforms, while those advocating a stronger role of experts (*expertinfl*) are more supportive. Individuals belonging to households where the main income earner has middle to low occupational status (the variables *bluecollar* and *whitecollar* include clerical and unskilled workers, and exclude professionals and middle to high managers) are less likely to favour reforms. Surprisingly, age does not appear to be a significant determinant of policy preferences, perhaps because of collinearity with other variables (such as “Dini”, a dummy capturing the young

generations involved in the less generous regime introduced with the Dini reform in 1996)⁴.

In column 4, that pools together the 2001 and 2004 surveys, more estimated coefficients are statistically significant. In particular, reforms are more likely to be opposed by pension recipients (*pensioners*) – but not by those who live in households where the breadwinner is retired (*headpens*). Individuals with a university degree (*university*) and who expect an imminent pension crisis (*crisis*) are in favour of reforms. Occupation status now turns out to have the opposite effect as in the 2004 survey only (the variables *whitecollar* and *bluecollar*), while right wing ideology (*id_right*) is confirmed to be in favour pension reforms. The *old* and the *young* are more likely to oppose reforms compared to the middle-aged (the default group is defined as those aged 35 to 54), but here the estimated coefficients are not very precisely estimated. The pseudo R2 (the improvement in the likelihood associated with the inclusion of the covariates in addition to a constant) is larger when the sample includes only the employed persons, and when both surveys are pooled together.

The important role of ideology in explaining policy opinions is consistent with the results of Blinder and Krueger (2004) for the US. Citizens' opinions seem to reflect ideological stereotypes or prejudices about whom to trust (whether experts vs trade union leaders), rather than economic self-interest. The finding that age does not systematically explain policy preferences on pensions is more surprising, however, and contradicts earlier findings by Boeri, Boersch-Supan and Tabellini (2001, 2002). This might be due to collinearity with other controls, such as being a pension recipient or the variable Dini that captures individuals with a sufficiently long history of contributions.

The main result displayed in Table 2 is that information emerges as an important determinant of policy preferences. Better informed individuals are more likely to favour reforms, rather than to oppose them. As indicated by the estimated marginal effects for the three key variables of interest reported in the table, knowledge of the fact that the pension system is in deficit increases the probability of being in favour of reforms in the reference group (non-employed middle-aged women with secondary educational attainments) by 6 to 8 per cent depending on the samples. Thus, information about sustainability, costs and functioning of social security has a non-neutral effect on policy opinions.

In interpreting this result, it is important to stress the content of information. Two out of three information variables refer to the costs (how much individuals pay into the system) or the sustainability of public pensions (whether the system is in deficit). As expected, individuals who are more ignorant about the costs or about the pension deficit are more likely to oppose reforms.⁵ The third information variable reflects basic

⁴ The correlation coefficient between young and Dini is .28, which is significant at the 5 per cent level; the correlation between Dini and old is -.38, which is also significant at 5 per cent .

⁵ Note that we control for whether individuals expect an imminent crisis in the pension system (the variable *crisis*). Thus, awareness of the deficit plays an important role in shaping public opinion, irrespective of whether they expect an imminent crisis.

understanding of the pay-as-you-go system. A priori the effect of this variable could go either way. According to the estimates, individuals who confuse pay-as-you-go with a fully-funded system are also more likely to oppose reforms. Perhaps this can be interpreted as evidence that individuals who mistakenly believe that their pensions are paid out of their own past savings feel more entitled to receive higher compensations. Another interpretation is that individuals are less concerned about the unsustainability of a public pension system if they perceive that it operates as a funded scheme.

Our definition of the variable *Shrink* also raises a subtle issue. By construction, someone who approves of one of the two hypothetical reforms and replies don't know / no answer to the second option is classified as in favor of reforms (*Shrink* =1). Conversely, someone who rejects one reform and replies don't know / no answer to the second one is classified as being against the reforms (*Shrink* =0). It turns out that the distribution of don't know /no answer is not symmetric around these two possible combinations. In our sample the pair "reject & don't know" is more frequent than the pair "approve & don't know". This pattern could introduce a spurious correlation between lack of information and rejection of reforms. To cope with this problem, we have also redefined the variable *Shrink* excluding don't know and no answers to *either* the question on retirement age *or* that on pensions; thus we have redefined *Shrink* =1 if the respondent approves both reform options, or approves one and rejects the other; and we have redefined *Shrink* = 0 if the respondent rejects both reforms. Now the number of missing observations increases from about 50 to about 200. To check that these missing individuals don't create a selection bias, we have then re-estimated the model with a Heckman two-step procedure that allows for censored observations. The results (reported in Annex 1, Table A2) confirm those reported in Table 2.

Finally, a natural question is whether the effect of information varies with individual characteristics, such as age, education and ideology. A priori, knowledge about a redistributive program like pensions could have very different implications for policy preferences, depending on the individual situation. In the last column of Table 2 we interacted the *info_deficit* variable with other controls age and education. We carried out this exercise in the pooled sample, in order to gain degrees of freedom. Information increases the support to pension reforms more in 2004 than in 2001, but none of the other interactions is statistically significant (results are similar with other interaction terms, not shown). Nevertheless, there is a limit to the kinds of interactions that can be imposed on the data parametrically. The next subsection thus discusses more general estimation methods.

4.2 Matching estimates

To relax linearity or other parametric functional forms, here we estimate the effect of information on policy opinions by means of semi-parametric methods. In this subsection we retain the assumption of exogeneity of information, or conditional independence as defined in the literature on the treatment effect: after conditioning on the variables discussed below, information is uncorrelated with other unobserved determinants of policy opinions.

Since these non-parametric methods are not very efficient, and their small sample properties not well known, we confine attention to the full sample of almost 1500 individuals for the 2004 survey. Information thus refers to knowing that the pension system is in deficit (*info_deficit*). Policy opinions are measured by the dichotomous variable *shrink*, that disregards the don't know / no answer to both reform dimensions.

As a first step, we regress *info_deficit* on a set of control variables, estimating by probit an equation including all the other covariates used in column 1 of Table 2. Our maintained assumption is that, after conditioning on these variables, information is exogenous with respect to policy opinions. The results are reported in Table 3a. We explain relatively little variation in the dependent variable (the pseudo R2 is about 0.05), but as expected more educated individuals are more informed, and so are those who would like to rely more on the opinions of experts and who expect an imminent pension crisis.

(Insert Table 3a about here)

Next, from this first stage estimation, we compute the predicted probability of being informed, for every individual in our sample. This predicted probability is called the “propensity score”. It measures how likely each individual is of receiving the “treatment” of being informed. Some of these individuals are actually informed (for them *info_deficit* equals one), while others are not (*info_deficit* equals zero). To reduce the role of outliers, we drop extreme observations, imposing the common support assumption.⁶ This leaves us with about 1450 observations. Figure 1 illustrates the estimated propensity score for the remaining informed and uninformed individuals. The distribution is shifted to the right for the informed individuals, as it should be, but the probability mass is generally high over a large range of values for the propensity score.

(insert Figure 1 about here)

Table 3b summarizes the distribution of the relevant covariates in the sample of informed and uninformed individuals, before and after matching on the propensity score. Specifically, with respect to columns 3 and 4, the first row (labeled U for Unmatched) reports the unweighted sample means for each covariate, while the second row (labeled M for Matched) reports the weighted means corresponding to the matching procedure described below, after imposing the common support. Column 5 reports the standardized bias, namely the difference of the sample means in the informed and uninformed subsamples (before and after matching), as a percentage of the square root of the average of the sample variances in both groups. Finally, column 6 reports the reduction in the standardized bias obtained by the matching. Clearly, many covariates have different means in the two subsamples (in particular the variable *crisis*, but also age, education, and several others). The matching procedure achieves a substantial

⁶ That is, after ranking individuals based on their propensity score, we drop all uninformed individuals with propensity score higher than the first informed individual; and we drop all informed individuals with propensity score lower than the last uninformed individual.

equalization of the sub-sample means, and reduces the standardized bias for all variables included as covariates in the estimation of the propensity score.

