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

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MoPAct Workshop

Turin, 8-9 September 2016

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Outline

- Motivation and Aim

- Case study: The 2007 Severance Pay (Tfr) Reform

- The Elaboration Likelihood Model (ELM)

- Data and Sample

- ELM Application: was the message effective?

- Determinants of ELM outcomes: an econometric analysis

- Conclusions

Motivation

Most studies in household finance explain heterogeneity of household financial choices (also in the pension domain) through individuals' heterogeneity (e.g. socio-demographic features, economic and financial characteristics),
including their financial literacy.

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BUT

Do not generally consider the environment and elaboration processes that characterize these choices.

Aim of our research

- Explore a different route to explain the heterogeneity in pension choices through the Elaboration Likelihood Model;

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- Explore a different route to explain the heterogeneity in pension choices through the Elaboration Likelihood Model;

- Analyse the decision process stimulated by the 2007 reform of the non-compulsory pension system in Italy and its determinants;

- Evaluate the message effectiveness of this reform;

- Estimate determinats of ELM outcomes including financial literacy.

Case Study: The 2007 Tfr Reform

The **Tfr** (*Trattamento di fine rapporto*) is a severance pay that Italian employees in private sector receive when their employment relationship ends

- It depends on the length of the relationship in the same company and on wage
- Every year companies have to set aside for each employee a percentage of the gross annual salary (about 7.5%) plus an inflation based interest

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All in all, Tfr can be seen as a **very cheap loan** from employee to employer

Against adverse demographic trends, **the 2007 reform** allowed private sector employees to **transfer Tfr into a pension fund** with the aim of ensuring higher retirement income

How does the Tfr transferring work?

Since the 1st January 2007, employees have six months to choose whether:

- To deposit future Tfr contributions into a pension fund;
- To leave the Tfr in their companies.
  - Firms with ≥50 employees loose it anyway;
  - Firms with <50 employees can still use it.

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If no explicit communication → Tfr is automatically transferred to a public pension fund.

The Tfr transfer is irrevocable (regardless of the explicit choice).

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Basic idea - After receiving communication, people can take a decision in two different ways:

- Consciously (central route);

- Under the influence of superficial elements, external contexts, momentary feelings (peripheral route).

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Basic idea - After receiving communication, people can take a decision in two different ways:

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The elaboration process of individuals' decisions depends fundamentally on their motivation (or involvement) and ability to process information.

ELM Structure (Petty, Brinol & Priester, 2009)
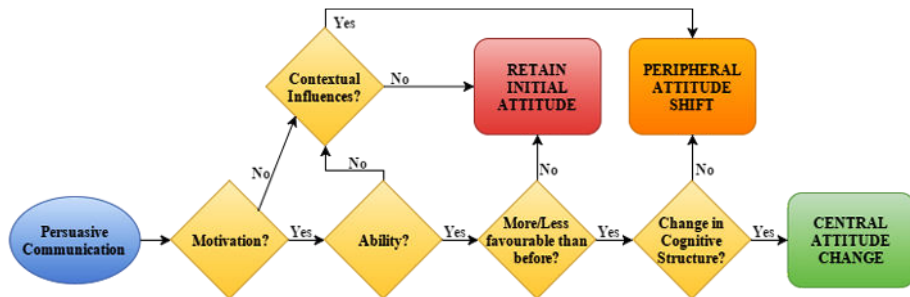
Data and Sample

Data: SHIW (biannual Survey on Household Income and Wealth)
Historical Archives 2006-2012 Longitudinal component

Question of interest:

"Has your severance pay fund been transferred to some form of
supplementary pension scheme?
Yes, No, Do Not Know"

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Question of interest:

"Has your severance pay fund been transferred to some form of
supplementary pension scheme?
Yes, No, Do Not Know"

We decide to take into account only answers reported in 2012 survey,
because:

- The No answer can be changed later into a Yes
- Consistency of answers across time

Sample: 1,070 employees in private sector in 2012 (with age 16-65 in 2006)

Financial Literacy Measurement

We measure it as close as possible to the 2007 reform

The 2008 SHIW surveys the whole sample over three questions (in line with Fornero-Monticone (2011) and Lusardi-Mitchell, 2006):

- Inflation implications;

- Diversification strategy;

- Riskiness of financial instruments.

Financially Literate: Those who correctly answer at least two out of three
(and robustness at the end)

Descriptives evidence

16% of employees declared they have transferred the Tfr into a pension fund. 72% of them declared 'No', while 12% said 'Don't know'.

Employees who respond 'Yes' are **very different** from the others:

- Mainly men, married people, and Northern regions inhabitants;

- They are older, have higher education level and financial literacy;

- They have higher job position and income, and work in big companies.

While employees who respond 'Don't know' are younger.

