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Individual Heterogeneity and Pension Choices How to Communicate an Effective Message?

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Individual Heterogeneity and Pension Choices: How to Communicate an Effective Message? [§]

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Abstract

We use the Elaboration Likelihood Model (ELM) to explain how communication influences pension choices in a heterogeneous population. We exploit the 2007 Italian reform that allowed transferring future severance pay contributions into a pension fund and was accompanied by an information campaign with a clear message. According to ELM, individuals follow either a "central route" or a "peripheral route" depending on their motivation and ability to process, and eventually change or retain their initial attitude. Based on data from the Bank of Italy Survey on Household Income and Wealth, we find that not only financial literacy plays a relevant role in the employees' elaboration process, but also the individual's comprehension of the specific choice object, the personal relevance of the decision, cognitive skills, and contextual elements (e.g. unions, employer pressure). These considerations have policy implications for the effectiveness of information messages in the pension domain.

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Introduction

Studies in household finance highlight individual heterogeneity in savings and household portfolio choices, including choices of pensions and other retirement saving products. Traditional explanations for the heterogeneity in participation in pension schemes rest on variation in 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, and Antolin (2008) on the participation in supplementary pension schemes for eight OECD countries). One strand of the literature specifically investigates the role of education, where low education in general and low financial education in particular are often found to have a negative impact on pension preparation; see, e.g., Lusardi and Mitchell (2006, 2011) for the US, Fornero and Monticone (2011) and Rinaldi (2011) for Italy, and Coppola and Lamla (2013) for Germany. Duflo and Saez (2003) find a small positive effect of information on participation in employer sponsored tax deferred accounts, and a larger effect of social interactions. Cappelletti et al. (2013) use Italian data and confirm the international evidence that individuals often lack basic knowledge of their complementary pension schemes, even those who participate in such a scheme: many participants cannot recall their investment strategy or the amount of their annuity. They also find that participation rates are particularly low among younger workers, typically those who would benefit most. Unsurprisingly, they find that income is the strongest predictor of participation, as individuals who earn more have more resources to subscribe.

This paper analyses the heterogeneity in pension choices through the Elaboration Likelihood Model (ELM) proposed by American psychologists Richard E. Petty and John T. Cacioppo (Petty and Cacioppo, 1983). ELM essentially models the elaboration process that occurs when attempting 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 are high, individuals are inclined to take a "central route to persuasion", otherwise they follow a "peripheral route to persuasion". The ELM has often been used in marketing studies to explain consumer choices (Jae and Delvecchio, 2004; Petty and Rucker, 2006), but also lends itself for the analysis of other types of individual choices connected with a communication message. For example, it can be used to explain the heterogeneity in households' financial portfolios, since in a given context, a specific (financial) advice can lead to different choices, depending on how the individual processes the message. The idea that not only cognitive skills, but also contextual elements can affect individual preferences and behavior over economic issues is in line with Hoff and Stiglitz (2016, p. 25), who maintain the need "to broaden economic discourse by importing insights into human behavior not just from psychology, but also from sociology and anthropology".

In particular, we use ELM to analyse the heterogeneity in pension choices connected to the 2007 policy reform in Italy that allowed transferring future severance pay contributions into a pension fund. In fact, the reform was accompanied by an information campaign with a clear message that resembled an advertisement in favour of the pension fund choice. The aim of our paper is not to analyse the optimality of the decision, but rather the way in which individuals process the message they receive and the ultimate effectiveness of the government's communication strategy. We use data from the Bank of Italy's Survey of Household Income and Wealth (SHIW), which includes a question on the choice concerning transferring the severance pay into a pension fund. We exploit information from four waves: one before (2006) and three after the reform (2008, 2010 and 2012).

The remainder of the paper is organized as follows. Section 1 reviews the general structure of the Elaboration Likelihood Model. Section 2 describes the Italian reform allowing the severance pay transfer into a pension fund, and its main message. While Section 3 describes the dataset, Section 4 uses these data to assess the effectiveness of the reform message using the ELM. Section 5 presents the empirical results and Section 6 concludes.

1. The Elaboration Likelihood Model of persuasion (ELM)

The Elaboration Likelihood Model of persuasion (ELM) (Petty and Cacioppo, 1983), presented in Figure 1, is essentially a theory about the thinking processes that can occur when attempting 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 about a message or issue can vary from low to high along an "elaboration continuum". The position along this continuum is determined by considering individuals' 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 skills needed to understand and react to a message. Ability not only depends on intelligence, but also on time available or distraction in the communication environment.
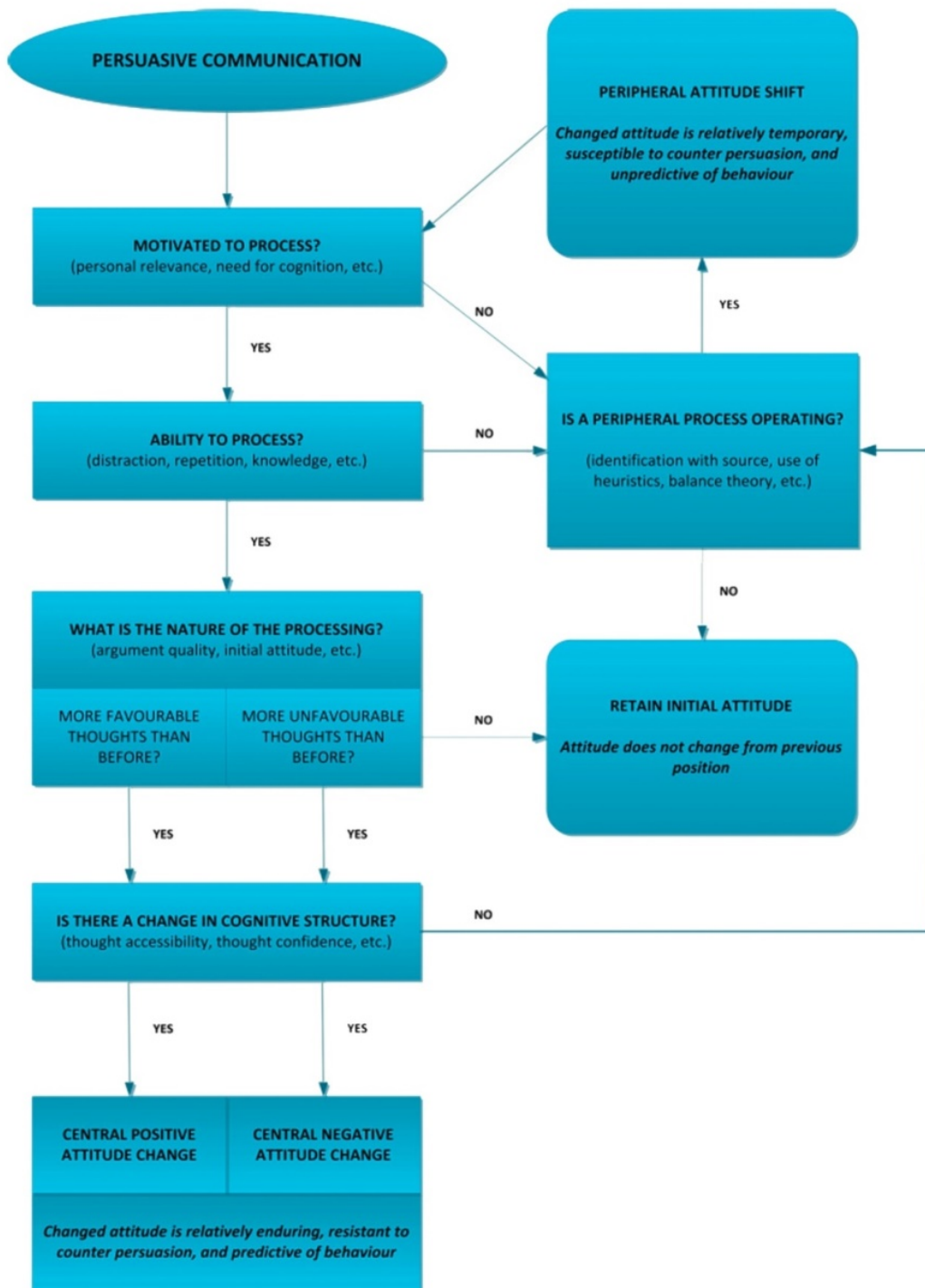
According to Petty and Cacioppo (1983), if motivation and ability to think are high, individuals are inclined to follow a central route to persuasion. Otherwise they follow a peripheral route to persuasion. In the central route, individuals carefully consider the elements of the message in order to determine whether its proposal makes sense and will be beneficial to them. Hence, it is reasonable to assume that if someone makes a decision through a central route, their changed attitude is relatively enduring, resistant to counter persuasion, and predictive of behaviour (Petty and Cacioppo, 1983; Jae and Delvecchio, 2004; Wilson, 2014). On the other hand, if a decision is based upon superficial elements, external context, or momentary feelings, then it is likely that the resultant peripheral attitude is temporary, sensitive to counter persuasion, and not predictive of behaviour. In this case it is likely that the message recipient will make a decision without undertaking the effort required to process merits and demerits in the message (Petty and Cacioppo, 1983).