(Insert Table 3b about here)

Our final step is to estimate the effect of information on policy opinions, by comparing the values of the dependent variable *shrink* for informed and uninformed individuals, but giving more weight to the comparison of individuals with similar propensity scores. This semi-parametric method estimates the average treatment effect, and thus it is not directly comparable to the estimated coefficient of *info_deficit* reported in Table 2 under the probit specification. Compared to the estimates reported in the next section, here we do not make any assumption about the second stage functional form.

Table 3c reports the estimated coefficient of interest, for three alternative estimators: the average effect of information on the informed individuals, on the uninformed individuals, and in the whole sample. Standard errors are estimated analytically, assuming independent observations and neglecting that the propensity score is measured with error.⁷

(insert Table 3c about here)

The effect of information is positive and statistically significant. The results are robust to alternative set of covariates included in the first stage to estimate the propensity score. Very similar results are also obtained for the combined sample referring to the 2001 and 2004 surveys together, or with other matching estimators (results not shown). Overall, the matching estimates confirm that the positive average effect of information on willingness to reform is robust to any possible kind of interaction.

5. Endogenous information gathering

In this section we first test the exogeneity of the information gathering process. Once established that we can reject it, we cope with joint determination of policy opinions and information by estimating a joint model of policy opinions and information by means of maximum-likelihood, assuming a joint normal distribution.

5.1 Is information exogenous?

The estimates presented in section 4 assume that we have a recursive model, and in particular that the residuals of the information gathering equation (2) are uncorrelated with those of the policy opinions equation (1). As explained in Wooldridge (2002),

⁷ The matching procedure is kernel matching, based on the Epanechnikov measure and with bandwidth of 0.06 (i.e. we give zero weight to all controls whose estimated propensity score differs by more than 0.06 from that of the treated individual). Estimation is implemented by the *psmatch2* procedure in Stata – see Leuven and Sianesi (2003) for more information.

when dealing with *binary* endogenous variables the exogeneity assumption can be tested by means of a simple two-steps procedure. First we run a linear regression of equation (2) and save the residuals \hat{u}_i . Next we estimate a probit model of Y_i on X_i , I_i and \hat{u}_i and we use the t-statistics on \hat{u}_i as a test of the null hypothesis that information is exogenous. Importantly this test is valid without assuming normality or homoskedasticity of u_i and can be applied even if I_i is a binary variable.

These t-statistics are displayed in Table 4. They all reject the exogeneity of information in the regression on policy opinions for all samples and measures of information. The estimated coefficient of \hat{u}_i (the variable *resid* in Table 4) is always negative, which implies that the correlation between the error terms of (1) and (2) is also negative. This in turn suggests that the estimated coefficients of the information variables reported in Tables 2 and 3, under the exogeneity assumption, are likely to be biased downwards. In other words, these estimated coefficients provide a lower bound for the effect of information on the willingness to reform. We now deal with this endogeneity problem.

(insert Table 4 about here)

5.2 Joint estimation by maximum likelihood

To cope with the joint determination of information and policy opinions, we jointly estimate equations (1) and (2) by maximum likelihood methods, exploiting the fact that we can measure both policy opinions and information as binary variables. To measure information as a binary variable, in the sample of employed individuals and of employees, we replace the comprehensive variables *info2* and *info3* with the binary variables *info_payg* and *info_rate* (each available for different subsamples of respondents). Rather than measuring the comprehensive impact of information, thus, these variables measure the effect of possessing specific bits of information. The correlogram of *info_payg*, *info_rate*, *info2* and *info3* always displays positive and statistically significant coefficients, except in the case of the correlation between *info_rate* and *info2*.

Identification is achieved both through a functional form assumption and by an exclusion restriction. First, we assume that the error terms in (1) and (2) are jointly normally distributed, and that the equations $F(\cdot)$ and $G(\cdot)$ are both linear. Second, we assume that the variable *noclue* and its subcomponents are correlated with information acquisition but not with the propensity to accept reforms. In other words, our second identifying assumption is that, after controlling for all the other individual attributes, the variable *noclue* influences policy opinions only through its impact on information (as we measure it).

As already anticipated, the variable *noclue* reports the number of times the respondent answered don't know / no answer to 13 questions about the desirability of alternative broad policy issues and reform options (other than the two questions on retirement age and the generosity of pension benefits that were used to construct our dependent variable, *shrink*). Thus, this variable measures how strongly held are the respondent's

opinions about other aspects of pension reforms: the higher the value of *noclue*, the less strongly held are his opinions. Again, this variable is neutral with respect to the desirability of reforms, and about whether they should take the form of higher contributions or of a less generous pension system. We also decomposed the variable *noclue* in four components referring to different subsets of questions (the variables *noclue_sus* – *noclue_rep* defined in Annex 4), maintaining the same assumption that all these components can be excluded from the policy opinion regression.

Table 5 reports the results. The information equation includes all the controls also included in the policy opinions equation, plus the variable *noclue* (columns 1-3) or its subcomponents (columns 4-6). The variable *noclue* (or its components) is instead excluded from the policy opinion equation. As shown in the upper panel of Table 5, the variable *noclue* is a strong predictor of individual information. Less informed individuals are also more likely to answer don't know / NA to several other questions in the survey. Note from columns 4-6 that some components of the variable *noclue* are more strongly correlated with information than others, depending on the sample and on the specific content of information. The lower panel of Table 5 shows that more informed individuals are more likely to favor reforms, and the effect of information is statistically significant. The coefficients are larger and the standard errors smaller compared to the simple probit regression and the propensity score matching estimators, a further confirmation that the estimates that assume exogeneity are biased downwards. Note that the estimated coefficient of the information variable is very similar in all columns of Table 5, despite the different definitions of what information is about, the different samples of respondents, and the different definitions of the variable *noclue*.

(insert Table 5 about here)

By definition, the dependent variable *shrink* does not allow for don't know / no answer to *both* options for pension reform; moreover, *shrink* is defined so that a don't know / no answer to *one* policy option only can be associated both with *shrink* equal one and to *shrink* equal zero. Nevertheless, it so happens that individuals who reply don't know / NA to one reform option are also more likely to reject the other reform option, rather than approve it. As a result, the frequency of don't know / NA to one reform option is higher when *shrink* equals 1 than when *shrink* equals 0. This pattern in the data could imply a violation of our identifying restriction, that the variable *noclue* can be excluded from the policy option equation.

Specifically, suppose that some individuals are more likely to say don't know / NA to all questions. For these individuals, by construction the variable *noclue* takes a high value. But these same individuals are also more likely to have *shrink* equal 1, because of the non-symmetric pattern of don't know / NA answers noted above. Hence a violation of our exclusion restriction.

To deal with this problem, we have dropped from the sample all those individuals who reply don't know / NA to at least one reform option. Thus, the variable *shrink* now takes a value of 1 for those who approve both reform options, or approve one reform

option and explicitly reject the other. And *shrink* takes a value of 0 for those who explicitly reject both reform options. Treating the missing observations as randomly missing, we have then re-estimated equations (1) and (2) by joint maximum likelihood on this smaller sample.

The results are displayed in Table 6. Compared to Table 5, we have lost from about 70 to about 200 observations, depending on the columns. Nevertheless, the results remain similar. In particular, in the lower panel of Table 6, information continues to have a highly significant effect on the propensity to accept reforms, and the estimated coefficients remain stable. Note however that, in the upper panel, now the variable *noclue* loses some of its explanatory power with regard to information in some of the samples.⁸

(insert Table 6 about here)

We close this section with a caveat. The instrumental variable *noclue* excluded from the policy opinions equation captures the inability or unwillingness of the respondent to answer other questions of the survey. We assume that whatever makes individuals systematically less able or willing to respond is uncorrelated with unobserved determinants of policy opinions. This is a weaker assumption than that of exogeneity of the information variables themselves. But it is similar in nature, in that it assumes that some unobserved individual features of the respondent is not influencing both policy opinions and the ability to answer some questions in the survey. Note however that identification through functional form only (such as the exogeneity test in subsection 5.1) has similar implications, namely that when we assume that information is exogenous we under-estimate (rather than over-estimate) the causal effect of information on willingness to reform.