ELM Application
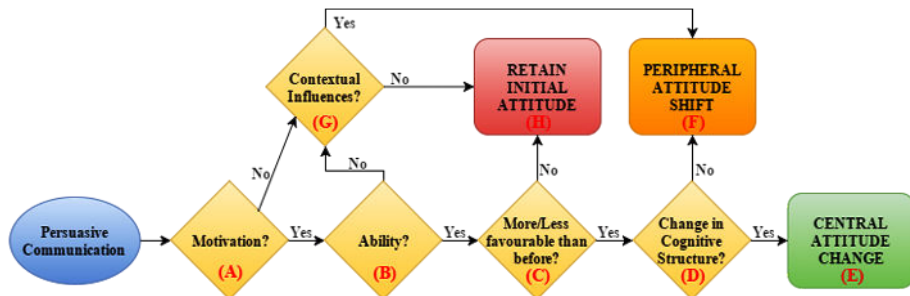
The message

MESSAGE:

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

Contrary to an advertising spot, the law message is not direct and easily understandable.

So this synthesizing derives from our interpretation of many different sources ranging from literature, publications and media.

Proxies for the ELM Steps

In absence of a specific survey to observe closer aspects to the individuals cognitive structure and decision process, we selected the following proxies:

Motivation (A) - Memory of the 2012 choice about the Tfr transfer

Ability to process (B) - Set of 4 questions about pension funds functioning and 2007 reform (collected in 2008)

Contextual elements (G) - Change in the individual participation in pension funds from 2006 to 2012

More/Less favourable (C) - Change in the individual participation in pension funds from 2006 to 2012

Change in cognitive structure (D) - Individual consistency between change in pension fund participation and response about Tfr transfer

ELM Outcomes
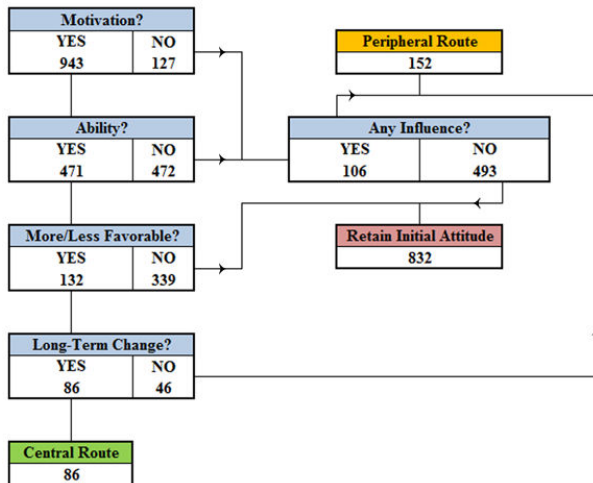
ELM Outcomes

Central Route (or CR):

- People who are both involved and able, and change consciously their initial attitude

Peripheral Route (or PR):

- People who are neither involved nor able, and change unconsciously their initial attitude

- People who are both involved and able, but change unconsciously their initial attitude

Retain Initial Attitude (or RIA):

- People who are neither involved nor able, and retain their initial attitude

- People who are both involved and able, and retain their initial attitude

Alternative ELM outcome: Decision Consciousness

ELM and Tfr Choice

Choice about the
Tfr Transferring

		Yes	No	DnK	Total
	CR	68	18	0	86
		40.5	*2.3*	*0.0*	*8.0*
ELM	PR	52	84	16	152
Outcome		*31.0*	*10.8*	*12.6*	*14.2*
	RIA	48	673	111	832
		28.6	*86.9*	*87.4*	*77.8*
	Total	168	775	127	1,070
		100.0	*100.0*	*100.0*	*100.0*

- 78% of employees in the sample retain their initial attitude
- Only 40% of those who decided to transfer their Tfr into a pension fund did that consciously

Model Specification

$$ELM_{ji} = \beta_j X_i^I + \gamma_j X_i^H + \omega_j X_i^W + \theta_j X_i^{IW} + \delta_j X_i^F + \varepsilon_{ji}$$

where:

ELM_{ji} ELM outcome (CR, PR or RIA)

X_i^I Vector of individual characteristics

X_i^H Vector of household characteristics

X_i^W Vector of work characteristics

X_i^{IW} Vector of household income and wealth

X_i^F Vector of economic and financial information

All explanatory variables are dummies, expect for pension funds knowledge

(i.e. the number of correct answers on pension funds functioning and tax benefits)

Model: Multinomial Logit Model

Estimation: Maximum Likelihood

Base model: $j = 3 \rightarrow$ RIA

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Multinomial Logit Marginal Effects