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

At the start of 1970s the Italian pension system was a mixed social system: a guaranteed minimum pension for all citizens, and a pension based on end-of-career earnings for workers in the public and private sectors, for employees as well as self-employed workers. The pension system was funded through a Pay-As-You-Go scheme, determining a substantial coverage intervention by the State. 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, it has been deeply modified since the early 1990s, through reforms aimed at improving its long-term sustainability and redressing its main problems (Fornero and Monticone, 2011). These reforms implied that public pensions fell over time, so that future retirees will face the problem how to maintain their standard of living and 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 (Ministry of Economics and Finance, 2014). To counteract this reduction, the Italian government introduced a non-compulsory ('supplementary') pension, in the form of participation in one or more pension funds. This implies that the new national pension scheme has two pillars: I) the Pay-As-You-Go compulsory pension, which remains the most important; and II) a non-compulsory pension funded through a Defined Contribution scheme.[1]

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[1] Actually there is a third pillar: the private pension, determined by voluntary savings. This entirely depends on individual responsibility and life-cycle choices, and is not imposed or recommended in any way by the State.

Figure 1 – The Elaboration Likelihood Model of Persuasion

Source: Petty et al. (2009)

In addition to pensions, private sector employees in Italy can rely on a severance pay (Tfr, *Trattamento di fine rapporto*) that depends on the length of the employment relationship in the same company and on the employee's wage. To finance the Tfr, companies are forced to set aside a percentage of each employee's gross annual salary (about 7.5%) on their annual budget. Since the severance pay (including a low inflation-based return) is due as a lump sum only at the end of the work relationship, it can be seen as a cheap loan from employee to employer. Indeed for this particular

funding source, companies have to set aside interest payments computed at the annual rate of 1.5% plus three quarters of the national inflation rate.

Even though the supplementary pension scheme was introduced in 1992, participation in pension funds was much lower than in other developed countries (OECD, 2014).[2] In order to speed up the development of the second pillar, in the same spirit as the Austrian Severance Pay Reform in 2002 (Hofer, 2007), the Italian government decided in 2005 to allow employees to transfer their own future severance pay's contributions into a pension fund as of January 1, 2007.[3] This reform was motivated by the fact that pension funds generally have a higher return than the Tfr (considering an average inflation rate of about 2% during the decade 1997-2007, the average return of the non-transferred severance pay was equal to 1.5+0.75×2=3%). Moreover, contrary to the severance pay that is received as a lump sum, investments in pension funds can be converted into annuities at retirement. The Government's objective was to stimulate the development of pension funds to ensure an increase in the income of future retirees.

According to the reform, since January 1st 2007 all Italian employees in the private sector[4] have to choose among three alternatives: i) to deposit their future severance pay contributions into a pension fund (the portion set aside up to 31 December 2006 remains in the company), ii) to leave the Tfr in their companies, or iii) an intermediate solution, with the restriction that at least 50% of severance pay then has to be directed into the pension fund. To further encourage participation in pension funds, the Italian government created tax incentives and a silence-as-assent mechanism. In fact, Italian employees have six months from the start of their job (or from the start of the law's effectiveness) to communicate the decision of rejection or acceptance. If they do not respond, their severance pay is automatically transferred into 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 the severance pay and denies the transfer into a pension fund; II) the employee consciously decides to transfer Tfr into a pension fund, giving up the severance pay at the end of the work relationship; III) the employee does not make a conscious decision and follows the default.[5] Once the Tfr is transferred into a pension fund this is irrevocable; on the other hand, employees can always adhere to a fund later.

Since the reform, there is a difference between firms with less than 50 and with at least 50 employees in case the employee does not transfer the severance pay. Medium-large firms (50 or more employees) lost the opportunity to use the Tfr as a convenient financing source, since the future Tfr payments are managed by the Italian National Institute of Social Security. Smaller firms (less than 50 employees) on the other hand can still take advantage of the severance pay of employees who do not transfer their Tfr into a pension fund. Employers of smaller firms therefore had an incentive to stimulate their employees to deny the Tfr transfer.

Summing up, in terms of the ELM architecture, what is the 'message' that the Italian government wanted to give through the 2007 reform? The content of a law is generally not easy to understand for the average individual. Moreover, laws are generally not formulated to involve or motivate people. This definitely also applies to the law on the pension reform (Legislative Decree no. 252/2005), which has the generic heading «*Regulation of non-compulsory pension schemes*». Furthermore, the identity of the sender of the message transmitted via law is unclear. Although the political responsibility of a law belongs to the government that writes it, for citizens it is difficult to understand who is specifically asking them to make the Tfr choice. The credibility of the law message is mainly determined by the

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[2] Torricelli et al. (2016) investigate possible causes for low participation.
[3] The reform is contained in the Legislative Decree no. 252/2005, supplemented by Law no. 296/2006 and Legislative Decree no. 28/2007.
[4] Since 2010 this reform also involved public employees hired after January 1, 2001. However, since this category is very small and the reform has different rules regarding public employees, we only consider employees in private sector.
[5] 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.

government (or the Prime Minister or the Minister of Labour and Welfare State), though other stakeholders (e.g. unions, banks, representatives of employers and politicians) could influence the law's consequences, blurring or smoothing the initial idea of the reform. To deal with these issues and «*to guarantee employees the possibility to choose and to determine their future consciously*» (Damiano, 2007), and given the reform's importance, the Italian government decided in 2007 to communicate the message of the law through all available channels: many public and private TV channels addressed the reform in their talk shows; a specific hotline and a specific website were created for questions of citizens; a daily information event was broadcasted on the main public TV channel (*RAI 1*). Obviously, there were reform opponents but they represented a minority and were not associated with the message sender.

Relying on many different sources (literature, publications, and media), we believe the message can be synthetized as follows: *"Pension funds plus tax incentives linked to them can guarantee a higher retirement income than the severance pay (Tfr)"*. A key characteristic of the reform message is that it is silent about several fundamental aspects of the employee's choice. For example, it does not mention the fact that the higher return of pension funds is connected to higher risk, that tax incentives can change over time (regardless of their choice), or that the Tfr transfer is irrevocable. The choice of the message wording is supported by the well-known fact that only a small percentage of potential beneficiaries have full knowledge of the advantages and disadvantages of the reform while most were completely unaware of these. 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 written documents, private employees received the appropriate forms needed to make their decision on pension funds, without any information helping them to make the decision more consciously. Consequently, the message and the forms to formalize the decision were often not received at the same time. In other words, it is likely that many beneficiaries of the 2007 reform did not really receive the message, regardless of their motivation or ability.

The reform was essentially meant to use the severance pay (and related tax benefits) to create pension fund investments for employees so as to help them cope with a decreasing public pension in the future through a secondary pension income. In the end, given the message content and the irrevocable nature of the Tfr transfer decision when positive, the attitude change desired by the Italian government was intended to be permanent.

3. Data and sample

The Survey of Household Income and Wealth (SHIW) is a large biennial representative survey of the Italian population conducted by the Bank of Italy. 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 questions on individuals' financial literacy and knowledge of pension funds.

