

Individual heterogeneity and pension choices: How to communicate an effective message?[§]

Giovanni Gallo

University of Modena and Reggio Emilia, and Marco Biagi Foundation

Costanza Torricelli

University of Modena and Reggio Emilia, CEFIN, and CERP

Arthur van Soest

Tilburg University, Netspar, and IZA

Abstract

We use the Elaboration Likelihood Model (ELM) proposed by Petty and Cacioppo (1983), which represents the process occurring when an individual's attitude is affected through communication, to explain the heterogeneity in pension choices. To this end we exploit the 2007 Italian reform that allowed transferring future severance pay's contributions into a pension fund and was accompanied by an information campaign with a quite clear message. According to ELM, individuals follow either a "central route" or a "peripheral route" depending on their motivation and ability to think, and they eventually change or retain their initial attitude. Based on Logit models and data from the Bank of Italy Survey on Household Income and Wealth, we find that the decision to transfer the severance pay into a pension fund was taken by more educated and older individuals, with a high household income. Thus, since the reform was mainly directed to low income and younger individuals, our results suggest that the message of the reform information campaign was not very effective. Moreover, our ELM application highlights that generic financial literacy does not significantly affect decision consciousness, figuring out a more relevant role in the elaboration process for: the individual's comprehension of the specific choice object (pension funds), cognitive skills, and influencing elements (unions and employer's pressure).

March 2016

Keywords: pension choices, Elaboration Likelihood Model, financial literacy

JEL classification: D14, D03

[§] We would like to thank for helpful comments and suggestions participants to the seminar at the Economics Department of the University of Modena and Reggio Emilia. Costanza Torricelli and Giovanni Gallo acknowledge financial support from the University of Modena and Reggio Emilia 2014 FAR Grant on "Individual heterogeneity and household choices: which implications for pension and financial products?". Usual caveat apply.

Introduction

Studies in household finance highlight individual heterogeneity in household portfolio choices including those connected to pension choices. Traditional explanations for the evidence on participation to pension schemes rest on individual heterogeneity in terms of socio-demographic attributes, and economic and financial characteristics (e.g. Huberman et al. (2007) on the participation in Defined Contribution (401)k pension plans in the US, Antolin (2008) on the participation in supplementary pension schemes for 8 OECD countries). A strand of literature specifically investigates the role of education, whereby low education in general and low financial education in particular are often found to have a negative impact: Lusardi and Mitchell (2006, 2011) in the US, Fornero and Monticone (2011a) and Rinaldi (2011) in Italy; Coppola and Lamla (2013) in Germany. Conversely, Duflo and Saez (2003) find a small positive effect of information when choosing to participate in employer sponsored tax deferred accounts, and a larger effect of social interactions. Cappelletti and Guazzarotti (2013) use Italian data and confirm a lack of knowledge of complementary pension schemes even among those who participate in one, to the point that many cannot recall their investment strategy or the amount of their annuity. They also find that participation rates are particularly low among those who would benefit from it the most, namely younger workers. Unsurprisingly, the authors also find that income is the strongest predictor of participation, as individuals who earn more have more resources to subscribe to private pension funds.

In order to explore a different route, this paper aims to explain the heterogeneity in pension choices through the Elaboration Likelihood Model proposed by two American psychologists, Richard E. Petty and John T. Cacioppo (Petty and Cacioppo, 1983). The Elaboration Likelihood Model of persuasion (ELM) essentially models the elaboration process that occurs when we attempt to change a person's attitude through communication. The amount of elaboration or thinking is different for each individual and varies from low to high according to motivation and ability to process the message. When motivation and ability to think are high, individuals are inclined to travel a "central route to persuasion", otherwise they follow a "peripheral route to persuasion". Although the ELM has been mainly used so far in marketing studies for consumers' choices (Jae and Delvecchio, 2004; Petty and Rucker, 2006), it lends itself to be used to analyse other types of individual choices connected with a communication message. For example, it may be used also to explain the heterogeneity in household financial portfolios, because a given (financial) advice can lead to different choices depending on household characteristics.

In particular, we use ELM in order to analyse the heterogeneity in pension choices connected to the 2007 Italian reform that allowed transferring future severance pay's contributions into a pension fund. In fact, the reform was accompanied by an information campaign with a quite clear message that resembled an advertisement in favour of the pension fund choice. To this end we use data from the Bank of Italy's Survey of Household Income and Wealth (SHIW), which includes a question on the choice about the severance pay's transfer into a pension fund. In particular, to realize our investigation we will exploit information of four waves: one before (2006) and three after the reform (2008, 2010 and 2012).

The rest of the paper is organized as follows. Section 1 reviews the general structure of Elaboration Likelihood Model of persuasion (ELM). Section 2 the Italian reform allowing the severance pay transfer into pension funds and highlights its main message. While Section 3 describes the dataset,

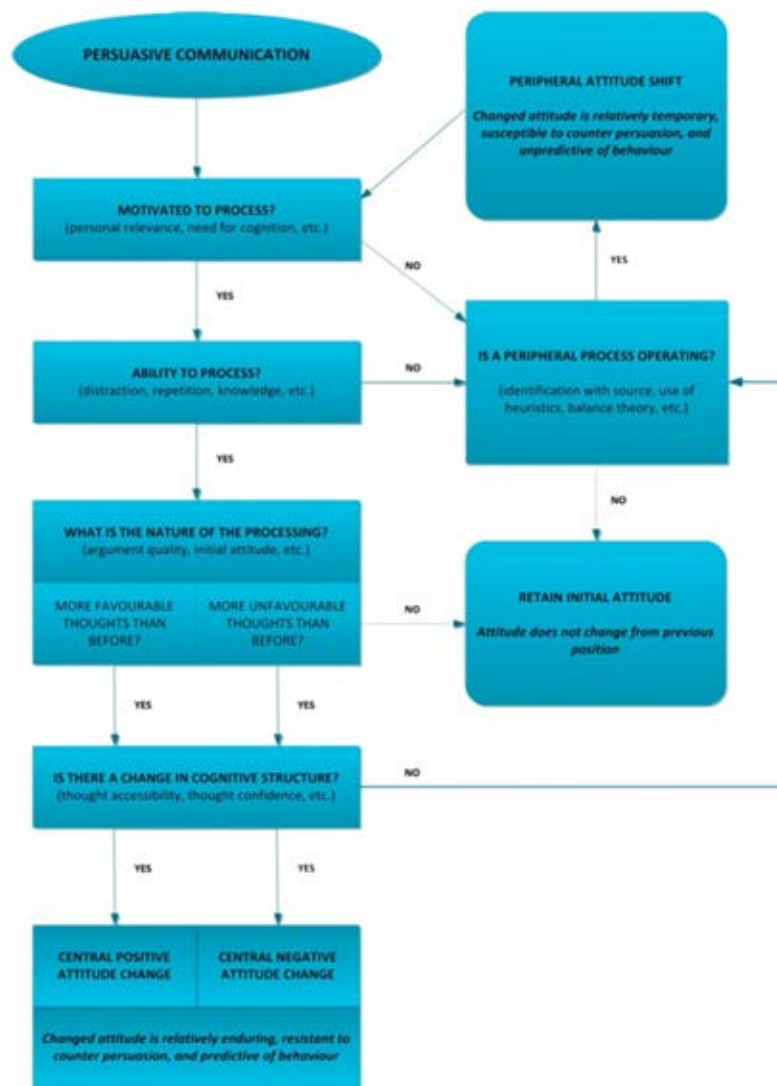
Section 4 uses these data to describe all the steps to assess the effectiveness of the reform message using the ELM in order to highlight the ELM outcomes, and Section 5 presents the econometric analysis of the determinants of the latter. Last Section concludes.

1. The Elaboration Likelihood Model of persuasion (ELM)

The Elaboration Likelihood Model of persuasion (ELM) (Petty and Cacioppo, 1983) is essentially a theory about the thinking processes that might occur when we attempt to change a person's attitude through communication. The ELM assumes that any one variable can influence attitudes in a number of different ways and that individuals can differ in how carefully and extensively they think about a message. In other words, in any given context, the amount of individual elaboration or thinking on a message or issue can vary from low to high along an "elaboration continuum". The position along this continuum is determined by considering people's motivation and ability to process the message presented to them. The concept of 'motivation' in the ELM consists in personal relevance of the issue, while 'ability' refers to resources and skill to understand and attend to a message. However people's ability does not depend only on intelligence, but also on time available or distraction in the communication environment.

The ELM scheme can be represented by Figure 1. According to Petty and Cacioppo (1983), when motivation and ability to think are high, individuals are inclined to travel a central route to persuasion otherwise they follow a peripheral route to persuasion. In the central route, individuals carefully consider the elements of the message in order to determine whether its proposal makes sense and whether it will benefit them in some way. Hence, it is reasonable to assume that if a person takes a decision through a central route his/her changed attitude is relatively enduring, resistant to counter persuasion, and predictive of behavior (Petty and Cacioppo, 1983; Jae and Delvecchio, 2004; Wilson, 2014). On the other hand, if a decision process is based on superficial elements, external contexts or momentary feelings, then it is very likely that the resultant peripheral attitude is relatively temporary, susceptible to counter persuasion, and unpredictable of behavior. Therefore, under this peripheral route, it is likely that the message recipient will not undertake the effort required to process merits and demerits content in the message, however taking a decision (Petty and Cacioppo, 1983).