VARIABLES	(1) Central route change CR	(2) Peripheral route change PR	(3) Retain initial attitude RIA	(4) Decision consciousness DC
Female	-0.001	-0.000	0.001	-0.003
Age < 35	0.006	-0.048	0.042	-0.032
Age 35-45	-0.009	0.055	-0.047	-0.049
Age 45-55	0.019	0.015	-0.034	0.007
Married	0.048*	-0.000	-0.048	0.139***
High school	0.051**	0.030	-0.080***	0.083**
University	0.088***	0.001	-0.089*	0.163***
Center	0.002	-0.011	0.009	0.023
South	-0.030	0.041	-0.011	-0.097***
Small municipality	-0.007	0.069**	-0.062*	0.010
Big municipality	-0.015	0.024	-0.009	0.051
No. household components	0.001	-0.010	0.010	-0.005
No. Employees ≤ 15	-0.062**	-0.057	0.119***	0.022
15 < No. Employees < 50	-0.066*	0.020	0.046	-0.090
No. Employees ≥ 100	-0.003	0.045	-0.042	0.009
Medium income	-0.039	0.093**	-0.054	0.020
High income	0.048	0.038	-0.087**	0.119***
Medium wealth	-0.012	-0.015	0.028	0.066
High wealth	-0.012	0.020	-0.008	0.031
High risk aversion	0.026	-0.116**	0.090*	0.209***
Preference for short period	0.003	-0.028	0.025	-0.022
Financial literacy	0.043**	-0.026	-0.017	0.132***
Observations	1,070	1,070	1,070	1,070
Pseudo R-squared	0.101	0.101	0.101	0.108
Log Likelihood	-649.6	-649.6	-649.6	-639.4

Note. Standard Errors are robust. *** p<0.01. ** p<0.05. * p<0.1. Average Marginal Effects

Summing Up on Econometric analysis

- Having a high risk aversion reduces the probability of being influenceable and increased that of retaining initial attitude;

- Employees working in small companies have lower probability of central route (higher probability of being influenced?);

- High education level (developed cognitive skills) has a strong impact on attitude change and choice consciousness;

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- Employees working in small companies have lower probability of central route (higher probability of being influenced?);

- High education level (developed cognitive skills) has a strong impact on attitude change and choice consciousness;

- Financial literacy is statistically significant in taking a conscious decision;

- Income matter for for decision consciousness;

- Gender *ceteris paribus* does not matter for decision consciousness.

Concluding on the decision process and its determinants

From 2006 to 2012, pension fund participation increased by 14.2 pps
But ELM analysis underscores
Effectiveness of the reform message appears to be weak.

⇓

- 73% of the sample retained a negative initial attitude to pension funds
- only 35% of positive changes towards pension funds were conscious

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ELM regression analysis highlights: among other things

- Financial literacy is statistically significant in taking a conscious decision
- Unions and employers appear to relevant role in the employees' elaboration process

Alternative Specifications

1. For the dependent variable:

Among RIA cases there are people who took a conscious decision. So the sample may be also divided in two only categories: those who chose consciously and those who did not

2. For the financial literacy measurement:

Financial literacy as number of correct answers
Financial literacy in three specific dummies (one foreach question)

3. For the motivation/involvement proxy:

Time-to-retirement, expected replacement rate, preference for short period, and preference for lump sum can be other proxies of individual motivation

Thank you!

Motivation

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

The concept of Motivation consists of personal relevance of the issue.

Proxy: memory of the 2012 choice about the Tfr transfer
(i.e. only 'Yes' and 'No' responses)

Ability to process

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

The concept of Ability to process refers to resources and skill to understand a
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The 2008 survey contains the following questions:

1. Do pension funds enjoy tax benefits compared to a mutual fund?
2. When you retire, can you withdraw part of the invested capital?
3. Are there pension funds with guaranteed minimum returns?
4. Do pension funds guarantee a fixed percentage of the last salary?

Proxy: at least two out of four correct answers

Influence of contextual elements

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

In a scenario without any influence, we expect that people will retain their
2006 attitude. If there is a change in initial attitude, then it happens because of
some contextual element (e.g. unions, employers of small firms, and media).

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Proxy: Change in the individual participation in pension funds from 2006 to 2012 (using a specific SHIW question about the pension fund participation)

More/Less favorable to Pension funds?

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

No specific question in the survey detects whether individuals are more/less favourable to pension funds than before

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Proxy: Change in the individual participation in pension funds from 2006 to 2012

Change in initial attitude

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

To assess a long-term change in cognitive structures, we check consistency
between change in the pension fund participation (from 2006 to 2012) and
response about Tfr transfer.

