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The Persistence of Hypothetical Bias into Insurance Demand

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Limits of Surveys

Survey on socio-economic characteristics

- Your age ?
- Your gender ?
- Your marital status ?
- How many dependent children do you have?
- What is the highest diploma you have obtained ?
-

Limits of Surveys

Survey on Economic Behavior

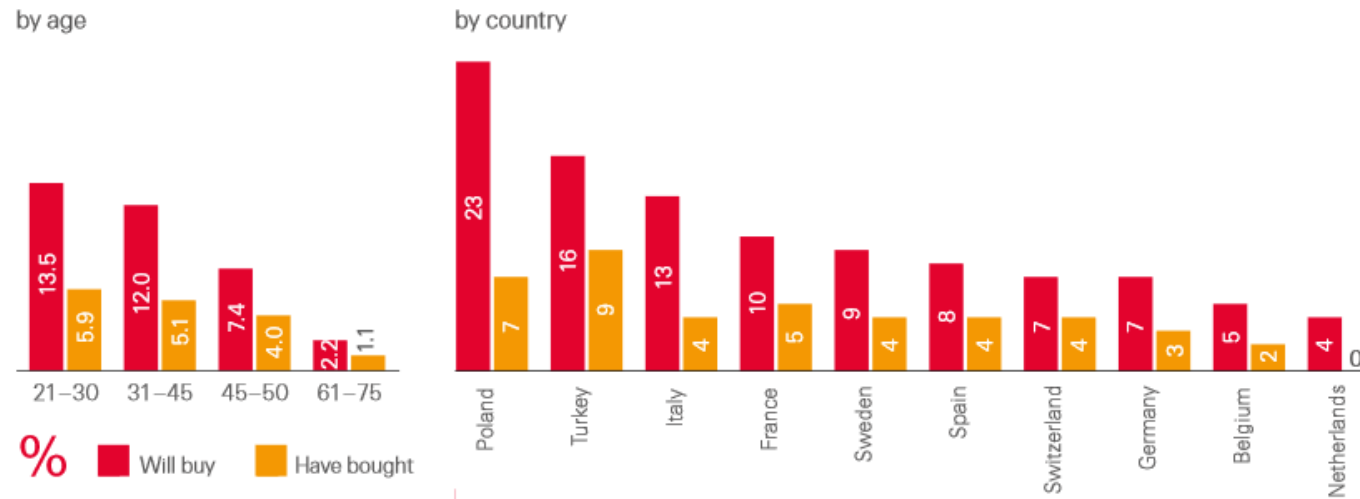
Example : Rosenberg Self-Esteem Scale (**Rosenberg, 1965**)

Instructions:

1. On the whole, I am satisfied with myself.
2. At times, I think I am no good at all.
3. I feel that I have a number of good qualities.
4. I am able to do things as well as most other people.
5. I feel I do not have much to be proud of.
6. I certainly feel useless at times.
7. I feel that I'm a person of worth, at least on an equal plane with others.
8. I wish I could have more respect for myself.
9. All in all, I am inclined to feel that I am a failure.
10. I take a positive attitude toward myself.

Scoring: The higher the score, the higher the self-esteem.

Hypothetical Bias



Source: European Insurance Report 2015, Swiss Re

The issue of consumer behavior in life insurance and disability insurance here.

- Product has an immediate cost, with benefits that are far in the future (and often uncertain).
- The real competitor: inaction.

Why Experiment ?

Studies based on a questionnaire give room to....

- Declarative Bias:
 - Hypothetical bias: project into a virtual situation (WTP wrong x3 - x10)
 - Demand effect: fits the person asking the question, not the question.
- Self-image Bias:
 - Misperception of probabilities and risk
 - Imperfect knowledge of its own capacity

Behaviors and Experiments



Create a real economic situation, controlled and reproducible.

- Check the motivations of agents
- Check the nature of social and physical interactions

Behaviors and Experiments

- Study of individual choices
 - Choosing under risk, arbitrage, intertemporal choice ...
- Study of strategic interactions
 - Contract, incentives, bargaining, ...
- Market studies
 - Trade, public good provision, market design (matching)...

Experiments in the Lab



- Distributed Instructions and publicly know.
- Communication through the computer under Z-Tree Software
- Anonymous Decision Making
- Standard Timing: 90 minutes (max.) Payment: on average € 15.