Since the 2008 wave the survey includes a question on the choice to transfer future severance pay contributions into a pension fund. Specifically, the text of the question to private sector employees is:

"*Has your severance pay fund been transferred to some form of supplementary pension scheme (pension fund or private retirement plan)?*" 'Yes', 'No', or 'Do not know'

The presence of the 'Do not know' option means that respondents are not forced to pick an answer, minimizing guessing. In spite of this, there is also item nonresponse (i.e. people who did not answer the question at all), possibly due to low consciousness of the pension situation, unwillingness to declare information about wealth (Cannari and D'Alessio, 1993; D'Alessio and Faiella, 2002), or because there was no explicit option for refusing to answer.

We use the longitudinal component of SHIW to build a four waves balanced panel from 2006 to 2012. The complete panel consists of 6,419 individuals (belonging to 2,767 households) for a total of 25,676 observations. However, only 65.9% of people in the sample were aged 16-65 in 2006 and, among them, 38.3% were employed in 2012, and almost two thirds of them only worked in the private sector. Selecting those who were employed in the private sector in 2012 and were 16-65 years old in 2006 (i.e. people who were already of working age at the moment of message communication), leads to a data set of 1,125 individuals (belonging to 887 households). The data show that many answers to the Tfr transfer question change over the 2008-2012 period, either because the 'No' response is revocable or because people gave the wrong answer. Moreover, although phrasing of question about the Tfr transfer remained the same, the interviewers gave more and more attention to this question, improving its reliability and reducing missing values over time. For these reasons, we decided to consider employees' answers declared in the 2012 survey only, and to drop the 55 observations with a missing answer in 2012.[6] We also drop those who chose to transfer their Tfr into a pension fund and then declared not to have a pension fund in 2012 (7 observations), given the inconsistency between these answers. Our final data set thus consists of 1,063 individuals; 15% of them declared in 2012 they had transferred their severance pay into a pension fund, 73% declared they had not, and 12% declared 'Do not know'.

We use specific survey questions asked at least once between 2006 and 2012 to define risk aversion, preference for short run (impatience), preference for lump sum, financial literacy, and pension fund participation.

To measure risk aversion, we use a question about the preference for financial investments collected in each survey. We define individuals to have low risk aversion if they prefer investments that offer very high returns with high risk of losing part of the capital, and to have high risk aversion if they prefer investments that offer low or fair returns with no risk or a good degree of protection for the invested capital.

To measure impatience (preference for short run income), we use a question collected in the 2010 survey only. We define someone as preferring the short run when they declare that, if they won a lottery with prize equal to the annual household disposable income postponed by one year, they would give up at least 10% of this prize to receive it immediately.

Preference for lump sum is based on a question collected in the 2008 survey only, asking individuals to assume they are 65 years old and receive a total pension income of 1,000 euros a month adjusted for inflation. We define preference for lump sum (instead of an annuity) if they declare they would give up half of this annual pension (to be paid for the rest of their life) in exchange for a lump sum of 100,000 euros to be paid immediately.

To measure financial literacy, we follow Fornero and Monticone (2011), using three standard questions in the SHIW survey measuring respondents' understanding of inflation, diversification in investment strategies, and riskiness of financial assets. Over the period we analyse, the survey contains financial literacy questions only in 2006 and 2008. However, in 2006 they were asked only to half of the sample (randomly selected). Thus, we decided to measure financial literacy using the questions in SHIW 2008.

Finally, pension fund participation is defined on the basis of a question in which individuals have to declare whether or not they have ever made any payment into a personal retirement plan or supplementary pension fund (also considering the Tfr transfer to a pension plan).

Table 1 reports descriptive statistics of the characteristics of the employees in the sample obtained in 2006, i.e. before the reform, and in 2012, according the answer provided to the 2012 Tfr transfer question. Column (1) highlights that in 2006, about 41.5% of the sample are women, and 95.7% are

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[6] Alternatively we could have included missing values and interpreted them as 'Do not know' responses. We tested robustness of our final results against this alternative – it does not change the conclusions of the analysis (results available upon request).

Italian citizens. 49.8% of the respondents live in the North, 20.2% in the Centre and the remaining 30.0% in the South. Almost half of the employees live in towns or cities with more than 40,000 inhabitants, while 29.0% live in municipalities with less than 20,000 inhabitants. Average age is 38.4 years, 47.6% of the total sample completed high school, and only 7.7% have a university degree. The average number of household members is 3.46, 62.7% of the respondents are married, and 31.2% are single. In the sub-sample of employees, 47.8% have a time-to-retirement (i.e. the remaining number of years to reach retirement)[7] between 15 and 30 years, while 27.9% have time-to-retirement at most 15 years. The group with time-to-retirement larger than 30, which is the group which should have the highest interest in the reform content, represents 24.4% of the sample. Most employees (63.7%) work in small companies (with less than 50 employees), whereas about 26.1% worked in large companies (with at least 100 employees). The mean expected retirement replacement rate is equal to 64.1%. In the complete sample, average household income in 2006 is €38,500 and average household wealth is €249,000. Table 1 shows that Italians are very risk averse: only 1.1% prefer investments with high levels of risk and return, while 83.9% prefer low returns and low or no risk. Moreover, before the reform only 9.8% of the sample participated in a pension fund.

Comparing columns (3)-(5) in Table 1 reveals differences across the three groups with different severance pay responses, especially between 'Yes' and the other two ('No' and 'Don't know').[8] The 'Yes' group is composed mainly of men, living in the North, married, with higher education, and higher average household income than the other groups. Most notably they are older, which is contrary to expectations, since the higher pension fund returns pay off particularly in the long run. On the other hand, the average age of employees who answer 'Do not know' is lower than in the total sample, suggesting a greater lack of interest among young people. According to Pettigrew et al. (2007), a possible explanation is that young people, regardless their education level, have a strong sense of 'living for today', with a low interest in financial planning and a poor understanding of available pension options. Given the strong correlation between time-to-retirement and age, it is not surprising that the same result holds for time-to-retirement. The 'Do not know' group has the highest average household wealth, in line with the findings of Cannari and D'Alessio (1993) and D'Alessio and Faiella (2002) discussed above.

Another interesting difference among the three groups is in the size of the firm where respondents work. This is probably connected to the factors discussed above: different regulations in case of transfer denial according to firm size (see Section 2) and the presence of unions. Most people in the 'Yes' group work in companies with more than 100 employees where unionization rates are higher, while 'No' and 'Do not know' individuals more often work in companies with less than 50 employees. It is plausible that in the latter two cases, employees were not adequately informed, or were pushed by their employers to deny the severance pay transfer, so that the firm retained a cheap financing source. This may happen regardless of the employees' involvement in message content or ability to process it, compromising the individual decision process.

Table 1 also shows that employees who decided to transfer their Tfr into a pension fund have higher pension fund participation and more knowledge of their future pension income: they have the lowest percentage that did not report their expected replacement rate in 2012. There is no significant difference between the three groups in terms of the level of the average expected replacement rate, risk aversion, or preference for the short run or for lump sum.

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[7] 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.

[8] The following differences are significant at the 1% level: age, marital status, education level, area, time-to-retirement, company size, household income, unknown replacement rate, financial literacy, and pension fund participation. Citizenship and gender are significant at the 5% level. Household wealth is significant at the 10% level. Van Rooij and Teppa (2014) show the relevance of different personal traits in decisions, especially in explaining the popularity of the default option.