Figure 1 – The Elaboration Likelihood Model of Persuasion



Source: Petty, Briñol and Priester (2009)

2. The severance pay transfer into pension funds: the Italian reform and its main message

At the start of Seventies the Italian pension system was a mixed social system: with a guaranteed minimum pension to all citizens and a pension, based on an average of the last-career earnings, to the workers both in the public and private sector (employees and self-employed). The pension system was exclusively funded through a Pay-As-You-Go scheme, determining a substantial coverage intervention by the State. But, the progressive increase in average life expectancy, the falling birth rate, the huge government budget deficit and the slowdown of economic growth made the Italian pension system unsustainable in the long term. For these reasons, since the early 90s it has been deeply modified through reforms aimed at improving its long-term sustainability and redressing its main problems (Fornero and Monticone, 2011a). These reforms implied public pensions fell over time, leading future retirees to face the problem of how to finance their consumption after retirement. According to the State General Accounting Office's estimates, the replacement rate of a private employee will decrease from about 74% in 2010 to 60-65% after 2040

with a contribution requirement parity (Ministry of Economy and Finance, 2014). In the attempt to limit this overwhelming socio-economic problem, the Italian Government decided to introduce a 'supplementary' pension, or non-compulsory pension, obtained from participation to pension funds. Therefore, now the national pension scheme is based on two pillars: I) the compulsory pension, which remains the most important, funded on a Pay-As-You-Go scheme; II) the non-compulsory pension funded through a Defined Contribution scheme, so that the higher the contribution the higher the pension¹.

In addition to pensions, Italian retiring employees of private sector can rely on a severance pay (Tfr, *Trattamento di fine rapporto*) that depends on the length of employment relationship in the same company (it has to be at least eight years long). To finance the Tfr, companies are forced to set aside for each employee a percentage of the gross annual salary (about 7.5%) on their annual budget. However, since the severance pay is due only at the end of employment relationship, in practice it represents a loan from employee to company. Indeed for this particular funding source, companies have to set aside also an interest, computed at the annual rate of 1.5% plus three quarters of the national inflation rate.

Even though the supplementary pension scheme was introduced since 1992, in Italy the participation to pension funds was much lower than that observed in other developed countries (OECD, 2014). In order to speed up the development of the second pillar, in 2005 the Italian Government decided to allow employees to transfer their own future severance pay's contributions into a pension fund as of the 1st January 2007². This reform was motivated by the fact that pension funds have generally a higher return than the Tfr one (considering an average inflation rate equals about 2% during the 1997-2007 decade in Italy, the average return of severance pay was equal to $1.5+0.75\times 2=3\%$). Moreover, contrary to the severance pay that is received as a lump sum, pension funds can be converted in annuities at retirement. Therefore, the Government's objective was to develop pension funds so as to ensure an increase in retirement income.

According to the reform, since the 1st January 2007 all Italian employees in private sector have to choose among three alternatives: i) to deposit their future severance pay contributions (the portion set aside up to 31 December 2006 remains in the company) into a pension fund, ii) to leave the Tfr in their companies, iii) an intermediate solution (in this case, however, at least 50% of severance pay has to be directed into the pension fund)³. To further encourage the participation to pension funds, the Government defined also tax incentives and a silence-as-assent mechanism. In fact, Italian employees have six months from the hiring (or from the start of the law's effectiveness) to communicate the decision of rejection or acceptance, after which their severance pay is automatically transferred in a pension fund managed by the Italian National Institute of Social Security (*Istituto Nazionale di Previdenza Sociale, INPS*). There are thus three possible scenarios: I) the employee decides not to give up his/her severance pay and denies the transfer into a pension

¹ Actually there is a third additional pillar: the private pension, which is determined by individual/household saving investments. Nevertheless, this pillar entirely depends on individual responsibility and life-cycle choices, and it is not forced or simply advised in any way by the State.

² The reform is contained in the Legislative Decree no. 252/2005. This law, supplemented by the Law no. 296/2006 and the Legislative Decree no. 28/2007, reforms from the 1st January 2007 the Italian pension system strengthening the role of pension funds in order to ensure higher levels of pension coverage.

³ Since 2010 this reform involved also a part of public employees: those who were hired after January 1, 2001. However, since this category is very small and the same reform has different rules regarding public employees, to simplify the study we consider only the employees in private sector.

fund; II) the employee decides to transfer his/her Tfr into a pension fund, not receiving anymore a severance pay at the end of his/her work relationship; III) the employee does not take a decision, probably because he/she has no interest in the message content⁴. However, once the Tfr is transferred into a pension fund (regardless of the explicit choice) this is irrevocable, otherwise an employee always has the possibility to change his/her mind and adhere later to a fund.

Summing up, in terms of the ELM architecture, what is the ‘message’ that the Italian Government wanted to give through the 2007 reform? Relying on many different sources (literature, publications and media, as discussed below in Section 4.29 we believe it can be synthesized as follows: *“Pension funds plus tax incentives linked to them can guarantee a higher retirement income, compared to the severance pay (Tfr)”*.

3. Data and sample

The Survey of Household Income and Wealth (SHIW) is a large representative survey of the Italian population conducted by the Bank of Italy every two years. For each household member, the SHIW provides demographic information (age, level of education, gender and marital status), economic information at the household level including net wealth (real and financial assets net of financial liabilities) and the amounts invested in a variety of financial assets. Moreover Bank of Italy’s survey contains also useful questions to estimate individual level of financial literacy or knowledge of pension funds.

We use longitudinal component of the SHIW to build a four waves panel sample: from 2006 to 2012. The panel consists of 6,419 individuals (belonging to 2,767 households) for a total of 25,676 observations. Since the pension reform under investigation involved only employees in private sector (hence self-employed excluded), we keep in our sample only those who were employed in private sector in 2012, and were 16-65 years old in 2006. At this stage the panel sample consists of 1,125 individuals (belonging to 887 households), but we still have to account for some data issues connected to 2007 Italian reform.

Specifically, since the 2008 wave the survey includes a question on the choice to transfer of future severance pay’s contributions into a pension fund (for further details about the transfer question see Fornero and Monticone, 2011b). This question has three response options: ‘Yes’, ‘No’, and ‘Do not know’. It means that respondents are not forced to pick an answer, minimizing the ‘guessing’ issue. However this methodological choice does not completely prevent the presence of several missing responses (i.e. people who did not answer at all to the question) due to: low consciousness of individual pension situation; unwillingness to declare information about wealth; no explicit option for refusing to answer. Moreover, data shows that in numerous cases the individual answer to the survey question on the Tfr transferring changes over the 2008-2012 period. This probably happens either because the ‘No’ response is revocable and because some people do not really have a full consciousness or knowledge of their choice about the severance pay transfer into a pension fund. For these reasons, we decide to take into account only employees’ answers

⁴ To simplify, we consider the so-called ‘intermediate’ cases, those in which the employee decides to transfer only a part of his/her severance pay, in the same way as those in which the employee decides to entirely transfer his/her Tfr.

declared in 2012 survey, dropping also from our panel all observations that had a missing answer in 2012 (55 per wave)⁵.

Table 1 reports descriptive statistics of demographic characteristics of the sample of employees obtained as described above. In 2006, about 42% of the sample consists of women, 96% of Italian citizens, about 50% of individuals live in the North, 20% in the Centre and the remaining in the South, and 49% of employees live in big or very big cities (i.e. with more than 40,000 inhabitants), while 29% live in small cities (i.e. with less than 20,000 inhabitants). Average age is 38.4, 48% of total sample completed high school, and only 8% have a university (or higher) degree. The average number of household members is 3.5, 63% of people are married, and 31% are single. As for the answers on the severance pay choice, in 2012, 16% of the sample declared they have transferred it into a pension fund, 72% of the sample did not, and 12% declared they ‘Do not know’.