Usual Biases

- **Anchorage.** natural tendency to refer to a standard / a conventional standard (so).
- **Status quo.** emotional attachment to the original context.
- **Myopia.** The psychological discomfort from a feeling of pressure or emergency leads to impulsive choices / precipitates.
- **Ex post rationalization.** The tendency to develop causal explanations of a phenomenon after its occurrence. This is presented as avoidable conditional eliminate the causes.
- **Aversion to extremes.** natural rejection of extreme positions which imply, in particular, a sharp break with acceptable positions under a broad consensus.
- **Herd behavior.** Tend to follow the herd, for the sole reason that all the others do.
- **Cognitive overload.** Inability to process and make sense of a mass of too much information.
- **Optimism.** Tend to overstate the impact and strength of his own abilities.
- **Case-Based.** Reasoning from cases considered representative (without representativeness statistically established). "Case-based decision making."

Behavioral Law and Finance

Behavioral analysis of governance codes by identifying psychological biases in the discourse of the promoters of best governance practices :

- Vienot I and II (Fanto)
- AFEP (Wirtz)

Fanto J. (2002): "Persuasion and Resistance: The Use of Psychology by Anglo-American Corporate Governance Advocates in France, *Vanderbilt Journal of Transnational Law*, 1041 -1101.

Fanto J. (2005): "Corporate Misbehavior by Elite Decision-Makers Symposium - Perspectives from Law and Social Psychology: Introduction", *Brooklyn Law Review*, 1165-1235.

Wirtz P. (2011): "The Cognitive Dimension of Corporate Governance in Fast Growing Entrepreneurial Firms" *European Management Journal*, 29, 431-447.

Motivation

- Agency theory (Jensen and Meckling, 1976)
 - **Independent directors** is a guarantee to maximize value creation.
 - The board of directors has come to be represented as a **central monitoring mechanism** to align CEO and shareholder interests. (Fama and Jensen, 1983; Hermalin, 2005; Adams et al., 2010).
- Codes of governance
 - codes of best practice establish independence as the most important property of a director (Zattoni et Cuomo, 2010).
 - salient recommendations for board composition (Gregory and Simmelkjaer; 2002; Wirtz, 2008)
 - ***But the precise definition of independence may feature some variation from one country to another***

Motivation

- Excessive remuneration of CEO (as a mechanism of rent extraction) (Bebchuck and Fried, 2003).
- Governance Codes recommend
 - ➔ **“independence in the remuneration committee is regarded as a key component in avoiding pay outcomes inflated in favor of the CEO”.** (Gregory-Smith 2012)
 - ➔ **The committee to be exclusively made up of independent non-executive directors.**
- **The composition of the remuneration committee has no statistical impact on CEO pay.** Gregory-Smith (2012)

Research Question

- **Hypothesis :**

- **Independence not based on Status (Characteristics)**

- **Independence based on Behavior**

- **The impact of**

- **Communication or**

- **Communication channel between CEO and Director**

on the Independent Behavior

Related Literature

- **Experiments on Corporate Governance**
 - Mayhew and Pike (2004): transferring the power to hire auditors from managers to investors actually enhances independent conduct.
 - Gillette et al. (2003) and Gonzalez *et al.* (2006) : voting behavior of boards.
Outsider dominated boards tend to choose better projects.
 - Magilke *et al.* (2009) on the objectivity of independent audit committee members about financial reporting.
- **Behavior of independent directors in fixing CEO pay.**

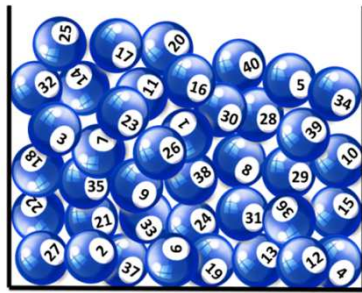
Related Literature

- **Some experiments on Communication**

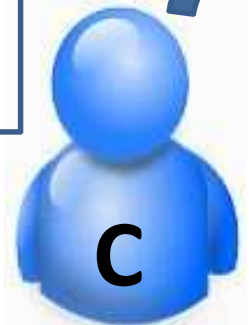
- Rankin (2003) in an ultimatum game, the ability of responder to influence proposer's beliefs by requesting an amount of money from proposer.
 - → Positive correlation between the amount requested and the amount offered
 - → increased the rate of rejection
 - → decreased average pay for both participants
- Andersson et al. (2010) : a similar experiment.
 - → Non-binding messages increase proposers' pay-off, but not the sender's pay-off
- Loewenstein et al. (2011) one participant should communicate to the chooser the pay-offs and risks involved with two options, and recommend him about which option to choose,
 - → the chooser's compliance decrease with the recommendation.