A more reliable identification strategy would have been to rely on instrumental variables referring to the supply (rather than the demand) of information. Unfortunately, we could not find any. We collected some data referring to the supply of information at the local level, such as the number of copies sold by economic newspapers in the different provinces, or the local turnout in national elections. None of these variables turned out to be significantly correlated with our measured of being informed, however. As further discussed in section 6, probably this is because we could only draw on variation across provinces and our sample size (1,500 individuals) does not allow for small areas of representation.

6. Involvement in public debate and information

Overall, the estimates reported in the previous section are robust to the estimation method and to the sample. They all confirm the presence of a significant effect of information on the willingness to accept pension reforms. But where does information come from, and how can its diffusion be increased? In this section we briefly address

this issue. In particular, we ask whether more informed individuals have enjoyed a greater exposure to media coverage of pension issues.

In the months preceding the interviews, there was extensive media coverage of pension issues, as the government announced its intention to carry out a new reform of the Italian pension system (which was then approved by Parliament in July 2004). Two questions in the survey elicited the degree of involvement of respondents in this public debate. The first question asked: “during the last months did you read newspaper articles or watch TV programs concerning the pension reform debate?” - the variable *involvement*. A yes answer was reported by roughly two-thirds of respondents. The second question measured the degree of involvement, by classifying the level of attention to the debate in four categories (high, medium, low, none) – the variable *attention*. Almost half the respondents reported a high to medium level of attention and another 35% a low level. Overall, these questions confirm a strong involvement of public opinion in the pension reform debate.

Table 7 reports probit and propensity score matching estimates of the effects of *involvement* and *attention* on information about the financing (*info_deficit*), the functioning (*info_payg*) and the individual cost (*info_rate*) of the pension system. Throughout we assume a recursive model, with the variables *involvement* and *attention* assumed to be exogenous in the information equation (i.e. uncorrelated with the unobserved determinants of individual information). The Probit regressions (reported in the top panel) included, in addition to involvement and coverage, the same covariates used in the regression of information discussed in section 5 (the upper panel of Tables 5 and 6) and a variable (*press*) capturing the number of copies sold by national newspapers per inhabitant in each province. The variables *involvement* and *attention* are never statistically significant, except for a mild role of *attention* when the focus is on the sample of employees and information refers to contributions paid (*info_rate*). Propensity score-matching estimates (confined to the effect of *involvement* on the *info_deficit* variable covering the full sample) also confirm that the estimated coefficients are not statistically significant - see the lower panel of Table 7. Among the variables positively affecting *info_deficit* in the first-stage probit regression, we find *expertinfl*, which captures those willing to give a stronger role the experts in the pension reform debate. As this variable also positively affects the support to pension reforms (see Section 4), it is likely to capture beliefs (experts are often favorable to reforms dealing with the ageing of population) more than neutral demand for information on these issues.

(insert Table 7 about here)

Overall, these last estimates suggest that the public debate has a low informational content. Individuals that declare to be more exposed to media coverage do not appear to be more informed about basic features of the pension system. One interpretation of this result is that individuals read newspaper articles or watch TV programs on the issue just to confirm their priors, more than to collect new information. Alternatively, our coding of individual involvement and attention to the media could be measured with error.

7. A controlled experiment

To dispel remaining doubts about that the correlations presented above can really be interpreted as causal, we have run a controlled experiment with a different procedure, on a non-representative and smaller sample of individuals. In the Spring of 2007, we interviewed 267 individuals through internet. They are aged between 20 and 45, and belong to a sample of Internet and cell phone Italian users (Ce&Co panel). They were asked to respond to the same questions described above on policy reforms and on the factual features of the Italian pension system. Before reading the questionnaire, one half of the sample, randomly selected, was asked to read a brief description of the Italian pension system containing information that would enable them to answer the factual questions in the questionnaire (see Annex 6).

Table 8 describes the basic features of the two subsamples. Individuals who were asked to read a brief description of the Italian pension system on average are more informed and more inclined to accept the proposed reform options. They are also more aware of the risk of a pension crisis. The individual features of the two samples are very similar, except that those with a university degree happen to be more represented in the sample that was asked to read the description.

(insert Table 8 about here)

Table 9 estimates the effect of information on policy opinions, with multivariate analysis and a specification similar to that reported above for the larger sample. Throughout we control for gender, age, education (including having a university degree), and employment status. The dummy variable *read* equals 1 for the sub-sample who was asked to read the description, and 0 otherwise.

Columns (1) and (2) confirm that the results of Table 8 are robust to controlling for these individual features: having read the description of the pension system increases both information and the willingness to accept reforms, when information is measured by the aggregate indicators *info* and opinions on policy reforms are measured by the variable *shrink_bis* defined above. Column 3 estimates the effect of information on policy opinions, using the variable *read* as an instrument for information. Thus, the identifying assumption is that all the effects of having read the description of the pension system affect opinions exclusively through information as measured by the variable *info*. Again, the estimate suggests a causal effect of information on policy opinions.

Interestingly, the IV estimates concerning the effect of information on policy opinions are much larger than the corresponding OLS estimates obtained under the assumption that the variable *info* is exogenous, suggesting that the OLS estimates are biased downwards. This is what we had found in the larger sample, when using the variable *noclue* as an instrument for *info*. Although we cannot offer an intuitive explanation for

this finding, it is reassuring that the we obtain similar qualitative results in this controlled experiment where the validity of the instrument is less open to doubt.

Finally, columns 4-6 repeat after controlling also for whether the respondent considers a crisis of the pension system as imminent. The variable *crisis* could also reflect being exposed to the treatment of having read the description, but the results remain very similar.

(insert Table 9 about here)

Since the variable *read* here corresponds to a controlled experiment, there is no issue of unobserved heterogeneity or of omitted variables influencing both opinion and information. The estimated coefficient of this variable in columns 1 and 2 (or 5 and 6) certainly captures the causal effect of being exposed to the description of the Italian pension system on the reported opinions or informations. There is, however, an unavoidable issue of interpretation. Although the description is factual and unloaded with normative suggestions, we cannot rule out the possibility that exposure to treatment here conveys more than just factual information, but also forces the respondent to think more carefully about his answers, or provides additional information besides that captured by the variable *info*. Whatever the precise interpretation, exposing individuals to the facts of the pension system has a significant and relevant effect on their views about specific reforms options.

8. Concluding remarks

The main result of this paper is the finding that more informed individuals are more willing to accept reforms that reduce the generosity of the pension system. The correlation between information and willingness to reform does not seem to reflect unobserved joint determinants of information and policy opinions. A variety of estimation methods under specific identifying assumptions suggests that information might have a causal effect on willingness to reform. The effect is not negligible. Our lower bound estimates (those assuming exogeneity of information) indicate that, for a middle-aged woman located at the centre of a political spectrum, the probability of supporting reforms increases by 8 percent when she is informed that the pension system is in deficit. When we allow for joint endogeneity of information and policy opinions, the effect is much larger than that.

This result has a simple but important policy implication. Pension reforms are politically very difficult. One reason why they are so difficult is also because of sheer ignorance by citizens at large about the costs, sustainability and basic functioning of the pension system. To create consensus in favor of reforms, governments ought to devote more effort to spread information about the consequences and costs of public pensions.

The negative results about the effect of media exposure on information suggest that this task cannot just be delegated to the media, however. Governments ought to find better

and more direct ways of spreading information. As also suggested by our controlled experiment, one such device would be for governments to provide neutral notes to contributors, or “pension statements” explaining to citizens how much they are paying into the system, what they will be entitled to, and whether the system is currently in deficit or in surplus. In most European countries with unreformed pension systems – including France, Germany, Italy and Spain -- it is still extremely cumbersome to know the amount of individual contributions and to project future pension entitlements under a standard career profile and alternative retirement ages. In Sweden, by contrast, “orange envelopes” are mailed every year to all contributors, providing basic information on the functioning of the pension system, a glossary, a statement of past contributions and projections of the annual entitlements under three retirement ages and for two assumptions on economic growth.⁹ Our results suggest that this practice could have beneficial effects. If the large countries of continental Europe were to follow the Swedish example, and if this indeed enabled citizens to become more informed about the features of their pension systems, the political feasibility of pension reforms could rise.