Table 1 – Demographic descriptive variables of the sample for year and Tfr choice (mean values)

Demographic Variables	2006	2012			
	Total population	Yes	No	Do not Know	Total population
Observations	1,070	168	775	127	1,070
Female	41.5%	34.5%	43.7%	37.0%	41.5%
Age	38.4	46.9	44.4	41.1	44.4
Italian	95.7%	99.4%	95.1%	96.9%	96.0%
Marital status					
<i>Married</i>	62.9%	75.0%	63.9%	39.4%	62.7%
<i>Single</i>	31.1%	19.6%	28.5%	50.4%	29.7%
<i>Divorced</i>	5.1%	4.8%	5.9%	10.2%	6.3%
<i>Widow</i>	0.8%	0.6%	1.7%	0.0%	1.3%
Education level					
<i>Primary</i>	6.5%	1.8%	7.1%	3.1%	5.8%
<i>Lower secondary</i>	38.0%	24.4%	36.8%	32.3%	34.3%
<i>Secondary</i>	47.8%	60.1%	46.7%	49.6%	49.2%
<i>Tertiary</i>	7.7%	13.7%	9.4%	15.0%	10.7%
Macroarea					
<i>North</i>	49.8%	62.5%	48.0%	44.1%	49.8%
<i>Centre</i>	20.2%	22.0%	19.4%	22.8%	20.2%
<i>South</i>	30.0%	15.5%	32.6%	33.1%	30.0%
Demographic size					
<i>< 20,000 inhabitants</i>	29.0%	29.2%	28.0%	34.6%	29.0%
<i>20,000 - 40,000</i>	21.9%	15.5%	23.7%	15.0%	21.4%
<i>40,000 - 500,000</i>	44.2%	48.2%	43.6%	46.5%	44.7%
<i>> 500,000</i>	5.0%	7.1%	4.6%	3.9%	5.0%
Household size	3.46	3.34	3.34	3.21	3.32

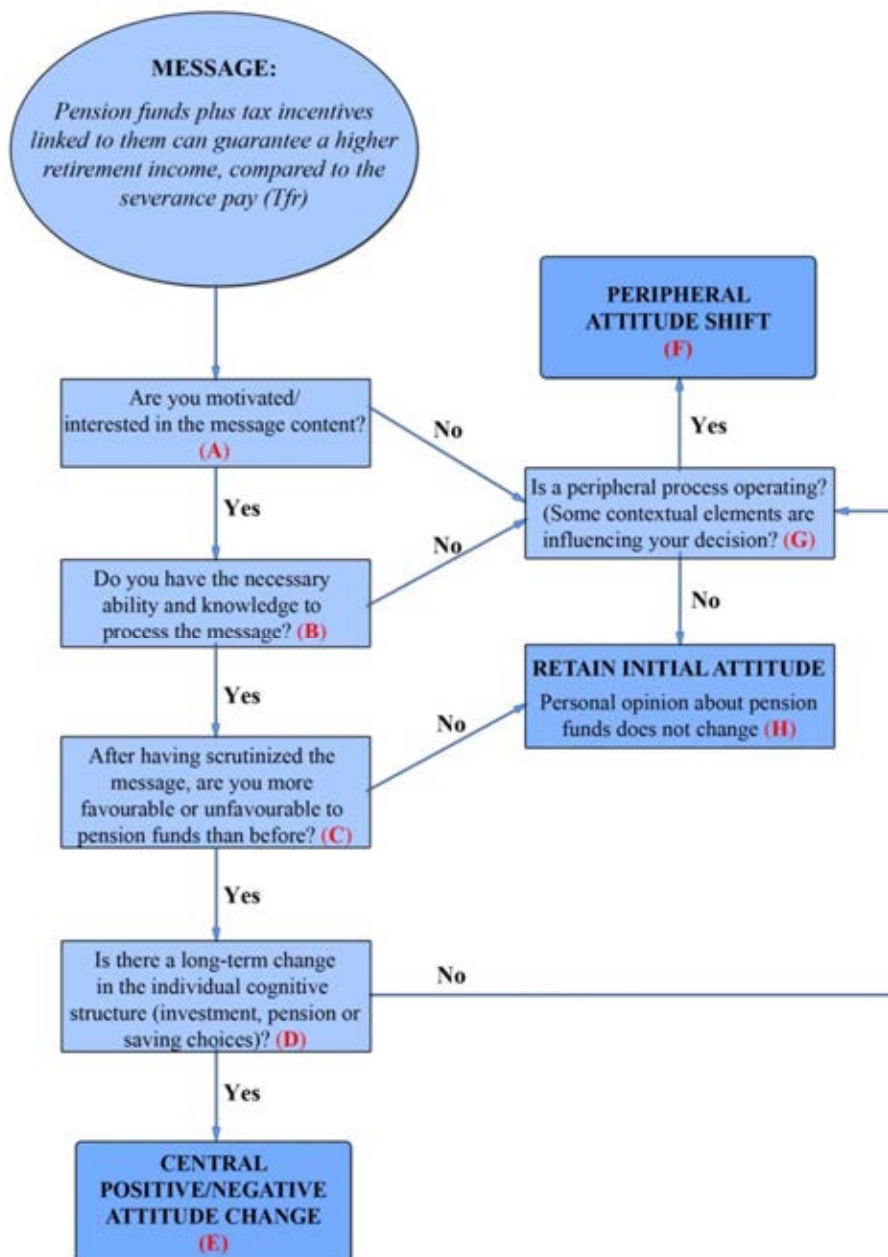
⁵ Alternatively we could have included missing values and interpreted them as well as ‘Do not know’ responses. We tested robustness of our final results against this alternative: the outcomes do not change the conclusions of the analysis in Section 4 (results available upon request).

4. An assessment of the effectiveness of the reform message based on ELM

In order to develop an empirical assessment of the effectiveness of the reform message, we have to set our research question into the traditional ELM scheme.

Figure 2 represents the ELM scheme for our analysis, whereby the message illustrated in Section 2 is reported on top and the other steps are discussed below. As highlighted by Figure 2, the ELM works through a step-by-step sequence, where the message represents the starting point, each intermediate step (A, B, C, D, and G boxes) is a specific condition, and the concluding steps (E, F, and H boxes) represent the three possible ELM outcomes.

Figure 2 – The employee’s decision process through the Elaboration Likelihood Model



Note: The figure is based on an adaptation of the scheme by Petty, Briñol and Priester (2009).

After exposure to the message, the first step is to assess the employee's involvement in the message content (box **A** in Figure 2). In order to do this, we consider involved or motivated those who remember their choice (i.e. they response 'Yes' or 'No') about the Tfr transfer into a pension fund at the time of the survey. Indeed, if someone does not know or does not remember his/her response after a few years (or even months), then it will be likely that he/she is not really interested in the message content. Accordingly, in the sample 88% are involved (72% for 'No' response plus 16% for 'Yes' one, as discussed in Section 3), while the remaining 12% are not because they answer 'Do not know' to the Tfr transfer question (Table 1).

However, even in presence of involvement/motivation, an employee must have the necessary ability to process the message (box **B** in Figure 2). We define the ability to process using four specific questions, included only in 2008 survey, about pension funds functioning and advantages introduced by 2007 reform for increasing participation in them. The precise wording of the four questions is reported below.

- (1) *Pension funds enjoy tax benefits compared to a mutual fund.*
True/False/Do not know.
- (2) *When you retire, you can withdraw part of the invested capital.*
True/False/ Do not know.
- (3) *There are pension funds with guaranteed minimum returns.*
True/False/Do not know.
- (4) *Pension funds guarantee a fixed percentage of the last salary.*
True/False/Do not know.

Table 2 – Statistics of the pension funds questions. Year 2008

Question 1 (%)		No. of correct answers	% of sample population
Incorrect or 'do not know'	68.8		
Correct	31.2		
Question 2 (%)		0	33.5
Incorrect or 'do not know'	54.8	1	17.4
Correct	45.2	2	23.2
Question 3 (%)		3	21.9
Incorrect or 'do not know'	56.6	4	4.0
Correct	43.4		
Question 4 (%)		Total	100.0
Incorrect or 'do not know'	74.4		
Correct	25.6		

Table 2 shows that only a very small percentage of sample has a good knowledge of pension funds functioning and the news introduced by the reform. In particular, only 4.0% correctly answered to all four questions, 25.9% correctly answered to at least three questions on four, while 33.5% did not correctly answer even one question. The question with the highest percentage of correct answers (45.2%) is the second one on the possibility of withdrawing part of the capital at retirement, but a similar percentage (43.4%) of correct answer is given on the existence of pension

funds with guaranteed minimum returns. Only about one third (31.2%) knows about tax benefits introduced by 2007 reform, while only about one fourth (25.6%) knows pension funds do not guarantee a fixed percentage of last salary. We define an employee as able to process the message content if he/she correctly answered at least two questions out of four. So the sample can be divided in four groups: people who are not involved and not able to process the message content (6.8% of the sample); people who are not involved but able (5.1%); people who are involved but not able (44.1%); and people who are both involved and able (44.0%). According to the ELM structure only the last group of employees can proceed to the step **C**, while the others deviate in the step **G**.

If the employee does not have necessary involvement or ability, it is fundamental to assess whether or not a peripheral process is operating (box **G** in Figure 2). We discriminate between these two alternatives according to the presence of a change in the participation in a pension fund from 2006 to 2012. Indeed, in a scenario without any influence, it is plausible that people will retain their initial (i.e. 2006) attitude, so that they will still have a pension fund in 2012 if they had one in 2006 and vice versa (box **H** in Figure 2). By contrast, a change in 2012 w.r.t. the initial attitude signals the influence of contextual elements on the employee's behavior, triggering a 'peripheral route' (box **F** in Figure 2). Note that, according to ELM theory, people without motivation and ability can never achieve the central route.

