Written Exam for the M.Sc. in Economics summer school 2016

Behavioral and Experimental Economics

Final Exam

August 15, 2016

(2-hour closed book exam)

Please note that answers must be provided in English.

All 5 questions have to be answered for obtaining the top grade.

The exam has 4 pages in total (including cover page)

Question 1: Methodological aspects

a) Daniel Kahneman was a pioneer of "first-wave" behavioral economics.
a1) Explain what is meant by "first-wave" with reference to one example discussed in assignment 1.
Matthew Rabin (AER 2013) advocates "second-wave" behavioral economics.
a2) Explain this expression with reference to one example discussed in the lecture.

b) Consider an outcome of interest Y that depends on a list of determinants, i.e. $Y = f(X_1, \ldots, X_N)$. A causal effect of X_1 on Y is the effect of varying X_1 holding fixed all other determinants $Z = (X_2,\ldots,X_N)$. Answer the questions below with reference to the notation introduced in Falk and Heckman (Science 2008).

b1) Does an observed causal effect depend on the level of Z?
(*Hint*: refer to "separability")
b2) Does an observed causal effect depend on the level of X_1?
(*Hint*: refer to "separability")
b3) Explain how "randomization" serves to neutralize the effect of uncontrolled determinants (X_u) on Y.

Question 2: Markets

Consider a double auction (DA) market experiment with 5 buyers and 5 sellers and the following induced values.

ID number	**Value of first unit**	**Value of second unit**
B1	**82**	**72**
B2	**88**	**52**
B3	**67**	**37**
B4	**62**	**43**
B5	**57**	**46**

ID number	**Value of first unit**	**Value of second unit**
S1	**24**	**32**
S2	**20**	**48**
S3	**36**	**60**
S4	**40**	**57**
S5	**44**	**54**

a) Describe the most important rule of a DA market experiment (*Hint*: This rule gave the auction its name). How does a DA market differ from a posted offer market?

b) Calculate equilibrium price, quantity and surplus (i.e. sum of consumer and producer rent) in the example above.

c) What are the sufficient conditions according to the Induced Value Theory (Smith, AER 1982) to induce the values in such an auction? (*Hint*: consider preferences $V(m_0 + \Delta m, z)$). Are these conditions also necessary?

d) Consider the following parameters in a strategic market game in which two firms compete over quantities (as in Huck et al. JEBO 2004):
Market price $p = 100 - Q$, $Q = q_1 + q_2$ and costs $c_1 = c_2 = 10$.
d1) What are equilibrium quantity predictions?
d2) What do Huck et al. (2004) find for collusion when 2 such firms compete vs. when 5 such firms compete?

Question 3: Loss aversion

a) Kahneman and Tversky (ECMA 1979) propose a theory of decision making under risk. Discuss the assumptions of this theory that relate to losses.
(*Hint*: refer to a figure with four quadrants)

b) Andersson, Holm, Tyran and Wengström (Management Science, 2016) investigate whether deciding for others reduces loss aversion in a large sample of the Danish population.

b1. An important measure in this paper is "the number of safe choices". Explain how the authors construct and interpret the measure.
(*Hint*: refer to the "multiple price list" (MPL) and the notion of a "switch point")

b2. What do the authors find with respect to the "the number of safe choices" when comparing treatments "Individual" and "Other"?
(*Hint:* compare conditions in which losses can occur vs. cannot occur)

b3. How do the authors interpret their finding in b2? (*Hint*: refer to emotions)

c) Stephens and Tyran (in progress) investigate "money illusion and household finance" in a large sample of the Danish population and refer to the concept of "nominal loss aversion" (NLA).

c1) Explain the expression NLA and how it is measured in this paper.
(*Hint*: the authors construct an index from a set of 8 questions)

c2) The authors make a distinction between nominal and real assets. (i) How are those characterized? Provide one example each. (ii) What is the authors' hypothesis about how NLA and holdings of nominal and real assets relate?

c3) The table below shows results from Zero-One-Inflated-Beta regressions. (i) Comment on the results shown in the first 5 lines in the table with respect to the dependent variable, the real asset share. (ii) What does a negative sign on the coefficient in the first line imply for the expected earnings of illuded vs. non-illuded investors? Why?