Table 1 – Sample means by year and by 2012 Tfr choice

Variables	2006 Total sample	2012 Total sample	Yes	No	Do not Know
	(1)	(2)	(3)	(4)	(5)
Observations	1,063	1,063	161	775	127
Female	*41.5%*	*41.5%*	*34.2%*	*43.7%*	*37.0%*
Age (in years)	38.4	44.4	46.8	44.4	41.1
Italian	*95.7%*	*96.0%*	*99.4%*	*95.1%*	*96.9%*
Marital status					
Married	*62.7%*	*62.6%*	*74.5%*	*63.9%*	*39.4%*
Single	*31.2%*	*29.8%*	*19.9%*	*28.5%*	*50.4%*
Divorced	*5.2%*	*6.3%*	*5.0%*	*5.9%*	*10.2%*
Widow	*0.8%*	*1.3%*	*0.6%*	*1.7%*	*0.0%*
Education level					
Primary	*6.6%*	*5.7%*	*1.2%*	*7.1%*	*3.1%*
Lower secondary	*38.1%*	*34.4%*	*24.8%*	*36.8%*	*32.3%*
Secondary	*47.6%*	*49.0%*	*59.6%*	*46.7%*	*49.6%*
Tertiary	*7.7%*	*10.8%*	*14.3%*	*9.4%*	*15.0%*
Area					
North	*49.8%*	*49.8%*	*62.7%*	*48.0%*	*44.1%*
Centre	*20.2%*	*20.2%*	*22.4%*	*19.4%*	*22.8%*
South	*30.0%*	*30.0%*	*14.9%*	*32.6%*	*33.1%*
Size of municipality					
< 20,000 inhabitants	*29.0%*	*29.0%*	*29.2%*	*28.0%*	*34.6%*
20,000 - 40,000	*22.0%*	*21.5%*	*16.1%*	*23.7%*	*15.0%*
40,000 - 500,000	*44.0%*	*44.5%*	*47.2%*	*43.6%*	*46.5%*
> 500,000	*5.0%*	*5.0%*	*7.5%*	*4.6%*	*3.9%*
Household size (#)	3.46	3.32	3.34	3.34	3.21
Time-to-retirement group					
Time-to-ret. > 30	*24.4%*	*21.6%*	*11.9%*	*22.0%*	*32.0%*
16-30	*47.8%*	*38.2%*	*33.1%*	*39.0%*	*40.0%*
Time-to-ret. ≤ 15	*27.9%*	*40.2%*	*55.0%*	*39.0%*	*28.0%*
Company size					
Employees ≤ 15	*63.7%*	*46.6%*	*13.0%*	*53.5%*	*46.5%*
16-49		*18.2%*	*13.7%*	*18.1%*	*24.4%*
50-99	*10.2%*	*7.4%*	*12.4%*	*7.0%*	*3.9%*
Employees ≥ 100	*26.1%*	*27.8%*	*60.9%*	*21.4%*	*25.2%*
Expected replacement rate	*64.1%*	*62.5%*	*63.3%*	*61.9%*	*65.7%*
Unknown replacement rate	-	*45.1%*	*27.3%*	*45.9%*	*62.2%*
Disposable household income (€)	38,455	41,811	50,373	39,523	44,918
Household wealth (€)	248,786	259,334	303,232	236,920	340,466
Risk aversion					
Low	*1.1%*	*0.7%*	*1.2%*	*0.5%*	*0.8%*
Medium	*15.0%*	*8.9%*	*8.7%*	*9.3%*	*7.1%*
High	*83.9%*	*90.4%*	*90.1%*	*90.2%*	*92.1%*
Preference for short run [1]	-	*33.3%*	*29.8%*	*35.4%*	*26.0%*
Preference for lump sum [2]	-	*63.6%*	*58.2%*	*64.2%*	*70.0%*
Financial literacy [2]	-	*60.4%*	*73.9%*	*59.6%*	*47.2%*
Pension fund participation in 2006	*9.8%*	*9.8%*	*26.7%*	*6.3%*	*9.4%*
Pension fund participation in 2012	-	*24.3%*	*100.0%*	*11.5%*	*6.3%*

Note: [1] Evaluated in 2010; [2] Evaluated in 2008. Statistics refer to the total sample except for time-to-retirement, company size, expected replacement rate, and unknown replacement rate which are defined for employees only. Means of dummy variables are expressed as a percentage and in italics.

Table 2 – Determinants of Tfr transfer: Logit marginal effects

Demographic Variables	Marginal Effects	Work and Socio-Economic Variables	Marginal Effects
Female	-0.0525**	No. Employees ≤ 15	-0.1923***
Age < 35	-0.0594	15 < No. Empl. < 50	-0.0998**
Age 35-45	-0.0261	No. Employees ≥ 100	0.0402
Age 45-55	0.0528	Medium income	0.1048**
Married	0.0176	High income	0.1069**
High school	0.0660**	Medium wealth	0.0118
University	0.0746*	High wealth	0.0239
Center	-0.0369	High risk aversion	-0.0140
South	-0.0645**	Preference for short run	0.0099
Small municipality	0.0514	Financial literacy	0.0354
Big municipality	0.0503*		
No. household comp.	-0.0108		
Observations	936	Pseudo R-squared	0.215
Log Likelihood	-337.2		

*Note: All variables refer to 2012, except for financial literacy (to 2008) and preference for short run (to 2010). Robust standard errors; *** p<0.01, ** p<0.05, * p<0.1; Average Marginal Effects.*

Table 2 presents the marginal effects of a logit model explaining whether the Tfr choice answer was "Yes" or "no" ('Do not know' answers are excluded). For a detailed description of each variable see Table A.1 in the Appendix. Results confirm descriptive conclusions and show, for example, that there is a strong positive association between firm size and the decision to transfer. This association is much stronger than the association between Tfr choice and variables like income, education, or financial literacy.
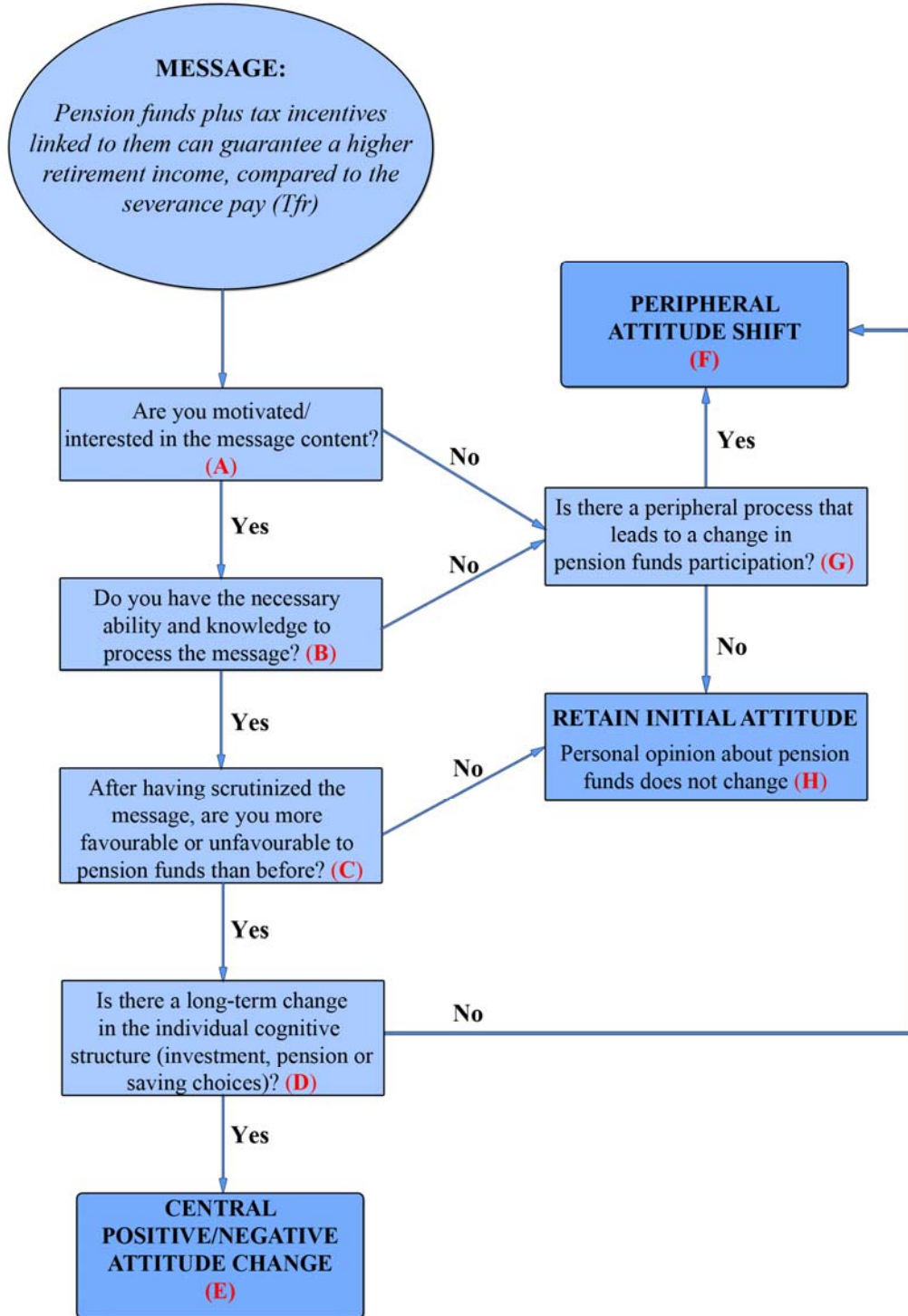
Summing up, this preliminary evidence highlights that the decision to transfer the severance pay into a pension fund was mainly taken by more educated and older individuals, with high household income. Since the reform was mainly directed at low income and younger individuals, this result calls for a better understanding of the type of elaboration process fostered by the communication campaign that accompanied the reform. This is the topic of the next two sections.

