Written Exam at the Department of Economics Winter 2018-19

Science of Behaviour Change

Final Exam

December 17, 2018

(2-hour closed book exam)

Suggested answers

Question 1 aims to assess the following two learning objectives:

1. *Review the most recent developments and theories of human decision-making from both Economics and Psychology.*
2. *Analyze the tools of behavioral science and they will compare their effectiveness to change specific behaviors.*

Question 2 aims to assess the following two learning objectives:

1. *Reflect on how experiments and randomized controlled trials work and why this methodology is critical for making inference about causal relationships.*
2. *Debate and discuss critically several interventions that have been conducted to change people's behavior in the domain of energy efficiency, health and well-being, dishonesty, charitable giving, education and work performance.*

Question 3 aims to assess the following two learning objectives:

1. *Examine (real-world) cases where people make decisions that are inconsistent with the assumptions of rational decision-making and they will identify the consequences of this irrational behavior for the society.*
2. *Design experiments and develop policy intervention aiming at ameliorate societal well-being and improve people's life.*

Answer to Question 1:

a) The intention-action gap refers to the difference between what people say they would like (or plan) to do and what they actually do. The intention-action gap may be the result of a behavioral bias favoring immediate gratification - especially when choosing some foods over others or the result from setting over-ambitious goals/targets.

b) In class we have seen several examples of the "intention-action gap". For instance:

- People plan to take more exercise (especially after the festive period) but fail to do so. We have also seen behavioral interventions designed to foster physical activities and create positive habits of exercising regularly using monetary incentives.
- People plan to quit smoking or lose weight but do not follow through with their intentions. We have seen that when these persons are "sophisticated" they can buy/sign commitment contracts designed to help us to achieve their goals.
- People express a desire to save more for their pension but in the event choose not to do it. We have seen example of choice architecture to increase their contribution to pension funds.

c) Standard tools (regulation, information and incentives) sometimes fail to produce an effective change in behavior because they affect our intentions not on our actions. For instance, consider smoking. One person may have the intention to quit but fail to follow through this plan. Ban cigarettes from public space, increase taxations on cigarettes or make information campaigns may produce only limited effects since people already have an intention to quit. We observe this daily. On the contrary, behavioral tools may help people to quit not by increasing their intentions but "closing" the intention-action gap.

Answer to Question 2

a) Thaler and Benartzi (2004) design and implement a mechanism that increases pension savings by overcoming self-control problems and other behavioral biases. Their "Save More Tomorrow" (SMarT) program has four main ingredients.
- First, employees decide whether to increase their savings a considerable time before a pay increase (the decision does not involve a trade-off between current consumption and future consumption).
- Second, SMarT contribution is increased beginning with the first paycheck after the pay raise. Since the increased savings comes out of a future gain (the pay raise), loss-averse individuals need not fear a reduction in take-home pay.
- Third, there is automatic escalation: the contribution rate continues to increase on each scheduled pay raise until the contribution reaches a pre-set maximum.
- Fourth, the employee can opt out of the plan at any time, which make employees more comfortable about joining.

The first implementation of the SMarT plan began in 1998 at a midsize manufacturing company. The company experienced the (dual) problem of a low participation rates and low saving rates. The company hired an investment consultant and offered his services to every employee eligible for the retirement savings plan (286 out of 315 employees accepted to meet the consultant). The consultant computed a desired/personalized saving rate. If the employee seemed reluctant to increase his/her saving rate accordingly, the consultant would constrain the program to increase the saving contribution by no more than 5%. Only 79 employees were willing to accept this advice. The remaining 207 participants, were offered a SMarT plan that increased their saving rates by 3% each year, starting with the next pay increase.162 employees agreed to join the SMarT plan. The vast majority of the participants (80%) remained in the plan through four pay raises. And, even those who withdrew from the plan did not reduce their contribution rates to the original levels. Finally, note that with the 3% a year increases, employees would typically reach the maximum tax-deferred contribution within four years.

b) The starting savings rate was 4.4%. The employees who did not want to talk to the consultant were saving more than the average, 6.6% but remained constant over the years (see blue bars). The group that accepted the advice of the consultant had been saving at exactly the overall company average, 4.4%, and after implementing the advice, they began saving 9.1% of their salary. At the end of the data collection period, that rate had slipped slightly to 8.8% (orange bars). Those who were unwilling to accept the advice were, not surprisingly, starting from a lower base of 3.5% and so would find the advice harder to adopt. Once they got their first pay raise, however, their saving rate jumped to 6.5%, and after three more raises, it was up 13.6% (see grey bars). In short, those participating in the SMarT plan ended up with a much higher saving rate than those who accepted the consultant's recommendation.

c) We discussed in class some of the limitations of this study. For instance:
- The implementation of the SMarT plan was not conducted as an experiment with random assignment to conditions. Participants selected themselves into the SMarT plan. However, the SMarT participants had been saving very little before joining the plan, so one would have to believe that their taste for saving was newly acquired. Moreover, the SMarT plan

was offered only to those employees who were unwilling to increase their savings rate immediately by 5%. So, if anything, the group that accepted the consultant's advice would appear to have a greater taste for saving than those in the SMarT plan.
- Since the employees met with the investment consultant, they received useful information about proper savings rates, and this information quite possibly could affect their savings rates. However, all the employees who agreed to meet with the consultant received this information, including those who accepted the consultant's advice to increase their savings rate immediately.
- SMarT plan and similar type of behavioral interventions may decrease the overall saving. However, using Danish data, Chetty et al. (2014) recently showed that automatic-enrolment saving plans neither crowd-out other savings nor increase debt.

Answer to Question 3:
This question has not a correct answer a priori. This question gives the student the possibility to show that he/she can use his/her competencies for solving practical problem.
Students should:

a) define the context in which the intervention is going to happen (when, where and who is the target agent).
b) briefly think through the behavior change and articulate the specific behavior that he/she wants to change as a result of the intervention (*a specific and measurable behavior*).
c) map the decision making process: different stages that people go through; various frictions and possible bottlenecks.
d) make a linkage between that map that he/she has just drawn, the process that he/she has just identified, and some of the concepts that we discussed in this course.
e) describe the intervention in detail
f) describe the design of an experiment that can test the intervention and present how to organize the data analysis.