⁹ One could speculate that such statements are never read, but that is not true. According to a survey carried out in 2003 among a representative sample of contributors to the Swedish pension system (Sundén, 2003), almost everybody was aware of the envelope and about 2/3 of contributors opened and read at least part of the material. Among the latter group, almost 7 out of 10 looked at the benefit projection and 1 out of 4 compared the information in the orange envelope from one year to the next.

Table 1. Summary statistics

Variable	Obs	Mean	Std. Dev.	Min	Max	Median
Shrink	1443	0.376	0.484	0	1	0
info_deficit	1500	0.655	0.475	0	1	1
info_payg	779	0.524	0.500	0	1	1
info_rate	627	0.268	0.443	0	1	0
info2	779	1.240	0.719	0	2	1
info3	627	1.496	0.843	0	3	2
Male	1500	0.469	0.499	0	1	0
Married	1500	0.722	0.448	0	1	1
Old	1500	0.31	0.463	0	1	0
Young	1500	0.219	0.413	0	1	0
University	1500	0.154	0.361	0	1	0
Compulsory	1500	0.386	0.487	0	1	0
Children	1500	0.287	0.452	0	1	0
Pensioner	1500	0.224	0.417	0	1	0
Town	1500	0.531	0.499	0	1	1
City	1500	0.257	0.437	0	1	0
Whitecollar	1500	0.235	0.424	0	1	0
Bluecollar	1500	0.117	0.322	0	1	0
Headpens	1500	0.366	0.482	0	1	0
Planearly	1500	0.134	0.341	0	1	0
Dini	1500	0.493	0.500	0	1	0
id_left	1500	0.173	0.379	0	1	0
id_right	1500	0.162	0.369	0	1	0
Crisis	1500	0.641	0.480	0	1	1
Involvement	1500	0.712	0.453	0	1	1
Attention	1500	2.623	0.898	1	4	3
Expertinfl	1500	0.316	0.465	0	1	0
Unioninfl	1500	0.515	0.499	0	1	1
Tradeunion	1500	0.278	0.448	0	1	0
Noclue	1500	2.004	2.208	0	13	1

Table 2. Probit regression

Sample	2004	2004	2004	2001&2004
	All	Employed	Employees	All
Dependent variable	(1)	(2)	(3)	(4)
	shrink	shrink	shrink	Shrink
Male	0.30 (0.07)***	0.27 (0.10)***	0.13 (0.12)	0.36 (0.04)***
Married	-0.13 (0.10)	-0.22 (0.13)	-0.27 (0.15)*	0.02 (0.06)
Children	-0.15 (0.09)	-0.11 (0.12)	-0.06 (0.14)	0.01 (0.05)
Young	0.03 (0.10)	0.11 (0.14)	0.11 (0.16)	-0.11 (0.06)*
Old	-0.13 (0.13)	-0.21 (0.19)	-0.04 (0.21)	-0.16 (0.09)*
University	0.18 (0.10)*	0.11 (0.13)	0.19 (0.15)	0.19 (0.06)***
compulsory	0.02 (0.08)	0.08 (0.13)	0.01 (0.14)	-0.02 (0.08)
pensioner	0.16 (0.14)			-0.49 (0.08)***
whitecollar	-0.31 (0.09)***	-0.46 (0.12)***	-0.15 (0.12)	0.54 (0.06)***
bluecollar	-0.31 (0.12)**	-0.48 (0.15)***		0.51 (0.07)***
headpens	0.01 (0.10)	0.13 (0.15)	0.02 (0.16)	0.29 (0.06)***
Planearly	-0.16 (0.11)	-0.19 (0.13)	-0.15 (0.14)	-0.04 (0.06)
Dini	-0.02 (0.08)	-0.13 (0.14)	-0.16 (0.15)	
id_left	-0.11 (0.10)	0.00 (0.13)	-0.03 (0.14)	-0.03 (0.06)
id_right	0.40 (0.10)***	0.57 (0.13)***	0.64 (0.15)***	0.23 (0.06)***
Crisis	0.10 (0.07)	0.11 (0.11)	0.07 (0.12)	0.23 (0.05)***
tradeunion	0.10 (0.08)	0.17 (0.11)	0.21 (0.12)*	0.08 (0.05)
Unioninfl	-0.27 (0.07)***	-0.35 (0.10)***	-0.30 (0.11)***	
Expertinfl	0.20 (0.08)***	0.27 (0.11)**	0.29 (0.12)**	
info_deficit	0.21 (0.08)***			0.17 (0.07)**
	0.08 ^z			0.07 ^z
dummy2004*infodeficit				0.10 (0.06)*
old*infodeficit				0.12 (0.10)
compulsory*infodeficit				-0.16 (0.10)
info2		0.16 (0.07)**		
		0.06 ^z		
info3			0.12 (0.07)*	
			0.04 ^z	
Observations	1443	755	606	3943
Pseudo R2	0.06	0.10	0.07	0.10

Notes: Standard errors in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1%;
^z marginal effect on reference group (dprobit estimation).

Table 3a Probability of being informed

Dependent variable: info_deficit = 1

Variable	Coeff.	Variable	Coeff.
Male	-0.08 (0.12)	Capopens	-0.01 (0.17)
Married	-0.26 (0.17)	Planearly	-0.05 (0.18)
Young	-0.20 (0.18)	Dini	0.16 (0.13)
Old	-0.24 (0.2)	Id_left	0.07 (0.16)
University	0.34 (0.18)*	Id_right	0.29 (0.17)*
Compulsory	-0.22 (0.13)	Tradeunion	-0.1 (0.14)
Children	0.09 (0.15)	Unioninfl	0.13 (0.12)
Pensioner	-0.11 (0.23)	Expertinfl	0.39 (0.13)***
Whitecollar	0.16 (0.16)	Crisis	0.77 (0.12)***
Bluecollar	0.07 (0.2)		
Pseudo R2	0.05	Observations	1443

Notes: Standard errors in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1%;
^a marginal effect on reference group (dprobit estimation).

Table 3b Test of the balancing property

(1)	(2)	(3)	(4)	(5)	(6)
Variable	Sample	Mean		Std. bias	% reduced bias
		Informed	Uninformed		
Male	U	0.47	0.47	-1.4	
	M	0.47	0.47	0.3	79.7
Married	U	0.69	0.77	-17.2	
	M	0.70	0.70	-0.3	98.2
Young	U	0.23	0.19	11.6	
	M	0.23	0.25	-3.1	73.3
Old	U	0.26	0.4	-29.0	
	M	0.27	0.26	1.7	94.0
University	U	0.18	0.11	20.0	
	M	0.16	0.16	0.9	95.5
Compulsory	U	0.34	0.48	-28.2	
	M	0.34	0.34	0.8	97.1
Children	U	0.30	0.26	10.0	
	M	0.30	0.31	-1.6	83.8
Pensioner	U	0.19	0.29	-24.5	
	M	0.19	0.19	-0.2	99.3
Whitecollar	U	0.26	0.18	18.7	
	M	0.25	0.24	2.6	85.9
Bluecollar	U	0.12	0.11	3.4	
	M	0.12	0.12	0.1	96.8
Headpens	U	0.33	0.43	-19.4	
	M	0.33	0.34	-1.5	92.4
Planearly	U	0.13	0.13	0.5	
	M	0.14	0.15	-3.3	-515.7
Dini	U	0.53	0.43	19.6	
	M	0.52	0.53	-2.1	89.3
Id_left	U	0.18	0.17	2.8	
	M	0.18	0.17	2.5	12.2
Id_right	U	0.17	0.14	7.1	
	M	0.16	0.16	1.7	76.2
Tradeunion	U	0.27	0.30	-6.1	
	M	0.27	0.29	-2.6	57.0
Unioninfl	U	0.53	0.48	9.7	
	U	0.54	0.47	12.9	-32.6
Expertinfl	M	0.35	0.24	23.6	
	U	0.35	0.25	21.9	7.3
Crisis	M	0.71	0.50	43.4	
	U	0.70	0.69	1.5	96.4

Notes: U refers to unmatched sample (before imposing the common support and with no matching). M refers to the matched sample (after imposing common support and with matching based on the propensity score). Standardized bias refers to the difference of the sample means in the informed and un-informed subsamples (before and after matching), as a percentage of the square root of the average of the sample variances in both groups.

