Behavioral Economics - Fall 2016

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Homework 1

Due Weds 26th October

Question 1 (Consideration Sets) Consider the following model of choice from consideration sets. The DM has a one-to-one utility function u on a finite set X (i.e. we are not allowing for indifference). For any choice set $A \subset X$ the DM has a consideration set $\Gamma(A)$, such that

$$C(A) = \max_{a \in \Gamma(A)} u(a)$$

Consideration sets obey the following property: if $x \in S \subset T$ and $x \in \Gamma(T)$ then $x \in \Gamma(S)$. i.e. if an alternative is considered in a larger set , it must also be considered in a smaller set.

1. Show that a model of this type can explain 'too much choice' effects of the type demonstrated by Iyengar and Lepper (and discussed in the first lecture)

2. What sort of behavior reveals that an alternative x is preferred to alternative y in this set up?

3. Assume that you observe choices between all possible choice sets. Use the above observation to construct necessary and sufficient conditions for the data set to be consistent with the above model. Prove your result

4. Did your above proof rely on the fact that you observed choices from all possible choice sets?

Question 2 (Rational Inattention I) Download the Stata data file Data_for_HW_1.dta from the website (ask me if you would prefer the data in another format). This data contains the records from an experiment in which 24 subjects each faced 50 repetitions of each of 4

questions. In each case there were two equally likely states (labeled 3 and 4 in the Stata file), and the subject had to choose between two actions. The collection of acts used across the 4 questions is summarized in the following table

Action	Payoff in State 3	Payoff in State 4
1	10	0
3	20	0
4	5	10
5	30	0
6	0	10

And the following table summarizes the acts available in each question

Question ID	Act 1	Act 2
1	1	6
2	3	6
3	1	4
4	5	6

In the stata file each line represents a single trial (i.e. a single repetition of a question asked to a particular subject). id is the unique id of that trial, user_id is the identifier of the subject, qn is the question number, chosen_act is the id number of the chosen act and true_state is the id of the state on that trial

1. Assume that the payoffs are in utility units. Derive necessary and sufficient conditions for behavior in this experiment to be consistent with rational inattention with any arbitrary cost function. Perform these tests using the aggregate data from the experiment.

2. Repeat the above exercise for the rational inattention model with Shannon costs

3. Are the above tests valid it the payoffs are in monetary units, not utility units? What about if there is heterogeneity in costs across different individuals?