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Consistent attitude change:

- The Tfr choice is 'Yes' and there is a positive change in pension fund
  participation
- The Tfr choice is 'No' and there is a negative change in pension fund
  participation

Consistency between Change and Choice

Change in Pension Funds
Participation from 2006 to 2012

		No - No	No - Yes	Yes - No	Yes - Yes	Total
Choice	Yes	5	118	2	43	168
		0.5	*11.0*	*0.2*	*4.0*	*15.7*
about	No	655	71	31	18	775
the Tfr		*61.2*	*6.6*	*2.9*	*1.7*	*72.4*
Transfer	Do not	109	6	10	2	127
	Know	*10.2*	*0.6*	*0.9*	*0.2*	*11.9*
	Total	769	195	43	63	1,070
		71.9	*18.2*	*4.0*	*5.9*	*100.0*

Consciousness and ELM

ELM Outcome

		CR	PR	RIA	Total
	No	0	152	498	650
		0.0	*100.0*	*59.9*	*60.7*
Conscious					
Decision	Yes	86	0	334	420
		100.0	*0.0*	*40.1*	*39.3*
	Total	86	152	832	1,070
		100.0	*100.0*	*100.0*	*100.0*

- 39.3% of employees took a conscious decision
- A relevant part (40%) of those who retained their attitude about pension funds did that consciously

Consciousness and Tfr Choice

		Choice about the Tfr Transferring			
		Yes	No	DnK	Total
Conscious Decision	No	65	458	127	650
		38.7	*59.1*	*100.0*	*60.7*
	Yes	103	317	0	420
		61.3	*40.9*	*0.0*	*39.3*
	Total	168	775	127	1,070
		100.0	*100.0*	*100.0*	*100.0*

- Employees who answered 'Yes' to the Tfr transferring question took a conscious decision (61%) more than those who responded 'No' (41%)

Consciousness and Change in Participation

Change in Pension Funds
Participation from 2006 to 2012

		No - No	No - Yes	Yes - No	Yes - Yes	Total
Conscious	No	486	**127**	**25**	12	650
		63.2	**65.1**	**58.1**	*19.0*	*60.7*
Decision	Yes	283	**68**	**18**	51	420
		36.8	**34.9**	**41.9**	*81.0*	*39.3*
	Total	769	195	43	63	1,070
		100.0	*100.0*	*100.0*	*100.0*	*100.0*

- Persisting in pension fund participation (Yes-Yes situation) is a more conscious process than continuing not to participate (No-No situation)

Appendix regressions

VARIABLES	(1) Motivation	(2) Ability to Process	(3) Pension Fund Participation	(4) Positive Change in Pension Fund Participation	(5) TFR Transfer
Female	0.1111***	-0.0008	-0.0480*	-0.0168	-0.0509**
Age < 35	-0.2154***	0.0042	-0.0762	-0.0307	-0.0669
Age 35-45	0.0121	0.0144	0.0421	0.0443	-0.0264
Age 45-55	0.0976**	0.0348	0.0803**	0.0627*	0.0474
Married	0.0927**	0.1290***	0.0200	0.0289	0.0196
High school	0.0496	0.1012***	0.0726**	0.0578**	0.0678**
University	0.0669	0.1916***	0.0874*	0.0795**	0.0703*
Center	-0.0929**	0.0248	-0.0343	-0.0169	-0.0378
South	-0.0695*	-0.0389	-0.0192	0.0086	-0.0625**
Small municipality	-0.0300	0.0704*	0.0575	0.0542	0.0581*
Big municipality	-0.0387	0.0960***	0.0405	0.0186	0.0590*
No. household components	-0.0287*	-0.0318**	-0.0259*	-0.0155	-0.0111
No. Employees ≤ 15	-0.0380	0.0431	-0.1499***	-0.1509***	-0.1935***
15 < No. Employees < 50	-0.1047*	0.0387	-0.0816*	-0.0721	-0.1039**
No. Employees ≥ 100	0.0390	0.0821	0.0619	0.0521	0.0470
Medium income	-0.0902**	0.0230	0.0747*	0.0749**	0.0840**
High income	-0.1857***	0.1642***	0.0929**	0.0769**	0.0902**
Medium wealth	0.0607	0.0720*	-0.0283	-0.0252	0.0175
High wealth	0.0202	0.0421	0.0354	0.0214	0.0285
High risk aversion	-0.0325	0.1805***	-0.0512	-0.0916*	0.0027
Preference for short period	0.0004	-0.0930***	-0.0162	-0.0180	0.0034
Financial literacy	0.1139***	0.1067***	0.0536**	0.0240	0.0377
Observations	1,070	1,070	1,070	964	943
Pseudo R-squared	0.115	0.117	0.142	0.114	0.215
Log Likelihood	-639.4	-654.6	-507.2	-430.1	-346.8

Note: Standard Errors are robust; *** 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 column 5, 'Do not Know' answers are excluded.