Table 3c - Propensity score matching

Outcome	Treatment	Estimators	Coeff	t stat
Sample All – 2004				
Shrink	info_deficit	Average treatment on treated	0.07 (0.03)**	t = 2.40
		Average treatment on untreated	0.07	-
		Average treatment effect	0.07	-

Note: Analytical standard errors in parentheses. ; * significant at 10%; ** significant at 5%; *** significant at 1%)

Table 4 Exogeneity test

Sample	2004 All	2004 Employed	2004 Employees
Dependent variable	(1) shrink	(2) shrink	(3) shrink
info_deficit	5.00 (1.32)***		
info2		3.59 (0.91)***	
info3			2.99 (0.71)***
Resid	-4.80 (1.32)***	-3.46 (0.91)***	-2.90 (0.72)***
Observations	1443	755	606
Pseudo R2	0.07	0.11	0.09

Notes: Standard errors in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1%. Not reported variables: male, married, old, young, university, compulsory, children, pensioner (only for sample one), whitecollar, bluecollar (only for sample one and two), headpens, planearly, dini, id_left, id_right, crisis, expertinfl, tradeunion, unioninfl.

Table 5. Maximum likelihood joint-probit estimation

Including DK\NA

Sample	2004	2004	2004	2004	2004	2004
	All	Employed	Employees	All	Employed	Employees
	(1)	(2)	(3)	(4)	(5)	(6)
	info_deficit	info_payg	info_rate	info_deficit	info_payg	info_rate
Noclue	-0.05 (0.02)***	-0.08 (0.02)***	-0.11 (0.03)***			
noclue_sus				-0.07 (0.05)	-0.13 (0.07)*	-0.02 (0.09)
noclue_size1				-0.06 (0.04)	-0.16 (0.06)***	-0.19 (0.07)**
noclue_pos1				0.01 (0.05)	-0.13 (0.08)*	-0.04 (0.08)
noclue_rep				-0.05 (0.02)**	-0.00 (0.04)	-0.09 (0.04)*
Observations	1443	755	606	1443	755	
Sample	2004	2004	2004	2004	2004	2004
	All	Employed	Employees	All	Employed	Employees
	(1)	(2)	(3)	(4)	(5)	(6)
	Shrink	shrink	shrink	shrink	Shrink	shrink
info_deficit	1.50 (0.12)***			1.52 (0.09)***		
info_payg		1.50 (0.09)***			1.48 (0.10)***	
info_rate			1.65 (0.11)***			1.17 (0.07)***
Observations	1443	755	606	1443	755	606

Notes: Standard errors in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1%;
 Not reported variables: male, married, old, young, university, compulsory, children, pensioner (only for sample one), town, city, whitecollar, bluecollar (only for sample one and two), headpens, planearly, dini, id_left, id_right, crisis, tradeunion, unioninfl, expertinfl.

Table 6. Maximum likelihood joint-probit estimation

Excluding DK\NA

	All (1)	Employed (2)	Employees (3)	All (4)	Employed (5)	Employees (6)
	info_deficit	info_payg	info_rate	info_deficit	info_payg	info_rate
noclue	-0.03 (0.01)	-0.05 (0.02)**	-0.07 (0.04)			
noclue_sus				-0.08 (0.06)	-0.14 (0.08)*	0.08 (0.14)
noclue_size1				-0.10 (0.04)**	-0.20 (0.07)**	-0.01 (0.11)
noclue_pos1				0.08 (0.04)*	-0.08 (0.12)	-0.17 (0.17)
noclue_rep				-0.00 (0.02)	0.04 (0.05)	-0.14 (0.08)*
Observations	1233	667	534	1233	667	534
	All (1)	Employed (2)	Employees (3)	All (4)	Employed (5)	Employees (6)
	Shrink	shrink	shrink	Shrink	Shrink	shrink
info_deficit	1.26 (0.35)***			1.72 (0.08)***		
info_payg		1.78 (0.10)***			1.76 (0.11)***	
info_rate			1.62 (0.93)*			1.16 (1.18)
Observations	1233	667	534	1233	667	534

Notes: Standard errors in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1%;
 Not reported variables: male, married, old, young, university, compulsory, children, pensioner (only for sample one), town, city, whitecollar, bluecollar (only for sample one and two), headpens, planearly, dini, id_left, id_right, crisis, tradeunion, unioninfl, expertinfl.

Table 7. Involvement in the public debate and information

	Dependent variables		
	info_deficit (sample: all)	info_payg (sample: employed)	info_rate (sample: employees)
Probit estimations:			
Attention	0.04 (0.05)	0.00 (0.06)	0.16 (0.08)**
Involvement	0.02 (0.09)	0.16 (0.12)	0.08 (0.16)
Press	0.74 (1.10)	2.34 (1.48)	-0.49 (1.82)
Observations	1500	779	627
Pseudo R2	0.06	0.02	0.07
Outcome: info_deficit (sample: all)			
	Coefficient	t test	
Propensity score matching:			
involvement (<i>treatment</i>):			
- Nearest Neighbor Matching method (random draw version)	-0.007 (0.039)	t = -0.168	
- Nearest Neighbor Matching method (equal weights version)	-0.006 (0.039)	t = -0.160	
- Stratification method	0.030 (0.027)	t = 1.083	

Notes: Standard errors in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1%.
Not reported variables: married, children, young, old, university, compulsory, city, town, pensioner, whitecollar, bluecollar, capopens, planearly, dini, id_left, id_right, crisis, tradeunion, unioninfl, expertinfl, news, attention, press.

Table 8. Controlled experiment: sample features

	Unread	Read	Difference
Individual Features			
Male	54.88%	55.22%	0.34%
Young	58.21%	58.65%	-0.44%
University	29.85%	42.21%	-12.25%**
Compulsory	9.70%	7.52%	2.18%
Unemployed	5.22%	4.51%	0.71%
Employees	63.43%	63.16%	0.27%
Self employed	17.91%	18.04%	-0.13%
Information			
Info_deficit	67.91%	86.47%	-18.55%***
Info_rate	23.13%	57.14%	-34.01%***
Info_payg	28.36%	22.56%	5.8%
Crisis	95.52%	99.24%	-3.72%**
Policy Opinions			
In favour of increasing retirement age	28.36%	42.86%	-14.49%***
In favour of reducing pension benefits	18.66%	26.32%	-7.66%*
In favour of both	7.46%	11.28%	-3.81%
In favour of either or	39.55%	57.89%	-18.34%***
Observations	133	134	

Notes: * significant at 10%; ** significant at 5%; *** significant at 1 %.

