How can an insurer use nudge to increase the participation in a prevention program?

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Motivation?

Ehrlich Becker (1972):
- Market Insurance
- Self Insurance secondary/triary Prevention
- Self Protection primary prevention

Thaler Sunstein (2009): Nudge
- How to increase involvement in a plan?
  - Incentives
Which incentives for an insurance company?
  - Gift
  - Money (premium)
Problem: what is free is then worthless
Nudge: Presenting the same thing in a different design may produce different results. How to present the incentive?
- Different behavioural bias to deal with:
  - Loss aversion
  - Law of small numbers
  - Dynamic inconsistency

Model

Model 1: benchmark
The agent can subscribe by himself to a sports club.
- Agent monetary cost: c
- Psychologic cost: C(e)
- e models the physical effort
- In every models, the agent doesn’t know how is calculated the insurance premium
The agent maximizes E(u):

\[ E(u) = \beta u(R - C(e) - \beta p(1 + \lambda)l) - \gamma e - e^2 \]

We can compute e* and β* theoretically

Model 2: insurance pays all
The agent can ask his insurance to subscribe to a sports club.
- Agent monetary cost: 0
- Psychologic cost: C(e)
- Insurance cover all the financial cost
- c is not included into the premium
The agent maximizes E(u):

\[ E(u) = (1 - p)u(R - C(e) - \beta(1 + \lambda)l) + p u(R - C(e) - \beta(1 + \lambda)l) + \beta e + \beta^2e^2 \]

- If the agent is rational, he does the same choice as in the model 1
- We expect e to change in practice

Model 3: prevention is a benefit
The agent can ask his insurance to subscribe to a sports club.
- Agent monetary cost: (1 - β)c
- Psychologic cost: C(e)
- Insurance refunds β e
- This cost is included into the premium
The agent maximizes E(u):

\[ E(u) = (1 - p)u(R - C(e) - \beta(1 + \lambda)l + \beta e) + p u(R - C(e) - \beta(1 + \lambda)l + \beta e) + \beta e + \beta^2e^2 \]

- If the agent is rational, he does the same choice as in the model 1
- We expect e to change in practice

Experimentation

The game: slide task

Expected results
- Which model will imply the biggest prevention effort?
- Will the measured effort be consistent with the theoretical prediction?
- Are self-insurance and insurance substitutable?
- Are the effects of loss probability and loss amount the same as the effect predicted by Ehrlich and Becker?
- What is the impact of the probability perception?

Reference


¹: Université de Lyon, SAF, Actuaries, Chaire Prevent’Horizon
²: Université de Lyon, Chaire Prevent’Horizon, SAF, Actuaries
³: Université de Lyon, SAF, Chaire Prevent’Horizon