In order to exemplify contextual elements that can influence the employee's choice, we can take the case of unions' presence on the workplace or think of the role of media. As for the former, several unions decided to sponsor specific occupational pension funds inside workplaces. As for the latter medias (TV, newspaper, radio, websites etc.), especially in 2007, massively spoke about potential positive and negative effects of this controversial reform. In the specific case under investigation, another contextual element is the number of employees in the firm, because the reform defined two different regulations in case of transfer denial: for firms with more than 50 employees and for smaller ones. Indeed, people employed in firms with less than 50 employees may receive more pressures for not transferring, since employers can take great advantages of their employees' severance pay remaining in the firm⁶.

If instead the employee is both motivated and able to process the message, after having scrutinized the message and collected all necessary information, he/she will try to evaluate if he/she is more favourable or unfavourable to pension funds than before receiving the message (box **C** in Figure 2). As well as in box **G**, to proceed over this step we take into account the presence of a change in the participation in a pension fund from 2006 to 2012. In fact, regardless their motivation or ability, employees can always choose to retain their initial attitude (box **H** in Figure 2) or change their mind about pension funds. Compared to the peripheral route to box **H**, in this case it is likely that employees take a conscious decision, despite the fact that they retain their initial attitude.

⁶ Before the 2007 reform all Italian firms were forced to set aside on their annual budget a percentage of the gross annual salary of their employees in order to finance their future severance pay. Since the severance pay is due only at the end of work relationship in a lump sum plus a low inflation-based return, in practice it represents a sort of cheap loan from employee to employer. After the reform became effective, regardless the employees' decision to transfer their Tfr into a pension fund, medium-large firms lost this convenient financial source. Indeed now if an employee who works in this category of firm decides to deny the Tfr transfer into a pension fund, then his/her future Tfr contributions will be managed by the Italian National Institute of Social Security. On the other hand, smaller firms can still take advantage of their employees' severance pay if they decide not to transfer it into a pension fund. Therefore, employers of smaller firms had an incentive to force their employees to deny the Tfr transferring.

At this point, if a person is also more favourable/unfavourable to pension funds and the process has been rational and conscious, then we would expect that he/she will make a long-term change in his/her cognitive structure (box **D** in Figure 2). If the attitude change is relatively permanent and predictive of subsequent behavior, then it will mean that the employee made his/her choice following a central route (box **E** in Figure 2), otherwise it is important to understand what happened. Petty and Cacioppo (1983) affirm in their theory that a central route can be covered only by men/women with motivation and ability, nevertheless these two requirements represent a necessary but not a sufficient condition. Therefore, also when the employee is motivated and able to understand the message content, his/her attitude may be affected by positive or negative cues, contextual elements or heuristics that allow him/her to evaluate the advocacy quickly, triggering once again a peripheral route (box **F** in Figure 2).

We assess the presence of a long-term change in employees' cognitive structures by checking whether the change in the pension fund participation from 2006 to 2012 is consistent with the own response about the severance pay transfer. In particular, there is consistency between the change in the pension fund participation and the Tfr choice when the 'Yes' response is associated to a positive change in pension fund participation (i.e. the respondent did not have a pension fund in 2006, but he/she has one in 2012) or the 'No' response is associated to a negative change in pension fund participation (i.e. the respondent had a pension fund in 2006, but he/she no longer has one in 2012). While in the former case consistency is obvious, since if an employee decides not to deny the transfer of his/her severance pay, then he/she will surely have a pension fund in 2012⁷, in the latter the decision may be driven by a higher consciousness of some negative characteristics of a pension fund (e.g. higher riskiness). In sum, if there is no consistency a peripheral route (box **F** in Figure 2) acted because the decision has not been really conscious; otherwise employees followed a central route (box **E** in Figure 2) and their attitude change is permanent.

In conclusion, on the basis of ELM outcomes, there are two possible taxonomies of individuals. In fact, the sample of employees can be divided in three different groups: those who changed their initial attitude about pension funds in a conscious way (the ELM's central route, CR); those who changed their pension fund participation in an unconscious way (the ELM's peripheral route, PR); and those who decided to retain their initial attitude (RIA). Alternatively, the sample can be in two between those who chose consciously and those who did not. In fact, also among those who retain their initial attitude there are people that decide to do that consciously: employees who end up in box **H** through step **C** (i.e. those who are motivated and able to process the message content).

These two ways to categorized people represent our variables of interest. The first variable is a multinomial variable, which can assume three unorderable values (CR, PR, or RIA), while the second one is a simply binary variable (conscious or unconscious decision).

Once the scheme in Figure 2 and our variables of interest are well defined, we follow Petty and Rucker (2006) in a series of steps to assess the message effectiveness. In particular, they identify the following six steps, which we discuss in detail in the following subsections:

- 1) Consider the audience elaboration level (are reform recipients prone to scrutinize the message carefully and able to do so?);

⁷ Actually 4% of those who chose to transfer their Tfr into a pension fund then erroneously declared not to have a pension fund in 2012 (Table 3). Given the clear ambiguity of these answers, we decide to consider these few individuals as followers of a peripheral route and however as takers of a unconscious decision.

- 2) Design and evaluate message characteristics;
- 3) Evaluate message objectives (is the desired attitude change immediate or enduring?);
- 4) Assess fit between audience elaboration, message characteristics and message objectives (is there consistency?);
- 5) Test message effectiveness (is more effective under low or high elaboration?);
- 6) Evaluate message effectiveness

4.1. Audience elaboration level

Evaluating the audience elaboration level is not a simple process, because it is based on many individual and contextual elements. Indeed, the elaboration level of a person, i.e. his/her skills to understand and scrutinize the message as well as his/her interest in the message content, can vary depending on individual characteristics, but also on cultural characteristics. However, given that the message content is about pension funds and, more in general, pension investment choices, we decide to estimate it through: time-to-retirement (i.e. the remaining number of years to reach retirement)⁸; financial literacy; risk aversion; and current participation into a pension fund. Since the reform became effective in 2007, in order to evaluate the audience elaboration level, and recalling that SHIW is a biannual survey, we consider only observations in the wave prior to message, i.e. the 2006 wave.

Table 3 shows that in 2006 non-employed individuals (mostly students, housewives/homemakers, and unemployed) account for about 20%, while workers represents about 45% of the total sample, clerks 27.3%, and executives the remaining 7%. Among employees, 48% have a time-to-retirement between 15 and 30 years, while 28% have time-to-retirement smaller or equal to 15. The group with time-to-retirement greater than 30, i.e. the group which should have the highest interest in the reform content, represented 24% of the sample. Most employees (63.4%) work in small companies (i.e. companies with less than 50 employees), while about 26% worked in big companies (i.e. companies with at least 100 employees). Moreover, in 2006 the average household income is equal to €38,500, 70% are home-owner, the average household wealth is equal to €249.000, and among employees the mean expected replacement rate is equal to 64.1.

Regarding the measurement of financial literacy, Fornero and Monticone (2011a) use three questions of the 2006 SHIW survey. In particular, these questions aim to discover how many individuals understand how inflation, interest rates, and stocks work (for further details about the questions see Fornero and Monticone, 2011a).

⁸ The time-to-retirement is calculated as the difference between 40 (necessary number of contribution years to retire) and the current number of contribution years.

*Table 3 – Work and economic descriptive variables of the sample for year and Tfr choice
(mean values)*

Work and Economic Variables	2006	2012			Total population
	Total population	Yes	No	Do not Know	
Job classification					
<i>Non-employed</i>	20,3%	0,0%	0,0%	0,0%	0,0%
<i>Worker</i>	45,4%	42,3%	62,2%	55,9%	58,3%
<i>Clerk</i>	27,3%	37,5%	31,4%	40,2%	33,4%
<i>Executive</i>	7,0%	20,2%	6,5%	3,9%	8,3%
Time-to-retirement group					
<i>Time-to-ret. > 30</i>	24,2%	11,4%	22,0%	32,0%	21,5%
<i>16-30</i>	47,7%	32,9%	39,0%	40,0%	38,2%
<i>Time-to-ret. ≤ 15</i>	28,1%	55,7%	39,0%	28,0%	40,4%
Company size					
<i>Employees ≤ 15</i>	63,4%	13,1%	53,5%	46,5%	46,4%
<i>16-49</i>		13,1%	18,1%	24,4%	18,0%
<i>50-99</i>	10,2%	11,9%	7,0%	3,9%	7,4%
<i>Employees ≥ 100</i>	26,4%	61,9%	21,4%	25,2%	28,2%
Disposable household income (€)	38.539	50.575	39.523	44.918	41.899
Home ownership	70,2%	85,1%	70,8%	72,4%	73,3%
Household wealth (€)	249.129	303.077	236.920	340.466	259.597
Expected replacement rate	64,1	63,3	61,9	65,7	62,5
Unknown replacement rate	-	29,2%	45,9%	62,2%	45,2%
Risk aversion					
<i>Low</i>	1,2%	1,2%	0,5%	0,8%	0,7%
<i>Medium</i>	14,9%	9,5%	9,3%	7,1%	9,1%
<i>High</i>	83,9%	89,3%	90,2%	92,1%	90,3%
Preference for short period¹	-	29,2%	35,4%	26,0%	33,3%
Preference for lump sum²	-	58,5%	64,2%	70,0%	63,6%
Financial literacy²	-	73,8%	59,6%	47,2%	60,4%
Pension fund knowledge²	-	64,9%	46,7%	42,5%	49,1%
Pension fund participation in 2006	9,9%	26,8%	6,3%	9,4%	9,9%
Pension fund participation in 2012	-	95,8%	11,5%	6,3%	24,1%

Notes: ¹ Evaluated in 2010; ² Evaluated in 2008.