Gain of S
 $V_S + (20-x)$



Gain of C
 $V_C - cost$



C knows the associated cost of n

S selects x between 0 and 20:
 x

Nature selects h between -4 and +4:
 h

C learns x ; selects n between 0 et 11:
 n

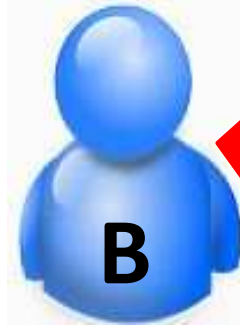
$y = n + h$

$y = n + h$

Project $v = x \times y$

C can send an advice to B on the sharing of V

B learns x and y . B shares v .
 V_S for S and V_C for C
Such that $V = V_S + V_C$



Gain of B
42 Ecu

The Model and parametrization

$$x \in [0; 20]$$

$$n \in [0; 11] \text{ and } c(n) = \frac{n^2}{1,125}$$

$$y = n + \varepsilon \text{ and } \varepsilon \in [-4; +4]$$

$$V = x \cdot y$$

$$V = V_S + V_C$$

$$U_S(x, y) = (20 - x) + V_S$$

$$U_C(x, y) = V_S - c(n)$$

$$U_B(x, y) = b \quad b \in \mathbb{R}^+$$

The Equilibrium

$$x^* = 20 \text{ (one of the two corner solutions)}$$

$$n^* = 5,625$$

$$V_S^* = V_C^* = \frac{V^*}{2}$$

$$EV^* = 112,5$$

$$EU_S^* = 56,25$$

$$EU_C^* = 28,125$$

$$EU_B = 42 \approx \frac{EU_S^* + EU_C^*}{2}$$

Experimental Design

- 2 Treatments :
 - Without Communication
 - With Communication
- Between-subject design
- Stranger matching protocol
- Number of repetition: 10 rounds
- Behavioral Elicitation
 - Beliefs on x ; y ; V_C and V_S
 - Risk Attitude (Holt and Laury, 2005)
 - Inequity Aversion (Fehr and Schmidt, 1999)
- Mean payoff = 14,5 euros
- Average duration of a session: 60 ‘
- Z-Tree and Orsee softwares

	Treatment Sessions	Participants
Without Communication	4	102
With Communication	4	90
Total	8	192

Statistical Results

	No Communication	Communication		
		Message or not	No message	Message
Investment x	14.35 [1-20]	13.50 [1-20]	13.83 [2-20]	13.06 [1-20]
Effort n	6.30 [0-11]	5.63 [0-11]	5.42 [0-11]	5.90 [.25-11]
Firm Value	97.29 [1.5-300]	84.19 [1.5-290]	84.26 [1.5-255]	84.10 [3.5-290]
V_S	42.21 [0-171]	44.26 [0-180]	43.94 [1-150]	44.68 [0-180]
V_C	55.08 [0-240]	39.93 [0-175]	40.32 [0-175]	39.42 [0-150]
Earning of S	47.85 [0-171]	50.75 [8.5-180]	50.10 [8.5-150]	51.61 [9-180]
Earning of C	10.11 [-104.5-158]	6.26 [-91.5-106.4]	8.33 [-67.6-97.8]	3.54 [-91.5-106.4]
Earning of B	42 [42-42]	42 [42-42]	42 [42-42]	42 [42-42]
Nb. of observations	1512	780		

Econometrical Results

Feasible Generalizes Least Squares (FGLS)

with period fixed effects and individual random effects

Treatment without Communication

- x (chosen by S) is increasing with belief of V_S and with V_{t-1}
- n (chosen by C) is increasing with belief of V_C and with $V_{S,t-1}$
 n is increasing with x
- **The Sharing of B :**
 - if x is increasing $\rightarrow V_S$ and V_C are increasing
 - if y is increasing $\rightarrow V_S$ and V_C are increasing
 - if y_{t-1} is increasing $\rightarrow V_S$ is increasing and V_C is decreasing
 - if $V_{S,t-1}$ is increasing $\rightarrow V_C$ is decreasing

Econometrical Results

Treatment with Communication

- x (chosen by S) is increasing with x_{t-1} , belief of V_S , and with V_{t-1}
- n (chosen by C) is increasing with belief of V_C
 n is decreasing with x
- **The Sharing of B :**
 - if x is increasing $\rightarrow V_S$ and V_C are increasing
 - if y is increasing $\rightarrow V_S$ and V_C are increasing
 - if x_{t-1} is increasing $\rightarrow V_S$ is decreasing and V_C is increasing

Econometrical Results

Between treatments With / Without Communication

From No Communication Treatment to Communication Treatment

- x (chosen by S) : *no significant difference.*
- n (chosen by C) : *significant difference and negative.*
- V_C (chosen by B) : *significant difference and negative*
- V_S (chosen by B) : *significant difference and negative*

Conclusion

- Communication Channel (with or without message) creates potential ties between S and C.
- C tends to overprovide the level of effort.
- C sends a message only with high level of effort.
- C reduces the level of effort when there is a communication channel.
- The value of the firm is higher without communication channel
- Low impact of communication on the independence of B
- B remains independent : B perceives communication as a negative stigma

Thank you for your attention