	(1)	(2)	(3)	(4)	(5)
Money Illusion Index	−0.144***	−0.142***	−0.123**	−0.097**	−0.083**
	(0.047)	(0.049)	(0.048)	(0.047)	(0.036)
IST-M Score		−0.003	0.000	0.002	0.003
		(0.005)	(0.005)	(0.005)	(0.003)
High CR Score		−0.015	−0.032	−0.040	−0.027
		(0.029)	(0.029)	(0.027)	(0.021)
Education (years)		0.013**	0.007	0.007	0.002
		(0.006)	(0.006)	(0.006)	(0.005)
STEM Education		0.113***	0.103***	0.074**	0.025
		(0.030)	(0.030)	(0.032)	(0.028)
Assets (million DKK)					0.278***
					(0.021)
Liabilities (million DKK)					0.106***
					(0.022)
Controls	No	No	Yes[a]	Yes[b]	Yes[b]
Wald χ^2	2.910	9.890	19.760	41.340	111.330
AICc	67.999	53.703	43.634	43.911	−287.261
N	660	660	660	660	660

Question 4: The role of entitlements and needs in fair sharing

Cappelen, Moene, Sørensen, and Tungodden (JEEA 2013) conduct an experiment to evaluate the role of entitlements and needs in fair sharing.

a) What are the main descriptive results of the study?
(*Hint*: refer to differences in production across countries and assigned "prices", and to sharing patterns across countries)

b) The authors propose a model of how self-interest is traded off against fairness motives:

$$V^k(y;\cdot) = y - \beta(y - m^e)^2/2X - \delta\alpha(y - m^n)^2/2X$$

Derive the interior solution y^* (assume $\delta = 1$). (*Hint*: use $\tau = \beta / (\alpha + \beta)$)

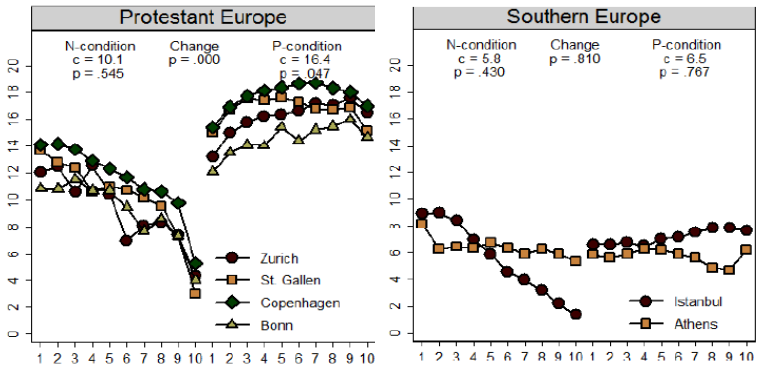
c) In the model, the fairness view m^e can take three forms. Characterize these forms by using the following expressions: a_i (production of player i), p_i ("price"), X (total income available for distribution).

d) How does τ relate to the relative weight given to entitlements vs. needs? (*Hint*: refer to question b above)

e) The authors estimate a random utility model. What are the main findings of the estimation?

Question 5: Cooperation, Culture, and Institutions

a) Gächter, Herrmann and Thöni (Science 2008) investigate cultural and institutional determinants of cooperation. Phase 1 is a standard linear public goods game, phase 2 is a peer punishment game.



a1) What is the prediction of standard theory for phase 2? Explain.

a2) How do the authors explain variation in efficiency across countries in phase 2?

b) Gächter and Schulz (Nature 2016) relate and index of prevalence of rule violations (PRV) to a measure of "intrinsic honesty" in 23 countries as shown on the right.
b1) What does the PRV reflect?
(*Hint*: the index is composed of three elements)
b2) How do the authors measure "intrinsic honesty"?
b3) How is the "per cent of fully honest people" (y-axis) estimated?
b4) What does the color coding reflect?