Table 4 shows that individuals within the panel understood pretty well how inflation works, since they respond correctly in about 70% of cases. The majority of individuals (60%) understood also how stocks work, but only 44% of them correctly answered to the question about interest rate. In conclusion, people with three correct answer out of three represented 28.4% of the sample, while only 18% of employees give the wrong answer to all three questions. If we take a more extensive definition of financial literacy, i.e. at least two questions out of three, the 2006 sample consists of

63.5% of financially literate individuals. Overall, from Table 3 Italians appear very risk averse: only about 1% respond to prefer investments with high levels of risks and returns, while the 84% prefer low returns and low or no risk. Moreover only 10% of the sample participated in a pension fund in 2006.

Table 4 – Statistics of the financial literacy questions. Year 2006

Do you understand how inflation works? (%)		No. of correct answers	% of sample population
No	30.3		
Yes	69.7		
Do you understand how interest rate works? (%)		0	17.9
No	55.7	1	18.6
Yes	44.3	2	35.1
Do you understand how stocks work? (%)		3	28.4
No	40.2	Total	100.0
Yes	59.8		

In conclusion, in 2006 the message audience is quite young and should be involved in the reform message. Since most of people are financially literate and have a medium-high education level, the audience elaboration level (i.e. the probability to take a conscious decision) should be elevated, although Italian employees appear very risk averse and have a low participation in pension funds.

4.2. Design message characteristics and objectives

Contrary to an advertising spot, where the message is clear and well explained, the contents of a law are not so easy to understand for a wide audience. In addition, generally there is nothing about law's motivations or objectives within the very same. Although it is sometimes possible to find part of it in law's heading, this not the case for the analyzed reform. In fact, the heading of Legislative Decree no. 252/2005 is particularly generic: «*Regulation of non-compulsory pension schemes*».

Also the definition of the sender of the message is not easy when it is transmitted via law. Although the political responsibility of a law belongs to the Government that writes it, for a citizen it is difficult to understand who is specifically asking him/her to take the choice. The credibility of the law message could be based on the Government, or on the role of the Prime Minister, or also on the Minister of Labour and Welfare State. Even though several others stakeholders (e.g. unions, banks, representatives of employers and political opponents) can influence the law's development, blurring or smoothing the initial idea of the reform. To deal with all these problems and «*to guarantee employees the possibility to choose and to determine their future consciously*» (Damiano, 2007), and also given the reform importance, the Italian Government decided in 2007 to communicate the message inside the law through all available channels: a lot of public and private TV channels spoke about the reform in their talk shows; a specific hotline and a specific website were created for any questions by citizens; a daily informative event was realized in the first public TV channel (*RAI 1*). Obviously, there were also reform opponents but they represented a minority and they were not associated to the message sender.

The message reported in Figure 2, does not speak about several fundamental aspects for the employees' choice. For example, it does not speak about the fact that the higher return of pension funds is connected to higher risk, or that tax incentives can change over time regardless of their decision, or that if they do not deny the Tfr transfer, then this process will be irrevocable. The choice of the message wording discussed in Section 2 is supported by the documented fact that only a very small percentage of potential beneficiaries had full knowledge of the advantages and disadvantages of the reform, while most were completely unaware of them. Most information was given by potential beneficiaries of the reform by means of publications (books, articles), union meetings and TV shows. Moreover, in terms of paper documents, private employees received only the appropriate forms to fill out to take their decision on pension funds, and they were not accompanied by any information to take a more conscious decision. Consequently the high number of null answers (missing or 'Do not know' responses) may derive from the fact that message and forms to formalize the decision were not received at the same time. In other words, it is likely that a relevant number of beneficiaries of the 2007 reform did not really receive the message, regardless their motivation or ability.

As for the reform objective, it was essentially meant for employees to prefer a pension fund (plus linked tax benefits) to their severance pay so as to cope with a decreasing public pension in the future, by means of a secondary pension income (pension fund return) probably higher than the traditional severance pay. In the end, given the message content and the irrevocable nature of the Tfr transferring decision when positive, the attitude change desired by the Italian Government was meant to be enduring.

4.3. Assessing the fit between audience elaboration and message characteristics and objectives

Tables 1 and 3 highlight differences in the demographic and socio-economic characteristics by the three different severance pay responses ('Yes', 'No' and 'Do not know'), especially between 'Yes' respondents and the other two⁹. The 'Yes' group is composed mainly by men, living in the North, married, with higher education and job skills, higher average household income compared to the other two groups. Most notably they are older than the others, which is contrary to expectations, since returns from pension fund is supposed to be higher in the long run. On the other hand, the average age of employees who 'Do not know' is lower than the total sample's one, showing a greater lack of interest by young people about their pension situation. According to Pettigrew et al. (2007), a possible way to explain this outcome is that young people, regardless their education level, are characterized by a strong sense of 'live for today', low interest in financial planning and a poor understanding of the available pension options. Given the strong correlation between time-to-retirement groups and age, the same result holds for time-to-retirement.

The 'Do not know' group has instead the highest average household wealth, whereby in this case the answer may be interpreted in terms of no/underreporting of the richer individuals, which is typical for investment choices. Another interesting difference among the three groups is in the size of the firm where respondents work. Indeed this is probably connected to some influencing elements discussed above: two different regulations in case of transfer denial according to firm size

⁹ These differences are all statistically significant at the 1% level for demographic size of the city of residence, household size, household wealth, expected replacement rate, risk aversion, and preference for short period and lump sum. Citizenship and gender are significant at 5%.

penalizing smaller firms, and the presence of unions. Although it is not easy to disentangle this effect from the influence of media, most people in the ‘Yes’ group work in companies with more than 100 employees, i.e. the ones with higher unionization rates, whereby ‘No’ and ‘Do not know’ individuals work in companies with less than 50 employees. It is therefore plausible that, in the latter two cases, employees were not adequately informed and/or that employers forced them to deny the severance pay transferring in pension funds thus keeping a cheap financing source in the firm. This may happen regardless the employees’ involvement in message content or their ability to process it, compromising the individual decision process.

Also in terms of individual characteristics closer to the message content (e.g. financial literacy, pension funds knowledge) a relevant heterogeneity among the three groups still remains. Table 3 displays that in ‘Yes’ group about 73.8% of employees are financially literate and 64.9% of them are able to process the message content, while these percentages are quite lower in the other two groups¹⁰. Those who decided to transfer their Tfr into a pension fund have also since 2006 a higher pension funds participation (26.8%) and a more elevated knowledge (or at least consciousness) of their future pension income, since the ignorance of their future replacement rate (i.e. the percentage of employees that in 2012 did not even answer about their expected replacement rate) is the lowest (29.2%), while consistently with its characteristics the ‘Do not know’ group of employees has the highest value of this rate (62.2%). In conclusion, contrary to expectations given pension funds characteristics (e.g. riskiness, period of investment, and return modalities of invested capital) and reform objectives (i.e. increase the future replacement rate), there is no significant difference between ‘Yes’ group and the others in the expected replacement rate, risk aversion, and preference for short period and lump sum.

Table 5 reports the Tfr choice and change in pension funds participation from 2006 to 2012 for motivation and ability. It highlights that only 64.9% of those who answered ‘Yes’ can be considered both motivated and able to process, compared to 46.7% of those who denied the Tfr transferring. Table 5 also shows that among those who positively changed their participation in pension funds in 2006-2012 period (i.e. ‘No-Yes’ column), a relevant part (42.1%) were not really involved by the message content or able to correctly scrutinize it, leading in this way to a potential unconscious decision. Among motivated and able employees who positively changed their mind about pension funds, 45 people out of 113 decided not to give up their severance pay. Despite this, they can be considered as ‘success cases’ of the 2007 reform in terms of attitude changes hoped for by the Italian Government (i.e. having a pension fund to better handle with a lower public pension in the future). In fact, they decided to participate in a pension fund. Nonetheless according to the ELM rules they however followed a peripheral route, because their responses (‘No’) seemed to determine only a temporary stance.