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 put the Tfr transfer decision in the traditional ELM scheme. As highlighted by Figure 2, the ELM works through a step-by-step sequence, where the message represents the starting point, each intermediate step (boxes **A**, **B**, **C**, **D**, and **G**) is a specific condition, and the concluding steps (boxes **E**, **F**, and **H**) represent three possible outcomes. For each step in Figure 2, we will use a proxy variable based upon what is observed in the data.

The first step is to assess the employee's involvement in the message content (box **A** in Figure 2). We consider as involved or motivated those who respond 'Yes' or 'No' to the question about the Tfr transfer into a pension fund, showing they remember their choice at the time of the survey. Indeed, those who do not know or do not remember their response after some time (possibly only a few months), will probably not be interested in the message content. Accordingly, 88% of the sample are involved (73% answer 'No' and 15% 'Yes', see Section 3), while the remaining 12% are not (the 'Do not know' answers in Table 1).

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

MESSAGE:

Pension funds plus tax incentives linked to them can guarantee a higher retirement income, compared to the severance pay (Tfr)

Are you motivated/ interested in the message content? **(A)**

Do you have the necessary ability and knowledge to process the message? **(B)**

After having scrutinized the message, are you more favourable or unfavourable to pension funds than before? **(C)**

Is there a long-term change in the individual cognitive structure (investment, pension or saving choices)? **(D)**

CENTRAL POSITIVE/NEGATIVE ATTITUDE CHANGE (E)

PERIPHERAL ATTITUDE SHIFT (F)

Is there a peripheral process that leads to a change in pension funds participation? **(G)**

RETAIN INITIAL ATTITUDE Personal opinion about pension funds does not change **(H)**

Note: The figure is an adaptation of the scheme by Petty et al. (2009).

Even if involved and motivated, 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 in the 2008 survey only, about the possible advantages of pension fund saving after the 2007 reform. The precise wording of these four questions is given 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 3 shows that only few respondents have a good knowledge of pension funds functioning and the reform. Only 4.0% correctly answered all four questions, while 33.7% did not answer even one question correctly. The questions with most (45.2% and 43.2%) are the ones on the possibility of withdrawing part of the capital at retirement and the existence of pension funds with guaranteed minimum returns. Only 31.1% know about tax benefits introduced by the 2007 reform, and only 25.4% know that pension funds do not guarantee a fixed percentage of the final salary. We define respondents as able to process the message content if they correctly answered at least two questions out of four.

Table 3 – Statistics of the pension fund knowledge questions. Year 2008

Question 1 (%)		No. of correct answers	% of sample
Incorrect or 'do not know'	68.9		
Correct	31.1		
Question 2 (%)			
Incorrect or 'do not know'	54.8	0	33.7
Correct	45.2	1	17.5
Question 3 (%)		2	23.0
Incorrect or 'do not know'	56.8	3	21.8
Correct	43.2	4	4.0
Question 4 (%)			
Incorrect or 'do not know'	74.6	Total (N = 1,063)	100.0
Correct	25.4		

The sample can now be divided into four groups: people who are not involved and not able to process the message content (6.9% of the sample); people who are not involved but able (5.1%); people who are involved but not able (44.3%); and people who are both involved and able (43.7%). According to the ELM structure only the last group of employees can proceed to step **C** (and, possibly, get to the central route)**.**

If the employee does not have the necessary involvement or ability, the next step is to assess the presence of contextual elements influencing the decision (box **G** in Figure 2). For this purpose, we consider whether participation in a pension fund (as defined in Section 3, i.e., any payments into a personal retirement plan or supplementary pension fund including the Tfr transfer to a pension plan) changed from 2006 to 2012. Indeed, in a scenario without any peripheral influence, it is plausible that people will retain their initial (i.e. 2006) attitude, so that they will still participate in a pension fund in 2012 if they did so in 2006 and vice versa (box **H** in Figure 2). In contrast, a change in 2012 with

respect to their initial attitude (i.e., initial participation) signals the influence of contextual elements on the employee's behaviour, triggering a 'peripheral route' (box **F** in Figure 2).

An alternative proxy for box **G** may be the positive response about the Tfr transfer. Nevertheless it represents a sub-sample of the chosen one (i.e. pension fund participation), because people can change their pension fund participation without transferring any severance pay contributions and using Tfr transfers would reduce the number of participation changes.

Examples of contextual elements that can influence the employee's choice, are the presence of unions at the workplace or the role of media. Several unions decided to sponsor specific occupational pension funds inside the workplace. Moreover, especially in 2007, the media (TV, newspapers, radio, websites, etc.) massively reported potential positive and negative effects of the controversial reform. Another contextual element is the number of employees in the firm, since, as discussed in Section 2, small firms had an incentive to make their employees deny the Tfr transfer.

For employees motivated and able to process the message, we have to check whether, after scrutinizing the message and collecting all necessary information, they change their attitude towards pension fund participation (box **C** in Figure 2). We use a change in pension fund participation from 2006 to 2012 as a signal of attitude change (as for box **G**).
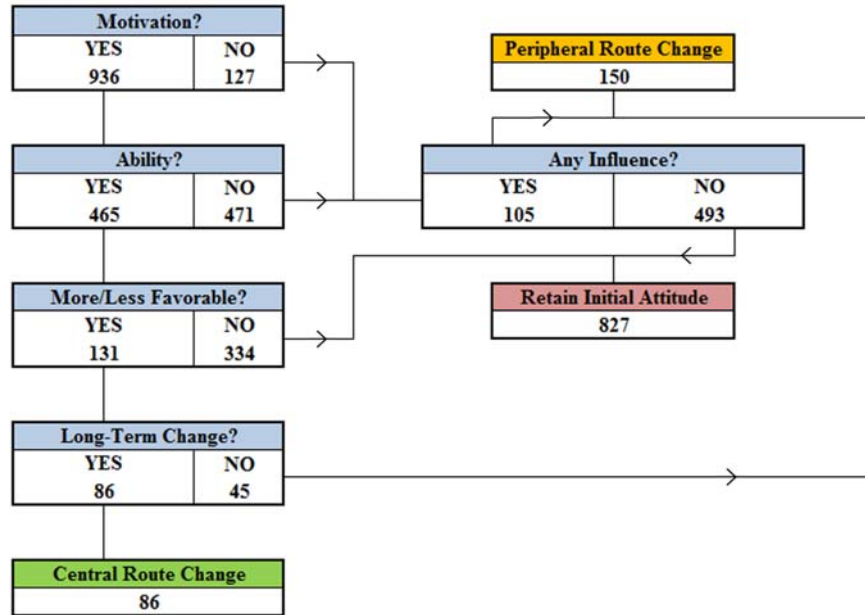
According to the theory of Petty and Cacioppo (1983), motivation and ability are necessary but not sufficient conditions for following a central route. Even if employees are motivated and able to understand the message content, their attitude towards and participation in pension funds may be affected by positive or negative cues, contextual elements, or heuristics that may trigger a quick decision through a peripheral route (box **F** in Figure 2). To make sure that message processing followed the central route, we check whether the change in their pension fund participation persists in the long-term (box **D** in Figure 2). If the change is permanent (at least until 2012),[9] then we conclude that the employee made the choice to follow a central route (box **E** in Figure 2).