Table 9. Information and policy opinion – a controlled experiment

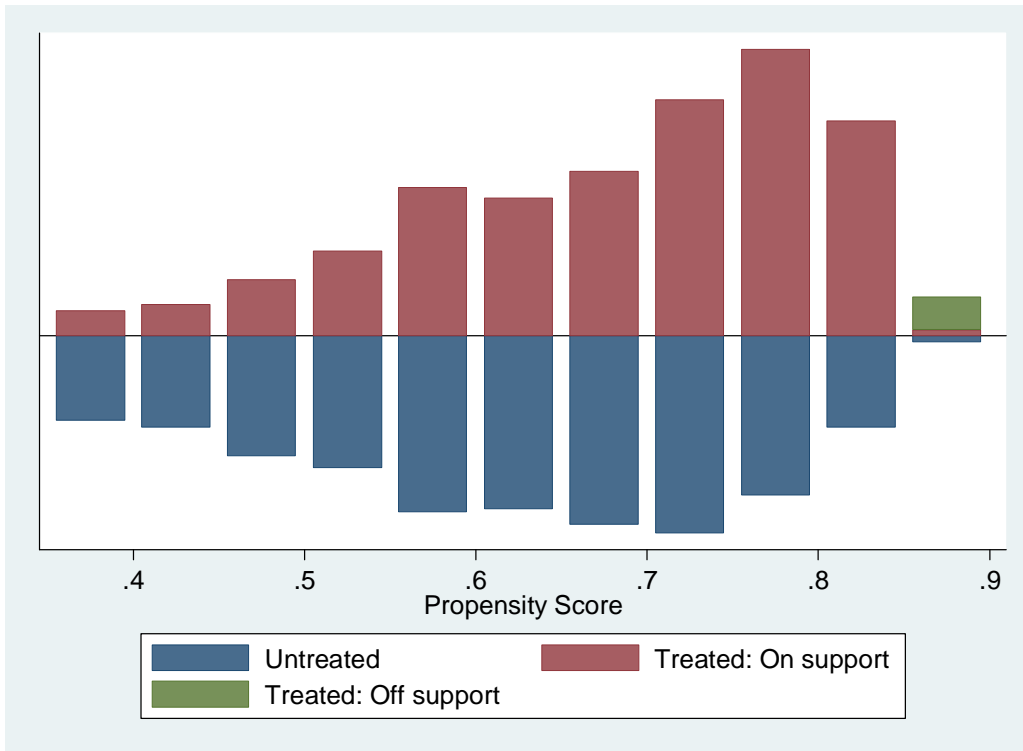
	Shrink	Info	Shrink	Shrink	Info	Shrink
Info			0.36 (0.15)**			0.37 (0.16)**
Read	0.43 (0.16)**	0.71 (0.22)***		0.42 (0.16)***	0.69 (0.22)***	
Estimation	Probit	Probit	2SLS	Probit	Probit	2SLS
Includes Crisis among covariates	No	No	No	Yes	Yes	Yes
Observations	257	267	257	257	267	257
Pseudo R2 / R2	0.06	0.11	0.39	0.06	0.12	0.39

Notes:

Other covariates not shown: Male Young Student University Compulsory Unemployed Employees, plus Crisis as indicated.

Standard errors in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1 %.

Figure 1. Propensity scores for the treated and controls



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Annex 1

As explained in section 3, our dependent variable *shrink* is missing for the 57 individuals (out of 1500) that answered don't / no answer to *both* questions (on retirement age and on pension benefits). A more restrictive definition of *shrink*, excluding those individuals who answered don't / no answer to *either* the question on retirement age or that on pension benefits is missing for 210 individuals. This annex reports alternative estimates, to make sure that non-random censoring is not a cause of selection bias.

As a first check, we have re-estimated equation (1) with the dichotomous variable *shrink* as our dependent variable, treating information as exogenous, but with the two-step Heckman procedure that allows for non-random censoring of observations. The results are displayed in Tables A.1 and A.2, for the same specification as in Table 2 in the text. Table A1 refers to the definition of *shrink* used throughout the paper, where missing observations correspond to those that answered don't know / no answer to *both* reform options. Table A2 refers to the alternative definition of *shrink*, where someone who answers don't know /no answer to *either* reform option is treated as missing. The estimated coefficients of information in the second stage regression remain statistically significant in all samples and definitions of *shrink*, except among the employees only, although they are smaller than in the logit regression of Table 2. This reassures us that the omission of these few agnostic individuals does not create a relevant selection bias.

As a second robustness check, we have redefined the dependent variable *shrink* to also include as a third separate value the individuals who answer don't know / no answer to *both* policy questions. Table A.3 displays multinomial logit estimates (i.e., responses are *not* ordered in any hierarchy). The comparison group is always those who oppose at least one reform (and do not strictly approve the other reform). Column (1) refers to those who are in favour of at least one reform (relative to the comparison group). Column 2 refers to those who answer don't know /no answer to both questions (relative to the same comparison group). The sample consists of all respondents. Columns 3-4 and 5-6 repeat the same estimation for the sample of employed individuals and employees respectively.

The last three rows report the estimated coefficients of interest on the variables measuring information, namely *info_deficit*, *info2* and *info3*. The rows reporting the estimated coefficients of the other controls are omitted. The estimated coefficients on the information variables are statistically significant and similar in value to those estimated on the binary definition of *shrink* and reported in Table 2 in the text.

Table A1. Implications of omitting DN/NA answers to *both* reform options

1st Stage:			
	All	Employed	Employees
	(1)	(2)	(3)
	dontknow	dontknow	dontknow
male	0.09 (0.14)	0.06 (0.20)	0.19 (0.24)
married	0.01 (0.19)	0.18 (0.26)	0.24 (0.29)
old	0.15 (0.22)	0.00 (0.38)	0.39 (0.48)
young	0.24 (0.22)	0.06 (0.29)	-0.01 (0.28)
university	0.07 (0.23)	0.07 (0.32)	-0.00 (0.35)
compulsory	-0.06 (0.15)	-0.24 (0.27)	-0.22 (0.29)
children	0.05 (0.17)	-0.04 (0.24)	-0.02 (0.26)
pensioner	-0.10 (0.24)		
whitecollar	-0.14 (0.19)	-0.05 (0.26)	0.12 (0.24)
buecollar	-0.40 (0.21)*	-0.17 (0.30)	
capopens	-0.14 (0.18)		-0.01 (0.28)
planearly	0.29 (0.24)		0.04 (0.28)
dini	-0.12 (0.15)	-0.04 (0.28)	0.13 (0.32)
id_left	0.28 (0.20)	-0.06 (0.27)	0.37 (0.37)
id_right	-0.11 (0.19)	-0.00 (0.30)	-0.13 (0.33)
crisis		-0.33 (0.24)	-0.12 (0.27)
tradeunion	-0.09 (0.15)	-0.11 (0.22)	-0.09 (0.22)
unioninfl	-0.13 (0.14)	-0.20 (0.22)	-0.25 (0.24)
expertinfl	0.06 (0.17)	-0.13 (0.23)	-0.23 (0.25)
noclue	-0.17 (0.03)***	-0.24 (0.05)***	-0.28 (0.05)***
Observations	1500	779	627
Censored obs	57	24	21
2nd Stage:			
	All	Employed	Employees
	(1)	(2)	(3)
	shrink	shrink	shrink
info_deficit	0.19 (0.07)***		
info2		0.13 (0.07)**	
info			0.09 (0.06)
Observations	1500	779	627
Uncensored obs	1443	755	606

Notes: Standard errors in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1%.

Table A2. Implications of omitting DN/NA answers to *either* increasing retirement age or reduce benefit options

1st Stage:		
	All (1) Dontknow	Employed (2) Dontknow
male	0.11 (0.15)	0.06 (0.21)
married	0.04 (0.20)	0.15 (0.26)
old	0.13 (0.23)	-0.01 (0.39)
young	0.27 (0.23)	0.02 (0.30)
university	0.05 (0.24)	0.07 (0.33)
compulsory	-0.06 (0.16)	-0.29 (0.29)
children	0.03 (0.18)	-0.03 (0.24)
pensioner	-0.17 (0.25)	
whitecollar	-0.14 (0.20)	-0.05 (0.27)
bluecollar	-0.41 (0.22)*	-0.13 (0.32)
capopens	-0.14 (0.18)	
planearly	0.24 (0.25)	
dini	-0.09 (0.15)	-0.02 (0.29)
id_left	0.34 (0.21)	-0.04 (0.28)
id_right	-0.11 (0.19)	0.02 (0.31)
crisis		-0.34 (0.25)
tradeunion	-0.09 (0.16)	-0.11 (0.22)
unioninfl	-0.12 (0.15)	-0.15 (0.22)
expertinfl	0.03 (0.17)	-0.15 (0.24)
noclue	-0.19 0.03***	-0.25 (0.05)***
Observation	1290	691
Censored obs	57	24
2nd Stage:		
	All (1) shrink^a	Employed (2) shrink^a
Infodeficit_dummy	0.16 (0.08)**	
info2		0.12 (0.07)*
Observations	1290	691
Uncensored obs	1233	667

Notes: Standard errors in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1 %.^(a) Shrink here is defined omitting don't know/no answer to *either* reducing pension benefits or increasing retirement age.