¹⁰ Financial literacy rate in Table 3 was calculated taking into account the three questions of the 2008 SHIW survey. The 2008 set of questions is not exactly the same as the 2006 one discussed in Section 4.1, because questions about interest rate and stocks market are replaced with a question about risk diversification and another one about riskiness of financial instruments (for further details about the 2008 questions see Fornero and Monticone, 2011b). Apart from this difference in questions, the adopted criterion to consider financially literate an individual is equal to the one discussed in Section 4.1: at least two correct answers on three.

*Table 5 – Tfr choice and change in pension funds participation by motivation and ability
(Relative frequencies are calculated respect to the total sample)*

Choice about the Tfr Transfer	Change in Pension Funds Participation (2006 – 2012)				Total
	No – No	No – Yes	Yes – No	Yes - Yes	
<i>People who are neither motivated nor able to process</i>					
Yes	0 0.0%	50 42.4%	1 50.0%	8 18.6%	59 35.1%
No	372 56.8%	26 36.6%	13 41.9%	2 11.1%	413 53.3%
Do not know	109 100.0%	6 100.0%	10 100.0%	2 100.0%	127 100.0%
Total	481 62.5%	82 42.1%	24 55.8%	12 19.0%	599 56.0%
<i>People who are both motivated and able to process</i>					
Yes	5 100.0%	68 57.6%	1 50.0%	35 81.4%	109 64.9%
No	283 43.2%	45 63.4%	18 58.1%	16 88.9%	362 46.7%
Do not know	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Total	288 37.5%	113 57.9%	19 44.2%	51 81.0%	471 44.0%

Legenda: No means no participation, Yes means participation, hence No-No and Yes-Yes correspond to no change.

4.4. Testing and evaluating message effectiveness

As discussed above, the implementation of an ELM model provides three possible outcomes: I) individuals follow a central route to take their decision; II) individuals follow a peripheral route taking a not really conscious decision; III) individuals decide to retain their initial attitude. Table 6 highlights that the most common ELM outcome is the third one, showing a very high rigidity of Italian households in changing their attitude about the participation in pension funds (77.8%). Among people who changed their attitudes about pension funds the most common route was the peripheral one (14.2% of the sample), pointing out that Italian employees were overall influenced. This may have happened because the analyzed message was not clearly explained or correctly provided, and also because Italian employees did not have, on average, the necessary motivation and ability to take a reasoned decision about such a complex subject. This creates the best condition to allow contextual stakeholders (e.g. employers and unions) to significantly influence private employees and, as a consequence, only a small part of population (8.0%) is found to have taken a conscious decision.

Table 6 – ELM outcomes and Tfr choice

ELM Outcome	Choice about the Tfr Transfer			Total
	Yes	No	Do not know	
Central Route	68 40.5%	18 2.3%	0 0.0%	86 8.0%
Peripheral Route	52 31.0%	84 10.8%	16 12.6%	152 14.2%
Retain Initial Attitude	48 28.6%	673 86.8%	111 87.4%	832 77.8%
Total	168 100.0%	775 100.0%	127 100.0%	1,070 100.0%

Table 7 – ELM outcomes and change in pension funds participation from 2006 to 2012

ELM Outcome	Change in Pension Funds Participation (2006 - 2012)				Total
	No - No	No - Yes	Yes - No	Yes - Yes	
Central Route	0 0.0%	68 34.9%	18 41.9%	0 0.0%	86 8.0%
Peripheral Route	0 0.0%	127 65.1%	25 58.1%	0 0.0%	152 14.2%
Retain Initial Attitude	769 100.0%	0 0.0%	0 0.0%	63 100.0%	832 77.8%
Total	769 100.0%	195 100.0%	43 100.0%	63 100.0%	1,070 100.0%

Legenda: No means no participation, Yes means participation, hence No-No and Yes-Yes correspond to no change.

Regarding the ELM outcomes by Tfr choice group, retaining initial attitude was the most common outcome in ‘No’ and ‘Do not know’ groups, while employees who answered ‘Yes’ retained their initial attitude only in 28.6% of cases (Table 6). However this latter group is the one that shows the highest percentages in central and peripheral routes. In particular, among ‘Yes’ respondents to the Tfr transfer question, according to the ELM results 40.5% of them followed a central route, while the remaining part followed a peripheral route reaching in this way a not fully conscious decision. Instead, observing the relationship between ELM outcomes and changes in pension funds participation from 2006 to 2012, the peripheral route represents the favourite route among Italian employees that decided to change their attitude about pension funds both positively and negatively (Table 7). In fact only 34.9% of those who positively changed their initial attitude followed a central route as well as 41.9% of those who negatively changed their participation.

Table 8 shows that a relevant part (40.1%) of those who retained their attitude about pension funds did it consciously. Overall, irrespective of the route and the final attitude, 39.3% of the sample took the decision consciously.

Table 8 – Consciousness of decision and ELM outcomes

Conscious Decision	ELM Outcome			Total
	Central Route	Peripheral Route	Retain Initial Attitude	
No	0 0.0%	152 100.0%	498 59.9%	650 60.7%
Yes	86 100.0%	0 0.0%	334 40.1%	420 39.3%
Total	86 100.0%	152 100.0%	832 100.0%	1,070 100.0%

Table 9 illustrates that those who answer ‘Yes’ to the Tfr transferring question take a conscious decision (61.3%) more than employees who respond ‘No’ (40.9%). Moreover, Table 9 shows that there is a lack of consciousness regardless of the employees’ change in pension funds participation from 2006 to 2012. Indeed, the only category where employees who take a conscious decision are more than those who do not (i.e. ‘Yes-Yes’ column) is the smallest one, while in the other three categories they always represent a minority of the sample.

*Table 9 – Tfr choice and change in pension funds participation by consciousness
(Relative frequencies are calculated respect to the total sample)*

Choice about the Tfr Transfer	Change in Pension Funds Participation (2006 - 2012)				Total
	No - No	No - Yes	Yes - No	Yes - Yes	
<i>Unconscious decision</i>					
Yes	5 100.0%	50 42.4%	2 100.0%	8 18.6%	65 38.7%
No	372 56.8%	71 100.0%	13 41.9%	2 11.1%	458 59.1%
Do not know	109 100.0%	6 100.0%	10 100.0%	2 100.0%	127 100.0%
Total	486 63.2%	127 65.1%	25 58.1%	12 19.0%	650 60.7%
<i>Conscious decision</i>					
Yes	0 0.0%	68 57.6%	0 0.0%	35 81.4%	103 61.3%
No	283 43.2%	0 0.0%	18 58.1%	16 88.9%	317 40.9%
Do not know	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Total	283 36.8%	68 34.9%	18 41.9%	51 81.0%	420 39.3%

Legenda: No means no participation, Yes means participation, hence No-No and Yes-Yes correspond to no change.

5. An econometric analysis of the ELM outcomes

In order to evaluate the impact of demographic and socio-economic characteristics of employees on the probability to follow a specific ELM route and to take a conscious decision, a multivariate analysis is now conducted estimating two different binary response models: a Multinomial Logit Model (MLM) for the ELM outcomes and a Logit Model for the consciousness of decision, both by the standard maximum likelihood procedure.

The model specification is the following:

$$ELM_{it} = \beta X_{it}^I + \gamma X_{it}^H + \omega X_{it}^W + \vartheta X_{it}^{IW} + \delta X_{it}^F + \varepsilon_{it} \quad (1)$$

$$C_{it} = \beta X_{it}^I + \gamma X_{it}^H + \omega X_{it}^W + \vartheta X_{it}^{IW} + \delta X_{it}^F + u_{it} \quad (2)$$

where ELM is an multinomial variable which can assume three values that cannot be ordered and represent the possible ELM outcomes (CR, PR, or RIA), C is a binary variable which is equal to 1 if decision is conscious and 0 otherwise, X^I is a vector of individual characteristics (gender, age, marital status, education level), X^H is a vector of household characteristics of the employee (macroarea of residence, demographic size of the city of residence, number of household components), X^W is a vector of work characteristics (job classification, company size), X^{IW} is a vector of household income and wealth information (income quintile, home ownership, wealth quintile), and X^F is a vector of individual economic and financial information (knowledge of own pension situation and pension funds, risk aversion, financial literacy, preference for short period investments). For a detailed description of each variable see Table A1 in the Appendix. The base outcome in the Multinomial Logit estimation is the third one, thus retaining initial attitude (RIA). It follows that Multinomial Logit marginal effects in table 10 must be interpreted as an increase/decrease in the probability to follow a central route (first outcome) or a peripheral route (second outcome) respect to retain initial attitude.

Table 10 reports the marginal effects of the controls on the ELM outcomes (Multinomial Logit) in column (1)-(3) and on the consciousness of the decision (Logit) in column (4). Results show that gender does not matter either in changing initial attitude or in consciousness of the decision process, somewhat in contrast to some studies in household finance highlighting a higher probability of women to be financially excluded (Lusardi, Mitchell and Curto, 2009; van Rooij, Lusardi and Alessie, 2011; Fornero and Monticone, 2011a). Also being young (i.e. less than 35) does not lead to a higher probability to change initial attitude about pension funds, although the 2007 reform was primarily directed to younger generations. Only being 35-45 years old in 2012 determines a (marginally) statistically significant higher probability to change initial attitude with respect to older individuals, but following a PR. Indeed this age group shows also a lower probability to take a conscious decision.