We assess the presence of a long-term change in an employee's cognitive structure by checking whether the change in pension fund participation from 2006 to 2012 is consistent with the response about the severance pay transfer. In particular, there is consistency if a 'Yes' response to the Tfr question is accompanied by a positive change in pension fund participation (i.e. the respondent did not have a pension fund in 2006, but has one in 2012) or the 'No' response goes together with a negative change in pension fund participation (i.e. the respondent had a pension fund in 2006, but not in 2012). In the former case consistency is obvious, since if employees decide not to deny the transfer of the severance pay, they will surely have a pension fund in 2012. In the latter case the decision may be driven by a higher consciousness of some negative characteristics of investing in a pension fund (e.g. higher riskiness). In sum, if there is no consistency, a peripheral route (box **F** in Figure 2) must have been followed since the participation change was not really conscious; otherwise, employees probably followed a central route (box **E** in Figure 2) and their attitude change is permanent.

A complete representation of how individuals pass through the ELM scheme in Figure 2 is shown in Figure 3. Starting from a total sample of 1.063 employees, Figure 3 highlights that, after the reform message, only 236 employees changed their pension fund participation (86 via a central route, 150 via a peripheral route), while 827 retained their initial attitude. However, the ELM scheme allows splitting individuals who retained the initial attitude in two different categories. In fact, 40.4% of them (334 observations) consciously retained their attitude, based on motivation and ability to scrutinize the message, whereas the remaining 493 did not make a conscious decision, due to lack of motivation or ability.

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[9] In a robustness check, we find that an extension of the reference period from 2006-2012 to 2006-2014 hardly change the results (Section 5.1).

Figure 3 – Sample distribution in the ELM scheme

Summing up, in this analysis we define people as conscious decision makers if their decision is based on motivation and ability to process, independently of the change of pension fund participation, and if a change of attitude is permanent. According to this classification, 420 employees (39.5% of the sample) can be considered as taking a conscious decision while 643 took an unconscious decision.

These two ways to categorize employees represent our two dependent variables in the econometric analysis. The first variable is a multinomial variable, which can assume three unordered values (one for each ELM outcome: change through central route, change through peripheral route, retain initial attitude), while the second one is a binary variable (conscious or unconscious decision).

4.1. A closer look at the data on the ELM steps

Table 4 reports the Tfr choice and pension fund participation in 2006 and 2012 by motivation and ability. It highlights that 64.0% of those who answered 'Yes' can be considered both motivated and able to process, compared to 46.7% of those who denied the transfer. Table 4 also shows that 42.1% of those with a 'No – Yes' change of pension fund participation from 2006 to 2012 were not really involved in the message content or not able to correctly scrutinize it, implying they were influenced by a peripheral process (Step G in Figure 2). Among the 113 motivated and able employees reporting a 'No – Yes' participation change, 45 respondents did not transfer their severance pay. Despite this, they can be considered as 'success cases' of the 2007 reform in terms of the attitude change aimed for by the Italian government (i.e. investing in a pension fund to better cope with a lower public pension in the future). In fact, they decided to participate in a pension fund even though according to the ELM they followed a peripheral route.

Table 4 – Tfr choice and change in pension fund participation by motivation and ability to process (Relative frequencies calculated with respect to the total sample)

Choice about the Tfr Transfer	Change in Pension Fund Participation (2006 – 2012)				Total
	No – No	No – Yes	Yes – No	Yes – Yes	
People with no motivation or no ability (or neither)					
Yes	0	50	0	8	58
	0.0%	*42.4%*	*0.0%*	*18.6%*	*36.0%*
No	372	26	13	2	413
	56.8%	*36.6%*	*41.9%*	*11.1%*	*53.3%*
Do not know	109	6	10	2	127
	100.0%	*100.0%*	*100.0%*	*100.0%*	*100.0%*
Total	481	82	23	12	598
	63.0%	*42.1%*	*56.1%*	*19.0%*	*56.3%*
People with both motivation and ability					
Yes	0	68	0	35	103
	0.0%	*57.6%*	*0.0%*	*81.4%*	*64.0%*
No	283	45	18	16	362
	43.2%	*63.4%*	*58.1%*	*88.9%*	*46.7%*
Do not know	0	0	0	0	0
	0.0%	*0.0%*	*0.0%*	*0.0%*	*0.0%*
Total	283	113	18	51	465
	37.0%	*57.9%*	*43.9%*	*81.0%*	*43.7%*

Note: 'No' means no participation, 'Yes' means participation, hence No-No and Yes-Yes correspond to no change in pension fund participation.

As discussed above, the implementation of an ELM model provides three possible outcomes: I) individuals change their initial attitude about pension fund following a central route (CR); II) individuals change their initial attitude following a peripheral route (PR), not really taking a conscious decision; III) individuals retain their initial attitude (RIA). Table 5 highlights that the most common ELM outcome is the third one, showing a very high reluctance of Italians to change their participation in pension funds (77.8%). Among people who changed their participation, the most common route was the peripheral one (14.1% of the sample). This may have happened because the message was not clearly explained or correctly provided, and also because the majority of employees did not have the necessary motivation or ability to make a well-reasoned decision about such a complex subject. This creates the opportunity for contextual stakeholders (e.g. employers and unions) to significantly influence the private employees. Only a small part of population (8.1%) consciously changed their pension fund participation.

Table 5 – ELM outcomes and Tfr choice

ELM Outcome	Choice about the Tfr Transfer			Total
	Yes	No	Do not know	
Central Route Change	68	18	0	86
	42.2%	*2.3%*	*0.0%*	*8.1%*
Peripheral Route Change	50	84	16	150
	31.1%	*10.8%*	*12.6%*	*14.1%*
Retain Initial Attitude	43	673	111	827
	26.7%	*86.8%*	*87.4%*	*77.8%*
Total	161	775	127	1,063
	100.0%	*100.0%*	*100.0%*	*100.0%*

Regarding the ELM outcomes by Tfr choice group, retaining initial attitude was the most common outcome in the 'No' and 'Do not know' groups, while employees who answered 'Yes' retained their

initial attitude only in 26.7% of cases (Table 5). Among respondents answering 'Yes' to the Tfr transfer question, 42.2% have reached a central route change, while the remaining group is characterized by a peripheral route change or retained the initial attitude. The peripheral route represents the most common route among those who decided to change their pension fund participation either positively or negatively (Table 6). In fact only 34.9% of those with a 'No – Yes' participation change followed a central route, compared to 43.9% of those who negatively changed their participation.

Table 6 – ELM outcomes and change in pension fund participation from 2006 to 2012

ELM Outcome	Change in Pension Fund Participation (2006 - 2012)				Total
	No - No	No - Yes	Yes - No	Yes - Yes	
Central Route Change	0	68	18	0	86
	0.0%	*34.9%*	*43.9%*	*0.0%*	*8.1%*
Peripheral Route Change	0	127	23	0	150
	0.0%	*65.1%*	*56.1%*	*0.0%*	*14.1%*
Retain Initial Attitude	764	0	0	63	827
	100.0%	*0.0%*	*0.0%*	*100.0%*	*77.8%*
Total	764	195	41	63	1,063
	100.0%	*100.0%*	*100.0%*	*100.0%*	*100.0%*

Note: No: no participation; Yes: participation. Hence No-No and Yes-Yes correspond to no change.

5. Regression models of the ELM outcomes

To get insight in how the most important steps of the ELM scheme (the intermediate ELM outcomes), relate to characteristics of the employees and their firms, Table 7 presents the marginal effects according to Logit models explaining motivation, ability to process, pension fund participation, and a positive change in pension fund participation between 2006 and 2012. For a detailed description of each variable see Table A.1 in the Appendix.

The first two columns of Table 7 show the results for motivation – the binary variable with value 0 if the Tfr transfer answer is 'Do not know' and 1 if it is 'yes' or 'no' – and ability – the binary indicator for ability to process (or pension fund knowledge). As expected, motivation is low for the youngest age group and increases with financial literacy. As for the ability to process, keeping other characteristics constant, pension fund knowledge is positively related to financial literacy and education level. Moreover, it appears to be significantly higher among high income individuals and individuals living in larger cities. As expected, pension fund knowledge is negatively associated with impatience ("Preference for short run"). It is also positively related to risk aversion, suggesting that risk averse individuals put more effort in retirement planning.