Table A.3 Multinomial logit

Dependent variable: shrink						
Comparison group: against						
	All		Employed		Employees	
	(1)	(2)	(3)	(4)	(5)	(6)
	in favour	don't know	in favour	don't know	in favour	don't know
male	-0.50 (0.12)***	-0.94 (0.32)***	-0.45 (0.17)***	-0.67 (0.46)	-0.21 (0.19)	-0.64 (0.51)
married	0.23 (0.16)	0.14 (0.42)	0.43 (0.22)*	-0.19 (0.58)	0.51 (0.25)**	-0.21 (0.61)
young	-0.03 (0.17)	-0.49 (0.47)	-0.13 (0.24)	-0.48 (0.65)	-0.10 (0.26)	-0.13 (0.72)
old	0.24 (0.21)	-0.26 (0.50)	0.29 (0.31)	0.05 (0.87)	0.01 (0.35)	-1.09 (1.13)
university	-0.34 (0.16)**	-0.62 (0.57)	-0.25 (0.21)	-0.73 (0.82)	-0.39 (0.24)	-0.53 (0.83)
compulsory	-0.04 (0.13)	0.38 (0.33)	-0.13 (0.21)	0.53 (0.53)	-0.04 (0.23)	0.75 (0.54)
children	0.24 (0.15)	-0.02 (0.39)	0.18 (0.20)	0.12 (0.55)	0.14 (0.22)	-0.05 (0.60)
pensioner	-0.31 (0.23)	-0.11 (0.53)				
town	-0.13 (0.15)	-0.16 (0.37)	-0.09 (0.21)	-0.35 (0.51)	0.03 (0.23)	-0.19 (0.55)
city	-0.29 (0.17)*	-0.33 (0.43)	0.01 (0.24)	-1.50 (0.84)*	0.15 (0.27)	-1.10 (0.87)
whitecollar	0.52 (0.15)***	0.43 (0.44)	0.75 (0.19)***	0.69 (0.60)	0.24 (0.19)	-0.11 (0.50)
bluecollar	0.48 (0.20)**	1.09 (0.45)**	0.78 (0.24)***	1.19 (0.64)*		
capopens	0.04 (0.16)	0.53 (0.38)	-0.13 (0.24)	0.04 (0.59)	0.10 (0.27)	0.18 (0.61)
planeearly	0.29 (0.18)	-0.58 (0.57)	0.33 (0.21)	-0.32 (0.60)	0.26 (0.23)	-0.22 (0.62)
dini	-0.01 (0.13)	0.12 (0.32)	0.16 (0.22)	0.08 (0.60)	0.22 (0.25)	-0.25 (0.65)
id_left	0.27 (0.16)*	-0.47 (0.47)	0.08 (0.22)	-0.21 (0.61)	0.09 (0.24)	-0.90 (0.79)
id_right	-0.69 (0.15)***	-0.55 (0.41)	-0.98 (0.21)***	-0.95 (0.66)	-1.08 (0.24)***	-0.97 (0.68)
infodeficit	-0.39 (0.12)***	-1.30 (0.30)***				
info					-0.20 (0.11)*	-0.61 (0.30)**
info2			-0.25 (0.11)**	-0.57 (0.30)*		
Observations	1500	1500	779	779	627	627
Pseudo R2	0.0586		0.0790		0.0646	

Notes: Standard errors in parentheses* significant at 10%; ** significant at 5%; *** significant at 1%. Shrink here takes the value 1 if the respondent is in favour of either reform option, -1 if the respondent is strictly against one of the two reforms *and* does not approve the other and 0 otherwise.

Annex 2

The questions used to define the variable “noclue”

Questions
1) Some people speak of a possible crisis in our public pension system. As a consequence, in 10/15 years time we would not be able to keep public pensions at their current level. Do you agree with this opinion? <ol style="list-style-type: none">1. Yes, I agree2. No, I don't agree3. Refused4. Don't know
2) Do you think that in the course of the next 10 years there will be another pension reform reducing significantly the amounts of public pensions? <ol style="list-style-type: none">1. Yes2. No3. Refused4. Don't know
3) As you probably know, in Italy there were several pension reforms within the last years. Which of the following statements does in your opinion describe best the results of these pension reforms? The reforms... <ol style="list-style-type: none">1. Stabilized the pension system: there's no need for another reform2. Were just a first step: new reforms are necessary3. Did not succeed in stabilizing the system: a new reform will be soon necessary4. Refused5. Don't know
4) According to you, the government should... <ol style="list-style-type: none">1. Reduce taxes and compulsory contributions and, at the same time, cut pensions, unemployment benefits, and social assistance2. Maintain taxes and compulsory contributions, etc. at current levels3. Increase pensions, unemployment benefits, social assistance, by raising taxes and compulsory contributions4. Refused5. Don't know
5) According to you, the government should... <ol style="list-style-type: none">1. Allocate more resources to pensions and less to unemployed or young jobseekers2. Allocate less resources to pensions and more to unemployed or young jobseekers3. Let the situation unchanged4. Refused5. Don't know
6) Currently women can retire earlier than men. In light of the financial problems of public pension system, do you think it would be fair if they retired at the same age? <ol style="list-style-type: none">1. Yes, I think it would be fair2. No, I think it wouldn't be fair3. Refused4. Don't know
7) The recent pension reforms put more emphasis on own provision for retirement, and less on the state. Do you think is fair? <ol style="list-style-type: none">1. Yes2. No3. Refused4. Don't know
8) Do you think that private pension plans are a better deal than the cost public pension system, i.e., provide benefit per a higher pension benefit per \$ contribution paid? <ol style="list-style-type: none">1. Yes2. No3. Refused4. Don't know
9) If older people would retire later, would this affect job opportunities for younger people? <ol style="list-style-type: none">1. Younger people would have less opportunities2. Younger people would have the same opportunities3. Younger people would have the same opportunities4. Refused

5. Don't know
10) Which of the following institutions does best represent your own interests in the pension reform debate? <ol style="list-style-type: none">1. The Government2. The opposition3. Trade Union4. "Confindustria"5. Pension experts and commissions6. European Union7. Refused8. Don't know
11) Do you think the influence of the trade unions on the pension reform debate is today... <ol style="list-style-type: none">1. Too weak2. Right3. Too strong4. Refused5. Don't know
12) Do you think the influence of the pension experts and commissions on the pension reform debate is today... <ol style="list-style-type: none">1. Too weak2. Right3. Too strong4. Refused5. Don't know
13) Do you think the influence of the EU on the pension reform debate is today... <ol style="list-style-type: none">1. Too weak2. Right3. Too strong4. Refused5. Don't know

Annex 3

Glossary of the key variables

Variable	Values	Description	Sample
<i>shrink</i>	1	in favour of cutting pension benefits and/or increasing retirement age	all
	-1	against at least one policy option and not in favour of the other	
	-	"don't know" / "no answer" on both questions	
<i>info_deficit</i>	1	the respondent is aware of the fact the pension system is in deficit	all
	0	Otherwise	
<i>info_payg</i>	1	the interviewee knows that the public pension contributions are used only to pay pension benefits to current pensioner.	employed
	0	Otherwise	
<i>info_rate</i>	1	the interviewee is aware of which percentage of his wage is used to pay pension contributions.	employees
	0	Otherwise	
<i>info2</i>	2	both <i>infodeficit</i> and <i>infopayg</i> are equal to one (the interviewee knew that both the pension system is in deficit and the public pension contributions are used only to pay pension benefits to current pensioner)	employed
	1	either <i>infodeficit</i> or <i>infopayg</i> are equal to one.	
	0	both <i>infodeficit</i> and <i>infopayg</i> are equal to zero (i.e. the interviewee gave the wrong answer to both questions).	
<i>info3</i>	3	<i>infodeficit</i> , <i>infopayg</i> , <i>infocostind</i> are all equal to one (i.e. three correct answers about the pension system functioning).	employees
	2	the respondent gave two correct answer out of three questions about the knowledge of the pension system.	
	1	it takes value one if the interviewee give just one correct answer out of three.	
	0	none of the answers is correct	
<i>male</i>	1	Male	all
	0	Female	
<i>married</i>	1	the interviewee is married or widowed	
	0	Otherwise	
<i>old</i>	1	the interviewee is older than 55 years	all
	0	Otherwise	
<i>young</i>	1	the interviewee is younger than 34 years	all
	0	Otherwise	
<i>university</i>	1	interviewee' higher school degree is the university degree or more	all
	0	Otherwise	
<i>compulsory</i>		the interviewee has a compulsory school degree or less	all
		Otherwise	
<i>children</i>	1	the breadwinner has at least one child living in the household	all
	0	the breadwinner doesn't have any children	
<i>pensioner</i>	1	the interviewee retired	all
	0	Otherwise	
<i>town</i>	1	city dimension (number of citizens) up to 30 thousands	all
	0	Otherwise	
<i>city</i>	1	city dimension (number of citizens) more than 100 thousands	all
	0	Otherwise	
<i>whitecollar</i>	1	the interviewee is a whitecollar worker	all
	0	Otherwise	
<i>bluecollar</i>	1	the interviewee is a bluecollar worker	all