Moreover, results show a strong impact of higher education levels on the probability to change consciously initial attitude. Nonetheless, having a high education level does not have a role in the decision consciousness (column 4). Geographic dummies (column 1) are not significant when looking at determinants of CR (w.r.t. RIA), but living in the South has a strongly significant negative effect on the decision consciousness. Living a small city is associated to a higher probability to change via a PR the initial attitude about pension funds. The size of companies where employees work has a significant effect on ELM outcomes and the consciousness of decision

process: with respect to medium-large firms (i.e. with more than 50 employees), working in a small one determines a much lower probability to change via a CR the initial attitude and, more in general, to take a conscious decision. On the other hand, employees in large companies seem to have been influenced more by some contextual element (e.g. unions) and, as a consequence, show a significant lower probability to consciously decide about the Tfr transferring. In other words, employees in large companies may have received more and better information about pension funds and reform objectives thanks to informative meetings organized by unions, but this may have strongly influenced those employees who were neither motivated nor able to process contents of reform message.

Table 10 shows that job classification dummies, quintiles of household wealth and income, and home ownership do not affect on the consciousness of the decision process. Nonetheless, people with a high income (i.e. belonging to the fourth or fifth income quintiles of the total population) have a slightly higher probability to follow a CR, while employees with a medium income (i.e. belonging to the third income quintile of the total population) are more likely to follow a PR. As expected having a high risk aversion determines a big deterrent to be influenced to change own initial attitude or to unconsciously take an important choice such as the Tfr transfer one. On the other hand, knowing or being able to figure out the future replacement rate and the preference for short period investments do not have a statistically significant impact on the probability to change the pension funds participation and to choose consciously about the Tfr transferring. As expected, pension funds knowledge has a clear-cut and positive role in determining decision making via a CR and, more in general, in taking the Tfr choice consciously. Finally, financial literacy is positively associated with the probability to follow a CR and with consciousness, but it is never statistically significant, contrary to studies on this topic (Fornero and Monticone, 2011b). It follows that in this specific decision, once environmental elements and characteristics of elaboration processes (e.g. motivation and ability to process) are accounted for, financial literacy is not anymore important in explaining the consciousness of the Tfr choice.

5.1. Robustness tests

Several robustness tests on results of Table 10 are conducted along a few dimensions, which are just summarized here (results are available upon request).

As for the controls, we tried different specifications of some of them: quadratic specification for age (instead of age classes), quadratic specification for income and wealth (instead of quintiles), linear specification for household size (instead of dummies). All results in Table 10 hold.

In order to verify the non-significance of financial literacy, first of all, we use a level-specification (i.e. the number of correct answers) or specific dummies for the three questions. Secondly, we remove from the model specification the education level and the company size dummies. In both these checks, financial literacy turn out non-significant.

Finally, we remove from the model specification the control “pension funds knowledge”. In this case, both in Multinomial Logit and Logit estimations financial literacy variable become significant. However, while the marginal effect of financial literacy is strongly statistically significant (1%) on the choice consciousness, it is only marginally significant (10%) on the probability to follow a CR respect to RIA. Therefore we believe the main specification is better and our final considerations about financial literacy are robust.

*Table 10 – Determinants of the ELM outcomes (Multinomial Logit)
and of the decision consciousness (Logit): marginal effects*

	(1)	(2)	(3)	(4)
VARIABLES	Central route CR	Peripheral route PR	Retain initial attitude RIA	Decision consciousness DC
Female	-0.003	0.000	0.002	0.002
Age < 35	0.004	-0.012	0.008	-0.040
Age 35-45	-0.016	0.066*	-0.050	-0.075**
Age 45-55	0.003	0.026	-0.029	-0.040
Married	0.044	0.015	-0.059	0.052
High school	0.050**	0.032	-0.082**	0.012
University	0.078***	0.009	-0.087*	0.027
Center	-0.007	-0.002	0.009	0.006
South	-0.028	0.040	-0.012	-0.096***
Small city	-0.002	0.065**	-0.062*	-0.011
Big city	-0.021	0.028	-0.006	0.009
Household size = 2	-0.055	-0.031	0.086	-0.061
Household size = 3	-0.066	-0.081	0.147*	-0.023
Household size = 4	-0.035	-0.101	0.136*	0.024
Household size ≥ 5	-0.039	-0.039	0.078	0.054
Worker	0.008	0.014	-0.022	0.022
Executive	-0.019	0.028	-0.009	0.026
Employees ≤ 15	-0.071**	-0.050	0.121***	-0.009
15 < Empl. < 50	-0.067**	0.031	0.037	-0.115***
Employees ≥ 100	-0.015	0.054	-0.039	-0.055*
Medium income	-0.015	0.086**	-0.071	0.021
High income	0.051*	0.060	-0.111**	-0.011
Home ownership	0.037	-0.022	-0.015	0.034
Second wealth quintile	-0.053	0.058	-0.004	0.049
Third wealth quintile	-0.085	0.039	0.046	0.042
Fourth wealth quintile	-0.084	0.090*	-0.006	0.021
Fifth wealth quintile	-0.097	0.063	0.034	-0.001
Unknown repl. rate	-0.005	-0.022	0.027	-0.026
High risk aversion	0.020	-0.113**	0.093*	0.056*
Preference for short period	0.003	-0.027	0.024	0.031
Financial literacy	0.018	-0.017	-0.002	0.013
Pension funds knowledge	0.051***	-0.025***	-0.026**	0.204***
Observations	1,070	1,070	1,070	1,070
Pseudo R-squared	0.149	0.149	0.149	0.559
Log Likelihood	-615.2	-615.2	-615.2	-316.3

Notes: Standard Errors are robust; *** p<0.01, ** p<0.05, * p<0.1; Average Marginal Effects; Base outcome: 3 (RIA).

6. Conclusions

This paper aims to explain the heterogeneity in pension choices through the Elaboration Likelihood Model (ELM) proposed by (Petty and Cacioppo, 1983), which reproduces the elaboration process that occurs when there is an attempt to change a person's attitude through communication. When motivation and ability to think are high, individuals are inclined to follow a "central route to persuasion", otherwise they follow a "peripheral route to persuasion". Although the ELM has been mainly used so far in marketing studies for assessing the effectiveness of advertisement on consumers' choices, as far as we know this paper represents the first attempt to use it to investigate pension choice.

In particular, we use ELM in order to analyse the heterogeneity in pension choices connected to the 2007 Italian reform that allowed transferring future severance pay's contributions into a pension fund. In fact, the reform was accompanied by an information campaign with a quite clear message that resembled an advertisement in favour of the pension fund choice. To this end we use data from the Bank of Italy's Survey of Household Income and Wealth (SHIW), which includes a question on the choice about the severance pay's transfer into a pension fund. Specifically, we exploit the information of four waves: one before (2006) and three after the reform (2008, 2010 and 2012).

In order to develop an empirical assessment of the effectiveness of the reform message, we set our research question into the traditional ELM scheme, whereby the starting point is the definition of the message proposed by the Government with this reform. Relying on many different sources (literature, publications and media) we synthesize it as follows: "*Pension funds plus tax incentives linked to them can guarantee a higher retirement income, compared to the severance pay (Tfr)*". Then we use the SHIW data to assess whether the employee has the involvement/motivation, and the necessary ability to process the message in order to associate each individual one of the three possible ELM outcomes: I) decision reached via a central route; II) decision reached via a peripheral route; III) retaining the initial attitude. Since among those who retain their initial attitude some did it consciously, an alternative association is between individuals and consciousness and unconsciousness of the decision.

Then to evaluate the impact of demographic and socio-economic characteristics of employees on the probability to follow a specific ELM route and to take a conscious decision, we performed a multivariate analysis estimating two different binary response models: a Multinomial Logit Model for the three ELM outcomes and a Logit Model for the consciousness of decision. Main results are from regression analysis are that being female or a living in the South do not represent *ceteris paribus* a threat to consciousness, low income or wealth have are associated to a lower probability to change their initial attitude; generic financial literacy is not statistically significant in taking a conscious decision, high education level (developed cognitive skills) and a specific knowledge of pension funds seem to have a strong impact on choice consciousness; individuals working in large companies have more and better information on the reform content (possibly due to the presence of unions), but also a higher probability of being influenced, having a high risk aversion reduces the probability of being influenced.

In conclusion, the decision to transfer the Tfr into a pension fund was taken by more educated and older individuals, with a high household income, even though these individuals are also generally richer. This evidence is not surprising in Italy, where pension funds are a relatively new and the public pension system was traditionally generous. However, those who would have the

greatest need because low income or younger did not receive or understand the message of the reform, deciding not to give up the severance pay in favor of a potential higher future retirement income. Thus, the message of the information campaign of 2007 reform was overall not very effective. Moreover, our ELM application highlights that generic financial literacy does not significantly affect decision consciousness, figuring out a more relevant role in the employees' elaboration process for other elements such as: the individual's comprehension of the specific choice object (pension funds), cognitive skills, and influencing elements (e.g. unions, employer's pressure). These considerations may have useful policy implications for the effectiveness of information messages in the pension domain.

