# Written Exam at the Department of Economics Winter 2017-18

# **Science of Behaviour Change**

Re Exam

# February 8, 2018

(2-hour closed book exam)

## Suggested answers

*NB:* If you fall ill during an examination at Peter Bangsvej, you must contact an invigilator in order to be registered as having fallen ill. In this connection, you must complete a form. Then you submit a blank exam paper and leave the examination. When you arrive home, you must contact your GP and submit a medical report to the Faculty of Social Sciences no later than seven (7) days from the date of the exam.

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) Social proof (also known as social influence or social norm) is a psychological and social phenomenon where people assume the actions of others (experts, celebrities, friends, or similar agents) in an attempt to reflect correct behavior in a given situation. Social proof is considered prominent in ambiguous or complex social situations where people are unable to determine the appropriate mode of behavior. Social proof can be viewed as one type of conformity. When a person is in a situation where they are unsure of the correct way to behave, they will often look to others for cues concerning the correct behavior.
- b) Information on social norms effectively influences behaviors in a variety of arenas from energy saving to voting. The key finding is that people usually have a conditional preference to follow social norms, i.e. to adjust their behavior according to the behavior of others and their presumed reasons for acting as they do. For instance:
  - ✓ We have seen examples of websites and platforms indicating the "most popular" option to induce customers to buy a specific product or service.
  - ✓ In lecture 11 we have seen three papers related to the "Opower case" a company that uses social proof to promote energy saving. The idea behind Opower is to provide households with "Home Energy Reports" which consists of two parts. Part 1 contains suggestions on how to save energy customized and adapted to each household based on existing patterns of consumption. Part 2 tap into the power of social comparison and activation of social norms when presenting energy reports. The idea is to influence households' energy consumption by providing information on the households' use of energy relative to the 100 nearest houses of similar size.

- ✓ In lecture 18 we have seen how social proof can influence voting (see Bold et al. 2012) In a large-scale Facebook experiment (over 61 million people) the authors show that people who receive social proof elements as part of their "go and vote" ad (showing which of their friends have voted) are significantly more likely to vote.
- c) Social proof can also produce undesired behaviors. We may learn from others (experts, a celebrities, friends, etc.) that a particular action is not so bad, as we thought. This may induce us to be more lenient toward our own bad behavior. Think for instance at the possible effect that may have the fact of knowing that your 65% of self-employed like you are cheating on taxes. You may be induced to think that tax evasion is not so bad since everybody is doing that. Or think about a famous doctor saying in TV that smoking is not so dangerous. Or think about a friend telling you that drinking a lot but only once per week has no effect on your health.

#### **Answer to Question 2**

a) In July 2010 and March 2012, the authors analyzed 348 taxi rides in Athens (Greece) with the aim to measure overtreatment, overarching and cheating.

They used actors playing the role of a passenger and equipped them with GPS-loggers to record their exact position every single second. This allows them to reconstruct the exact route, duration etc. of every single route. In other words, they could measure if taxi drivers took a longer route and/or if they charged them too much.

Note that three experimenters (*triple*) always took a ride from the same starting point to the same destination. They approached the taxi stand one by one in intervals of one to two minutes, so that taxi drivers never saw them together.

In this experiment, the authors manipulated the level of familiarity with the city and tariff system changing "the script" that the actor/passengers used. The resulting three treatments were:

- "Local" passenger: Passenger enters taxi and states requested destination, speaking in Greek;

- "Non-local native" passenger. Passenger enters taxi and states requested destination, adding "*do you know this destination, because I am not familiar with the city*". Again, speaking in Greek;

- "Foreign" passenger Identical to "non-local" passenger, but speaking in English. In addition to this manipulation the experimenter manipulated the expected income of the passenger (High income passengers were wearing suit and carrying briefcase and their location was a top-end hotel vs. Low income passengers were wearing casual clothes and backpack and their destination was a low-end accommodation)

b) To get a measure of overtreatment, the authors calculate an *Overtreatment Index* by taking for each *triple* (see above) of rides the shortest trip and normalizing the other two trips by the shortest one. The Figure presents the results, showing an index of 1.029 for locals, and one of 1.077 both for non-local natives and 1.087 for foreigners. The difference between passengers in the role of locals and each of the other two passenger roles is statistically significant. There is no significant difference between non-local natives and foreigners.

These results show that passengers revealing not to be familiar with the city are taken on significantly longer detours.

c) Overcharging occurs when a passenger pays more than he should for a given distance. Despite the relatively low overall frequency of overcharging, there are clear differences across passengers' information roles. While overcharging occurred in only 5% of rides with local passengers and 9% of rides with non-local native passengers, it happened in 19% of cases to foreigners. The average amount of overcharging in the 19 relevant cases was €4.30, which corresponds to 35% of the average fare. In short, there is more overcharging for passengers in the role of foreigners, and no differences between local and non-local native passengers

#### 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.