Column 3 in Table 7 shows which individual characteristics drive pension fund participation in 2012, whereas column 4 shows, for those who did not participate in 2006, what drives their chances to start participating between 2006 and 2012. These columns do not condition on involvement or ability to process. As expected, participation in a pension fund and joining a pension fund are positively related to age, education, income, and financial literacy. The most interesting thing here, however, is the relation to firm size: employees in small firms are less likely to participate in or join a pension fund than employees in larger firms. This is in line with the difference in incentives for small and large firms discussed in Section 2, although we do not find a clear jump at 50 employees but a gradually increasing firm-size pattern.

Table 7 – Determinants of motivation, ability to process, pension fund participation, and positive change in pension fund participation from 2006 to 2012: Logit marginal effects

VARIABLES	(1) Motivation	(2) Ability to Process	(3) Pension Fund Participation	(4) Positive Change in Pension Fund Participation
Female	0.0236	-0.0022	-0.0484*	-0.0174
Age < 35	-0.0546	0.0061	-0.0784	-0.0318
Age 35-45	-0.0729**	0.0144	0.0426	0.0437
Age 45-55	-0.0398	0.0382	0.0794**	0.0613
Married	0.0917***	0.1289***	0.0215	0.0313
High school	0.0083	0.1030***	0.0754***	0.0591**
University	-0.0246	0.1950***	0.0853*	0.0774*
Center	-0.0414	0.0245	-0.0384	-0.0196
South	-0.0424	-0.0397	-0.0175	0.0101
Small municipality	-0.0621**	0.0718*	0.0618*	0.0549
Big municipality	-0.0394	0.0924**	0.0448	0.0228
No. household components	0.0130	-0.0326**	-0.0259*	-0.0153
No. Employees ≤ 15	-0.0751	0.0440	-0.1500***	-0.1516***
15 < No. Employees < 50	-0.1320**	0.0397	-0.0822*	-0.0730
No. Employees ≥ 100	-0.0854*	0.0797	0.0682*	0.0554
Medium income	-0.0131	0.0278	0.0695	0.0713*
High income	-0.0230	0.1684***	0.0897**	0.0739*
Medium wealth	0.0057	0.0698*	-0.0231	-0.0221
High wealth	0.0049	0.0399	0.0399	0.0250
High risk aversion	0.0208	0.1755***	-0.0483	-0.0933*
Preference for short run	0.0493**	-0.0927***	-0.0183	-0.0190
Financial literacy	0.0682***	0.1042***	0.0524**	0.0245
Observations	1,063	1,063	1,063	959
Pseudo R-squared	0.0919	0.116	0.146	0.116
Log Likelihood	-353.2	-650.9	-502.9	-427.9

*Note: All variables refer to 2012, except for financial literacy (to 2008) and preference for short run (to 2010). Robust standard errors; *** p<0.01, ** p<0.05, * p<0.1; Average Marginal Effects; in column 4, 'Yes-No' and 'Yes-Yes' cases of change in pension fund participation are excluded.*

In order to evaluate the impact of demographic and socio-economic characteristics on the probability that an employee follows a specific ELM route or takes a conscious decision, we estimate a Multinomial Logit Model (MLM) for the ELM outcomes and a (binary) Logit Model for the consciousness of decision, both by the standard maximum likelihood procedure.

The model specification for the ELM outcome of individual *i is* as follows:

$$ELM^*_{ij} = \beta_j X^I_i + \gamma_j X^H_i + \omega_j X^W_i + \vartheta_j X^{IW}_i + \delta_j X^F_i + \varepsilon_{ij}$$

$$ELM_i = j \text{ if } ELM^*_{ij} > ELM^*_{ik} \text{ for } k \neq j; \; j,k = 1,2,3$$

$$\varepsilon_{ij} \underset{iid}{\sim} GEV(1) \text{, independent of } X^I_i, X^H_i, X^W_i, X^{IW}_i, X^F_i.$$

Here *ELM* can have three values, representing the three possible (unordered) ELM outcomes (CR, PR, or RIA), X^I is a vector of individual characteristics (gender, age, marital status, and education level), X^H is a vector of household characteristics of the employee (area of residence, size of the municipality of residence, number of household components), X^W represents the company size, X^{IW} is a vector of household income and wealth information, and X^F is a vector of individual economic and financial information (risk aversion, preference for short period investments, and financial literacy). For

a detailed description of each variable see Table A.1 in the Appendix. The base outcome in the Multinomial Logit estimation is the third one: retaining initial attitude (RIA).

In addition, we estimate the probability of taking a conscious decision in 2012 using the following binary logit model:

$$DC_i^* = \beta X_i^I + \gamma X_i^H + \omega X_i^W + \vartheta X_i^{IW} + \delta X_i^F + u_i$$

$$DC_i = 1[DC_i^* > 0]; \ u_i \underset{iid}{\sim} Logistic, \text{independent of } X_i^I, X_i^H, X_i^W, X_i^{IW}, X_i^F.$$

Here *DC* is a binary variable which is equal to 1 if decision is conscious and 0 otherwise. The regressors are the same as those in the multinomial logit model.

Table 8 reports the estimated marginal effects on the probabilities of the three ELM outcomes (Multinomial Logit) in columns (1)-(3) and on the consciousness of the decision (Logit) in column (4).

Results show a strong positive impact of education and being married on both the probability to consciously change initial attitude (CR) and on decision consciousness (DC). The size of the company has a significant effect on the ELM outcome, in line with the institutional difference that makes it attractive for firms with less than 50 workers to discourage their workers to transfer their severance pay: indeed, employees in small firms have a much lower probability to choose CR than employees in larger firms. Employees in very small firms are particularly likely not to change their initial attitude. Employees in large companies may also have received more and better information about pension funds and reform objectives thanks to information meetings organized by unions.

Living in a small municipality is associated with a higher probability to change their participation in pension funds via a PR. Living in the South has a strongly significant negative effect on decision consciousness, but regional dummies are not significant when looking at determinants of CR. While wealth does not affect the decision process, income levels have some effect: medium income is associated with a higher probability of a PR change than low income, while high income is negatively associated to retaining initial attitude and positively to making a conscious decision. As expected, having a high risk aversion prevents from peripheral changes in the decision, and increases both the probability of retaining the initial attitude and, particularly, the probability to make a conscious decision. Finally, financial literacy is positively associated with the probability to follow a CR and with decision consciousness.

Our results show that, once other individual and household features are accounted for, gender does not matter either in changing pension fund participation or in consciousness of the decision process (and neither in the ability to process as reported in column (2) of Table 7). This may seem to contradict some studies in household finance highlighting that women have a higher probability to be financially excluded (Lusardi et al., 2010; van Rooij et al., 2011; Fornero and Monticone, 2011), but note that the gender effect keeps financial literacy constant. Age is also not significantly associated to the decision outcome, contrary to the reform objective that was primarily directed towards younger generations.

Table 8 – Determinants of the ELM outcomes (Multinomial Logit)
and of the decision consciousness (Logit): marginal effects

VARIABLES	(1) Central route change CR	(2) Peripheral route change PR	(3) Retain initial attitude RIA	(4) Decision consciousness DC
Female	-0.0003	-0.0014	0.0017	-0.0003
Age < 35	0.0049	-0.0445	0.0395	-0.0372
Age 35-45	-0.0088	0.0532	-0.0444	-0.0513
Age 45-55	0.0187	0.0136	-0.0323	0.0029
Married	0.0476*	0.0043	-0.0518	0.1391***
High school	0.0517**	0.0279	-0.0795***	0.0852**
University	0.0885***	-0.0004	-0.0881*	0.1607***
Center	0.0004	-0.0098	0.0094	0.0216
South	-0.0302	0.0433	-0.0131	-0.0968***
Small municipality	-0.0056	0.0637**	-0.0580	0.0155
Big municipality	-0.0134	0.0252	-0.0118	0.0572
No. household components	0.0008	-0.0104	0.0096	-0.0052
No. Employees ≤ 15	-0.0627**	-0.0569	0.1197***	0.0215
15 < No. Employees < 50	-0.0667*	0.0199	0.0468	-0.0918
No. Employees ≥ 100	-0.0017	0.0434	-0.0417	0.0173
Medium income	-0.0403	0.0914**	-0.0511	0.0121
High income	0.0478	0.0350	-0.0828*	0.1146***
Medium wealth	-0.0099	-0.0178	0.0276	0.0709*
High wealth	-0.0114	0.0218	-0.0103	0.0320
High risk aversion	0.0285	-0.1367**	0.1082*	0.2224***
Preference for short run	0.0020	-0.0263	0.0242	-0.0270
Financial literacy	0.0431**	-0.0247	-0.0184	0.1333***
Observations	1,063	1,063	1,063	1,063
Pseudo R-squared	0.102	0.102	0.102	0.112
Log Likelihood	-644.6	-644.6	-644.6	-633.5

*Note: All variables refer to 2012, except for financial literacy (to 2008) and preference for short run (to 2010). Robust standard errors; *** $p<0.01$, ** $p<0.05$, * $p<0.1$; Average Marginal Effects; Base Outcome: 3 (RIA).*

5.1. Robustness checks and alternative specification of the ELM variables

Several robustness checks of the results of Table 8 were conducted, which we briefly summarize here (details are available upon request). First we updated the 2006-2012 balanced panel with the last release of the 2014 SHIW data. This leads to a huge reduction (about 34%) in the size of our balanced panel because of attrition. Moreover, the attrition leads to a sample with higher education, more household income level, and higher financial literacy, making it less representative of the population that we aim to analyse. Despite this, all results remain practically unchanged except that the effect of financial literacy on following a CR becomes less significant (only at 10% level).