References

- Benjamin, D. J., Brown, S. A., & Shapiro, J. M. (2006). Who is “Behavioral”? Cognitive ability and anomalous preferences. *SSRN Working Paper*, 1-49.
- Cappelletti, G., & Guazzarotti, G. (2010). Le scelte previdenziali nell'indagine sui bilanci delle famiglie della Banca d'Italia. *Questioni di Economia e Finanza*(77).
- Cappelletti, G., Guazzarotti, G., & Tommasino, P. (2013). What determines annuity demand at retirement? *The Geneva Papers on Risk and Insurance - Issues and Practice*, 38, 777-802.
- Castellino, O., & Fornero, E. (2006). Public policy and the transition to private pension provision in the United States and Europe. *CeRP Working Paper*(48), 1-28.
- Cesari, R. (2007). *Tfr e fondi pensione*. Il Mulino.
- Corsini, L., Pacini, P. M., & Spataro, L. (2010). Workers' choice on pension schemes: an assessment of the Italian TFR reform through theory and simulations. *University of Pisa Discussion Paper* (96), 1-45.
- Damiano, C. (2007). Un quadro certo per decidere in modo consapevole. In *Tfr e fondi pensione. Tutte le risposte ai dubbi dei lavoratori e dei datori di lavoro* (p. 3-4). Il Sole 24 Ore.
- Dohmen, T., Falk, A., Huffman, D., Sunde, U., Schupp, J., & Wagner, G. G. (2011). Individual risk attitudes: Measurement, determinants, and behavioral consequences. *Journal of the European Economic Association*, 9, 522-550.
- Duflo, E., Saez, E. (2003). The Role of Information and Social Interactions in Retirement Plan Decisions: Evidence from a Randomized Experiment, *The Quarterly Journal of Economics*, 118, 815-842.
- Eckel, C. C., & Grossman, P. J. (2002). Sex differences and statistical stereotyping in attitudes toward financial risk. *Evolution and Human Behavior*, 23, 281-295.
- Fellner, G., & Maciejovsky, B. (2007). Risk attitude and market behavior: Evidence from experimental asset markets. *Journal of Economic Psychology*, 28, 338-350.
- Fornero, E., & Monticone, C. (2011a). Financial literacy and pension plan participation in Italy. *Journal of Pension Economics and Finance*, 10, p. 547-564.
- Fornero, E., & Monticone, C. (2011b). Financial literacy and pension plan participation in Italy. *Netspar Discussion Paper*, 1-31.
- Guiso, L., & Jappelli, T. (2009). Financial literacy and portfolio diversification. *CSEF Working Paper*(212), 1-41.
- Gustman, A. L., Steinmeier, T. S., & Tabatai, N. (2007). Imperfect knowledge of pension plan type. *NBER Working Papers*(13379), 1-55.
- Jae, H., & Delvecchio, D. (2004). Decision making by low-literacy consumers in the presence of Point-of-Purchase information. *The Journal of Consumer Affairs*, 38(2), 342-354.
- Jappelli, T., Marino, I., & Padula, M. (2015). Households' saving and debt in Italy. *CSEF Working Paper*(395), 1-40.
- Kézdi, G., & Willis, R. (2003). Who becomes a stockholder? Expectations, subjective uncertainty and asset allocation. *Michigan Retirement Research Center Working Paper*(39), 1-46.

- Korniotis, G. M., & Kumar, A. (2010). Cognitive abilities and financial decisions. In K. Barker, & J. Nofsinger, *Behavioral Finance* (p. 559-576). New York: John Wiley & Sons.
- Lusardi, A., & Mitchell, O. S. (2011). Financial literacy and planning: Implications for retirement wellbeing. *NBER Working Papers*, 17078, 1-37.
- Lusardi, A., & Tufano, P. (2009). Debt literacy, financial experiences and overindebtedness. *NBER Working Papers*(14808), 1-44.
- Lusardi, A., Mitchell, O. S., & Curto, V. (2009). Financial literacy among the young: Evidence and implications for consumer policy. *NBER Working Papers*(15352), 1-34.
- Ministry of Economy and Finance. (2014). *Le tendenze di medio-lungo periodo del sistema pensionistico e socio-sanitario*.
- Pettigrew, N., Taylor, J., Simpson, C., Lancaster, J., & Madden, R. (2007). *Live now, save later? Young people, saving and pensions*. Leeds: Department for Work and Pensions.
- Petty, R. E., & Cacioppo, J. T. (1983). Central and peripheral routes to persuasion: Application to advertising. In L. Percy, & A. G. Woodside, *Advertising and consumer psychology* (p. 3-23). Lexington Books, D. C. Health and Company.
- Petty, R. E., & Rucker, D. D. (2006). Increasing the effectiveness of communications to consumers: Recommendations based on elaboration likelihood and attitude certainty perspectives. *Journal of Public Policy & Marketing*, 25(1), 39-52.
- Petty, R. E., Briñol, P., & Priester, J. R. (2009). Mass media attitude change: Implications of the Elaboration Likelihood Model of persuasion. In J. Bryant, & M. B. Oliver, *Media effects: Advances in theory and research* (p. 125-164). New York: Routledge.
- Rinaldi, A. (2011). Pension awareness and nation-wide auto-enrolment: the Italian experience. *CeRP Working Paper*, 11(104), 1-16.
- Sunden, A. E., & Surette, B. (1998). Gender differences in the allocation of assets in retirement savings plans. *American Economic Review*(88), 207-211.
- Torricelli, C., Urzì Brancati, M. C., & Santantonio, M. (2015). Does homeownership partly explain low participation in supplementary pension schemes? *Economic Notes*, forthcoming.
- van Rooij, M., Clemens, C. J., Kool, J. M., & Prast, H. M. (2007). Risk-return preferences in the pension domain: Are people able to choose? *Journal of Public Economics*(91), 701-722.
- van Rooij, M., Lusardi, A., & Alessie, R. (2011). Financial literacy and stock market participation. *Journal of Financial Economics*(101), 449-472.
- Wilson, C. (2014). Evaluating communication to optimise consumer-directed energy efficiency interventions. *Energy Policy*(74), 300-310.
- Wilson, C., & Irvine, K. N. (2013). Bottom-up communication: identifying opportunities and limitations through an exploratory field-based evaluation. *Energy Efficiency*(6), 91-104.

Appendix

Table A.1 – SHIW variables description

Variables	Description
<i>Dependent variables</i>	
ELM outcomes	Multinomial variable which can assume three values that cannot be ordered and represent the possible ELM outcomes (CR, PR, or RIA)
Decision consciousness	Binary variable which is equal to 1 if decision is conscious and 0 otherwise
<i>Control variables</i>	
Female	Binary variable taking value 1 for female, 0 for male.
Age < 35 Age 35-45 Age 45-55	Binary variables representing the age group of employees. The reference category is Age ≥ 55.
Married	Binary variable taking value 1 for married employees, and 0 otherwise.
High school University	Binary variables representing the highest education level achieved. The reference category is composed by No education, Primary education, and Secondary education.
Center South	Binary variables representing the macroarea of residence. The reference category is North.
Small city Big city	Binary variables representing the demographic size of the city of residence. The reference category is Medium city.
Household size = 2 Household size = 3 Household size = 4 Household size ≥ 5	Binary variables representing the household size. The reference category is Household size = 1.
Worker Executive	Binary variables representing the job classification. The reference category is Clerk.
Employees < 35 Employees 15-50 Employees ≥ 100	Binary variables representing the company size. The reference category is Employees 50-100.
Medium income High income	Binary variables representing the income quintile. Medium income is the third quintile, while High income represents fourth and fifth ones. The reference category is Low income (first and second quintile).
Second wealth quintile Third wealth quintile Fourth wealth quintile Fifth wealth quintile	Binary variables representing the wealth quintile. The reference category is First wealth quintile.
Unknown replacement rate	Binary variable taking value 1 for employees who did not declare their expectation about the future replacement rate, 0 otherwise.
High risk aversion	Binary variable taking value 1 for employees who declared to prefer an investment with high or very high returns, but also with high or very high probability to lose a portion of their invested capitals.

Preference for short period	Binary variable taking value 1 for employees who declared that if they won a lottery where the prize is equal to the annual household disposable income and it is postponed by a year, then they would give up to at least 10% of this prize to receive it immediately; 0 otherwise.
Financial literacy	Binary variable taking value 1 for employees who correctly answered to at least two out of the three questions discussed in Section 4.4, 0 otherwise.
Pension funds knowledge	Binary variable taking value 1 for employees who correctly answered to at least two out of the four questions discussed in Section 4, 0 otherwise.