Behavioral Economics

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Homework 2

Due Wednesday 18th February

Please do questions 1 and 2 separately from question 3 for grading purposes.

Question 1 The following describes the Becker-Degroot-Marschak procedure for eliciting the valuation of an object (let's say a Banjo) in an experiment (for convenience, let's assume that no-one should value a banjo over \$1000)

1. Ask the subject to name their valuation of the Banjo
2. Draw a random number x between 0 and 1000
3. If the x is above the subject's valuation then nothing happens
4. If the x is below their valuation, then they get the banjo and pay x (NOT their valuation)

Show that this procedure is incentive compatible: i.e. that the best thing that a subject can do is announce their true valuation (i.e. the price at which they are indifferent between having the banjo and not)

Question 2 In class we showed that a model of choice in which the chooser formed a consideration set $S(A)$ and chose the best alternative from that set could violate conditions α and β. This question explores this type of model further.

Definition 1 *We say a set of choice data can be explained as choice with consideration sets if there is (i) a utility function $u : X \to \mathbb{R}$ and (ii) a consideration set correspondence $S : 2^X/\emptyset \to 2^X/\emptyset$ such that $S(A) \subseteq A$ and*

$$C(A) = \max_{x \in S(A)} u(x)$$

In other words, for each set A, $S(A)$ defines the set of alternatives that the decision maker considers. They then choose the best option from $S(A)$ according to u.

For simplicity, let's assume that we are dealing with choice functions (not correspondences) and that there is no indifference

1. Show that a model of choice from consideration sets can explain **any** choice function

2. Now add the restriction

$$S(A) = S(A/x) \text{ if } x \notin S(A)$$

   (by A/x I mean the set A with x removed). In other words, If you did not consider x in choice set A, then removing x from the choice set should not affect what you consider

   Is the following set of choices consistent with this model?

$$\begin{aligned} C(\{x,y,z\}) &= x \\ C(\{x,y\}) &= y \end{aligned}$$

3. Show that, if we observe that $C(A) \neq C(A/x)$ (i.e. removing x from A changes the choice from A), it must be the case $x \in S(A)$

4. Show that the model implies the following property (hint, let x^* be the object in the set A with the highest utility)

$$\begin{aligned} \text{For any non-empty set } A\text{, there exists } x^* &\in A\text{, such that, for any set } B \text{ including } x^* \\ C(B) &= x^* \text{ whenever} \\ (i)\ C(B) &\in A \text{ and} \\ (ii)\ C(B) &\neq C(B/x^*) \end{aligned}$$

5. Show that, if $x = C(A)$ and $y \in A$, then it is not necessarily the case that $u(x) > u(y)$, but if $C(A) = x \neq C(A \backslash y)$, then it must be the case that $u(x) > u(y)$

Question 3 In the second lecture we discussed the following 3 violations of α: the 'choice difficulty', 'too much choice' and 'compromise/asymmetric dominance effects'. Pick one of these, and write down a model of behavior that explains this violation (your model can be informal or formal - i.e. in words or maths). Demonstrate why your model would generate the observed effect, and generate a testable prediction for your model (i.e. a set of observations that would lead you to conclude that your model is false).