# AØKA08218U Science of Behavior Change

Suggested answers

# Mmmm DD, 2015

### (2 hours, closed book, written exam at computers)

#### **Question 1**

Question 1 aims to assess the following two learning objectives:

- Students will review the most recent developments and theories of human decision-making both from Economics and Psychology.
- Students will analyze the tools of behavioral science (namely incentive, regulation, persuasion and nudging) and they will compare their effectiveness to change specific behaviors.
- a) In a choice context a default refers to that option which choosers end up with if they do not make an active choice. Defaults are settings or values that are automatically assigned outside of user intervention. Setting the default effects how likely people end up with an option. This is called the default effect. More precisely it refers to changes in the probability that an agent chooses a particular option when it is set as a default as opposed to the situation where this option has not been set as default. For example, different countries have different rules how to become an organ donor. In countries with the so-called opt-in policy all citizens are automatically considered as non-donors unless they actively register as donors. In countries with the so-called opt-out policy all citizens are automatically considered as donors unless they actively register as donors unless they actively seek to be struck from the register.
- b) Setting or changing defaults has been proposed as an effective way of influencing behavior, for example with respect to deciding whether to become an organ donor, choosing between different energy providers, decide how much contribute to a charity or choosing the level of one's retirement contributions. Setting defaults are an important example of nudges or soft paternalist policies since defaults do not limit individual freedom but they nudge people ina particular direction.

### **Question 2**

Question 2 aims to assess the following two learning objectives:

- Student will reflect on how experiments and randomized controlled trials work and why this methodology is critical for making inference about causal relationships.
- Student will 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.
- a) The research question that the authors address is the following: can monetary incentives be useful to help people develop a good habit such as exercising? There are in fact two competing hypotheses.

1) **Crowding-out**: paying someone for an activity might destroy his intrinsic motivation to perform the task once the incentives are removed.

2) **Habit-formation**: one's utility from engaging in an activity depends on his experience in the past.

b) In study 1, students are promised payment if they came to the lab once on a given date and again a week later, they have to sign a consent form that allowed the researchers to access to data on their past and future gym visits (on campus) and they were given a handout about the benefits of exercise. Participants are randomly allocated to three groups. Control group: no further requirement or activity. One-time group: Each subject gets \$25 for attending the gym at least once during the following week. Eight-times group: Each subject gets \$25 for attending the gym at least eight more times during the next four weeks.

In study 2, students are paid to go to a meeting room three times for biometric tests (weight, height, body fat percentage, waist, pulse, and blood pressure). In detail, they are paid \$75 for the first visit and \$50 for each of the two other visits. In total 175\$. Again, participants are randomly allocated to three groups: Control group: no further requirement or activity. One-time group: Subjects were asked to attend the gym at least once in the next month. Eight-times group: Subjects were asked to attend the gym at least eight times in the next month. The difference between these two studies is that subjects in Study 2 were paid the same amount regardless of which group they were in. The authors conduct these two different studies to control for the possibility that it was the monetary payment, rather than a habit acquired by the experimenters, that caused the effects.

c) The Figure graphically presents the rate of gym attendance before and after the intervention period for Study 2. "Before" refers to the period before the first lab visit, while "After" refers to the period after any incentives were removed. In Study 2, we observe a positive trend in attendance for all treatment groups. The average attendance rate for the control group increased from 0.81 visits per week in the 12 weeks before the intervention period to 1.10 visits per week in the 13 weeks after the intervention period (+36%). The corresponding change for the one-time group was from 0.62 visits per week to 0.87 visits per week (+40%). The change for the eight-times group was much greater, with an average of 0.52 weekly visits before the intervention period (+181%).

## Question 3

Question 3 aims to assess the following two learning objectives:

- Student will examine 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.
- Students will design experiments and develop policy intervention aiming at ameliorate societal well-being and improve people's life.

This question has not a correct answer *a priori*. This question gives the student the possibility to show that s/he can use the knowledge for solving practical problem.

Students should:

- 1. define the context in which the nudging is going to happen (when and where).
- 2. briefly think through the behavior change and articulate the specific behavior that you want to change as a result of the nudge (specific and measurable behavior).
- 3. map the decision making process: different stages that people go through; various frictions and bottlenecks; identify nudges that would actually help you address those bottlenecks.
- 4. make a linkage between that map that you've just drawn, the process that you've just identified, and some of the concepts that you've talked about in this class.
- 5. describe the intervention and/or the nudge (precision)
- 6. describe the design of an experiment that can test the nudge and briefly how to do the data analysis (internal and external validity).