	0	Otherwise	
<i>headpens</i>	1	the breadwinner is a pensioner	all
	0	Otherwise	
<i>planelarly</i>	1	the interviewee plans to retire before age of 60	all
	0	Otherwise	
<i>dini</i>	1	concerned by the Dini pension system reform	all
	0	Otherwise	
<i>id_left</i>	1	the interviewee defines his political position between 0 and 3 on a decimal left-right scale, where 0 represents extreme left and 10 extreme right	all
	0	Otherwise	
<i>id_right</i>	1	the interviewee defines his political position between 7 and 10 on a decimal left-right scale, where 0 represents extreme left and 10 extreme right	all
	0	Otherwise	
<i>crisis</i>	1	it is likely that will be a crisis of the pension system in a ten/fifteen years time	all
	0	Otherwise	
<i>involvement</i>	1	the interviewee read newspaper, articles / watched TV programs concerning pension reform debate	all
	0	Otherwise	
<i>attention</i>	4	interviewee' level of attention in following current pension debate is high	all
	3	Medium	
	2	Low	
	1	None	
<i>expert</i>	1	the influence of the pension experts and commissions on the pension reform is today too weak	all
	0	Otherwise	
<i>union</i>	1	the interviewee is a member of a tradeunion or he thinks that the influence of unions on the pension reform is today too weak (or both)	
	0	Otherwise	
<i>noclue</i>	from 0 to 13	how many times an interviewee answered "I don't know" the questions of the survey. The questions on pension reforms are not included	all
<i>noclue_sus</i>	from 0 to 3	See Annex 2 for details	all
<i>noclue_size1</i>	from 0 to 3	See Annex 2 for details	all
<i>noclue_pos1</i>	from 0 to 3	See Annex 2 for details	all
<i>noclue_rep</i>	from 0 to 4	See Annex 2 for details	all

Annex 4

Sample questions of questionnaire 2004

<i>Issues</i>	Questions	Variables
<i>Opinions on pension reforms</i>	Are you in favour of increasing retirement age? 1. I'm in favour 2. I'm against 3. I don't know	shrink
	Are you in favour of reducing pension benefits? 1. I'm in favour 2. I'm against 3. I don't know	shrink
<i>Information about the costs and functioning of the Italian pension system</i>	Given all the contributions paid by employees and employers, and all the pension benefits paid to current pensioners, do you think that our public pension system is... 1. balanced (the sum of all the contributions is equal to the total expenditure for paying pension benefits), 2. in surplus (the sum of all the contributions is larger than the total expenditure for paying pension benefits, allowing to save resources for the future), 3. in deficit (the sum of all the contributions is larger than the total expenditure for paying pension benefits, requiring to use additional taxes to finance public pension system) 4. refused 5. I don't know	info_deficit
	According to you, for which purpose are these contributions used for?, 1. only to pay your own future pension, 2. only to pay pension benefits to current pensioners, 3. to pay both your own future pension and current pensions, 4. refused 5. I don't know	info_payg
	As you probably know, in Italy both employees and employers pay public pension contribution. Which percentage of your wage is used to pay pension scheme contributions? (take in account also the contribution paid by your employer), less than 10% 1. 10% - 15% 2. 15% - 20% 3. 20% - 25% 4. 25% - 30% 5. 30% - 35% 6. 35% - 40% 7. more than 40% 8. refused 9. I don't know	info_rate
<i>Involvement in public debate and information</i>	Which was your level of attention in following current pension reform debate? 1. high 2. medium 3. low 4. none	attention
	During the last months, have you read newspaper articles/watched TV programs concerning pension reform debate?, 1. yes 2. no	involvement

Annex 5

Sample questions of questionnaire 2001

<i>Issues</i>	Questions	Variables
<i>Opinions on pension reforms</i>	An alternative method to keep future contributions constant is to increase the retirement age. Are you in favour of increasing retirement age if this does not involve paying more contributions? <ol style="list-style-type: none"> 1. Yes, one year more 2. Yes, two years more 3. Yes, three years more 4. Yes, up to five years 5. Yes, even more than five years 6. No 	shrink
	In the future, the present pension level will be hardly maintained without increasing contributions. Are you in favour of reducing pension benefits if this does not involve paying more contributions? <ol style="list-style-type: none"> 1. Yes, I accept a reduction up to 5% 2. Yes, I accept a reduction up to 10% 3. Yes, I accept a reduction up to 15% 4. Yes, I accept a reduction up to 20% 5. No 	shrink
<i>Information about the costs and functioning of the Italian pension system</i>	Given all the contributions paid by employees and employers, and all the pension benefits paid to current pensioners, do you think that our public pension system is... <ol style="list-style-type: none"> 1. balanced (the sum of all the contributions is equal to the total expenditure of pension benefits), 2. in surplus (the sum of all the contributions is higher than the total expenditure of pension benefits, allowing to save resources for the future), 3. in deficit (the sum of all the contributions is lower than the total expenditure of pension benefits, requiring to use additional taxes to finance the public pension system) 4. I don't know 	info_deficit
	In your opinion, which purpose are these contributions used for? <ol style="list-style-type: none"> 1. only to pay your own future pension, 2. only to pay pension benefits to current pensioners, 3. mainly for your future pension, the difference for pension to actual pensioners 4. a small amount for your future pension, mainly for pension to actual pensioners 	info_payg
	As you probably know, in Italy both employees and employers pay public pension contributions. Which percentage of your wage is used to pay pension scheme contributions? (take into account also the contributions paid by your employer), less than 10% <ol style="list-style-type: none"> 1. 10% - 15% 2. 15% - 20% 3. 20% - 25% 4. 25% - 30% 5. 30% - 35% 6. 35% - 40% 7. more than 40% 	info_rate

Annex 6

The information provided in the controlled experiment

The Italian pension system is a *pay-as-you-go* system. This means that current pensions (e.g., those paid in the year 2007) are paid with the contributions of workers and employers made in the same year (2007).

The contributions paid by employers currently amount to 23,81% of the wage. The contributions paid by employees amount to 9,19% of the wage. Adding up the two contributions, 33% of the gross wage is used to pay the pensions of the current pensioners. The contribution rate is lower (23%) for “project posts” (*contratti a progetto*) and for self-employed individuals. In particular, artisans and retailers contribute 19,5% of their earnings.

The contributions currently paid by workers and employers are not sufficient to finance all pensions. Thus, a fraction of pension expenditure (roughly one third) is funded via General Government revenues.

Altogether, the pensions paid in 2007 to former employees will total about 45% of the wage bill. This means that, on average, 45% of the gross earnings of an employee are used to pay the pensions of the current pensioners. As a result of the ageing of the population, the ratio of pension expenditure to the wage bill has increased over time (it was less than 30% in 1980 and it increased above 40% at the end of the 1990s). Italian experts and international organizations agree in predicting that, without reforms, the ratio of pensions to the wage bill will be 50% in 2030.