We tried different specifications of some of the controls: a quadratic specification for age (instead of age classes), quadratic specifications for income and wealth (instead of quintile dummies), and dummies for household size (instead of the cardinal variable itself). All results in Table 8 remain essentially the same in these alternative specifications. In order to verify the robustness of the significance of financial literacy, we also replaced the financial literacy dummy (at least two correct answers) by the number of correct answers and by separate dummies for each of the three questions. Secondly, we removed education, household income, wealth, and company size variables. In both checks, financial literacy remains significant and of the same sign.

We also tested for the robustness of the results to the specifications of the two main variables in the ELM scheme, using different proxies for the ability to process and motivation. To define ability to process, we found that the one used in the previous sections (i.e. two correct answers out of four) is the best one; requiring a higher number of correct answers (3 instead of 2) reduces the number of employees following a CR from 86 to 46 and does not substantially change the estimation results. For motivation, we considered four alternatives for the variable on recalling the choice of Tfr transfer in 2012 that was used in our benchmark models: age, the expected replacement rate, and preference for short period investing.[10] As for age, since the Tfr reform aims to benefit younger employees we expected them to be more interested in the communication, but the age patterns of reform knowledge and reported Tfr choice show that this is not the case, suggesting that age is not a valid proxy for motivation. As for the expected replacement rate, we define as motivated only those employees who both recall their Tfr choice and have an expected replacement rate lower than 75%. Although this definition reduces the number of employees following a CR from 86 to 50, most results remain unchanged – except that financial literacy still raises the probability to take a conscious decision, but is not significant anymore for following a CR.

Finally, since the Tfr transfer choice can be seen as a choice between a lump sum and an annuity, we considered as a proxy for motivation the combination between recalling the 2012 Tfr choice and the preference for short period investing. Also this definition leads to a decrease in the number of CR followers (from 86 to 61), but results still remain unchanged except for the effect of education – this is no longer significantly associated with the probability to follow a CR. All in all, we find no reason to deviate from the simple proxy of motivation only based upon recalling the 2012 Tfr transfer choice.

6. Conclusions

This paper analyses the heterogeneity in pension choices through the Elaboration Likelihood Model of the elaboration process that occurs when there is an attempt to change a person's attitude through communication. When motivation and ability to process are high, individuals are inclined to follow a "central route to persuasion", otherwise they follow a "peripheral route to persuasion". The ELM has often been used 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 a pension choice.

In particular, we use ELM in order to analyse the choices connected to the 2007 Italian reform that allowed transferring future severance pay's contributions into a pension fund. The aim is not to assess the optimality of the choice, but rather how individuals process the message they receive and the ultimate effectiveness of the communication. The reform was accompanied by an information campaign with a clear message that resembled an advertisement in favour of transferring to a pension fund. We use data from the Bank of Italy's Survey of Household Income and Wealth (SHIW), including a question on the severance pay's transfer choice. We combine information from four waves: one before (2006) and three after the reform (2008, 2010 and 2012) and focus on changes in pension fund participation between 2006 and 2012.

Preliminary descriptive evidence shows that the decision to transfer the Tfr into a pension fund was taken by more educated and older individuals, wealthy and with high household income. However, those who, according to the reform informational campaign, would have benefitted most from the Tfr transfer are low income and young employees. It appears that these latter groups have less often received or understood the message of the reform, inducing them not to transfer their severance pay and not to participate in a pension fund. This evidence calls for a better understanding of the type of elaboration process fostered by the reform and its communication campaign.

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[10] We did not use the time-to-retirement since the variable is missing for some employees.

To this end, we frame our research question in the traditional ELM scheme, where 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 synthetize 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 (or motivation), and the necessary ability to process the message in order to assign one of the three possible ELM outcomes to each individual: I) decision reached via a central route; II) decision reached via a peripheral route; III) retaining the initial attitude.

An alternative classification of the ELM outcome can be used recalling that, in our analysis, by consciousness of the decision we mean a decision based on motivation and ability to process independently of the decision outcome provided that, in case of a change in pension fund participation, the latter is enduring. Thus, since among those who retain their initial attitude some did it consciously, an alternative association is between individuals and consciousness/unconsciousness of the decision.

To evaluate the impact of demographic and socio-economic characteristics of employees on the probability to follow a specific ELM route or to take a conscious decision, we estimated a Multinomial Logit Model for the three ELM outcomes and a binary Logit Model for the consciousness of decision. Main results from this analysis are: Individuals working in small companies have a much lower probability to follow a CR and a higher probability to retain their (generally negative) initial attitude, possibly because their employers would in case of Tfr transfer lose a cheap source of financing or because they got less information on the reform content (due to the absence of unions in small firms). High household incomes are associated with a higher probability of deciding consciously, and a lower probability of retaining the initial attitude; having a high risk aversion reduces the probability of being influenced, while financial literacy is statistically significant in taking a conscious decision. Our analysis highlights that, beside financial literacy, other elements played a relevant role in the employees' elaboration process, such as the individual's comprehension of the specific issue (ability to process), the personal relevance of the choice (motivation), cognitive skills, and contextual elements (e.g. unions, employer pressure).

Our results help understanding why the message of the informational campaign of the 2007 reform was not as successful as expected, since the objective was a higher increase in pension fund participation than the one actually recorded after the reform. Thus our results have useful policy implications for the effectiveness of communication in the pension domain. For example, one can think of providing more information and/or educational material on the specific choice together with the form to be filled given that a media campaign does not guarantee enough proximity between the message communication and the exact moment the choice is taken. Moreover, based on the evidence we have for the case of small firms, which are less unionized and provide less information to their employees than large firms, it seems that the way in which the choice process is organized may have a negative effect. Employees fill out the form and make their decisions in the workplace, in the proximity of the employer. This makes the Tfr transfer decision particularly susceptible for contextual elements. Changing the choice architecture might well be a more efficient way to stimulate the Tfr transfer than a government information campaign.

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Appendix

Variables	Description
Dependent variables	
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
Control variables	
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 area of residence. The reference category is North.
Small municipality Big municipality	Binary variables representing the size of the municipality of residence. The reference category is Medium municipality (number of inhabitants between 20.000 and 40.000).
No. household components	Discrete variable representing the number of household components. When the household members are more than 5, it takes value 5.
No. Employees ≤ 15 15 < No. Employees < 50 Employees ≥ 100	Binary variables representing the company size. The reference category is 50 < No. Employees < 100.
Medium income High income	Binary variables representing the household 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).
Medium wealth High wealth	Binary variables representing the household wealth quintile. Medium wealth is the third quintile, while High wealth represents fourth and fifth ones. The reference category is Low wealth (first and second quintile).
High risk aversion	Binary variable taking value 1 for employees who declared to prefer an investment with low or fair returns, but also with no risk or a good degree of protection for the invested capital.
Preference for short run	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. The question about individual preference for short period is collected in the 2010 survey.
Financial literacy	Binary variable taking value 1 for employees who correctly answered to at least two out of the three questions discussed in Section 3, 0 otherwise. The questions about individual financial literacy are collected in the 2008 survey.

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