Behavioral Economics

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Homework 3

Due 1st January 2020

DO ONE AND ONLY ONE OF THE FOLLOWING TWO QUESTIONS

Question 1 (Information Aversion vs Rational Inattention) Read the papers "Information Aversion" (https://docs.google.com/viewer?a=v&pid=sites&srcid=ZGVmYXVsdGRvbWFpbnx2YWxlbnR by Andries and Haddad and "A News Utility Theory for Inattention and Delegation in Portfolio Choice" (https://www.dropbox.com/s/tz2q4dxnunoip4j/PortfolioChoiceMP.pdf?dl=0) by Pagel. Design an experiment to differentiate between inattention driven by costs derived from non-expected utility (as in these two papers) and rational inattention type information costs. A good answer will have thought very carefully abouit behavior that is consistent with each class of model in order to inform the experiment, and so will have a strong theory component.

Question 2 (Endogenous Reference Points) Consider the following model of choice with reference points. There exists:

1. A utility function $u : X \to \mathbb{R}$
2. A set $\mathcal{U}$ of real maps on X
3. A 'reference map' $r : 2^X \backslash \varnothing \to X \cup \Diamond$ such that

$$r(S) \in S/c(S) \text{ if } r(S) \neq \Diamond$$

Define $\bar{U}(x) = \{y \in X | U(y) \geq U(x) \; \forall \; U \in \mathcal{U}\}$. Choice in any given choice set is given by

1. If $r(S) = \Diamond$

$$c(S) = \arg\max_{x \in S} u(x)$$

1. If $r(S) \neq \Diamond$

$$c(S) = \left\{x \in S | u(x) \geq u(y) \ \forall \ y \in S \cap \bar{U}(r(S))\right\}$$

2. For any $T \subset S$ such that $r(S) \in T$ and $c(S) \cap T \neq \varnothing$ then $r(T) \neq \Diamond$ and

$$c(T) = \left\{x \in X | u(x) \geq u(y) \ \forall \ y \in T \cap \bar{U}(r(S))\right\}$$

Consider observing choices from every subset of some finite set X. Here are some questions concerning this model

1. Show that this model will violate WARP
2. What observation would allow you to identify an alternative z as acting as a reference point in a set S?
3. We will say that z acts as a reference for x if, by being a reference point in some choice set it causes x to be chosen if it would not have been otherwise. Use your above condition to identify a behavioral equivalent - i.e. when is z revealed to be a reference point for x in the data? If z is revealed as a reference of x and x is revealed as a reference for y then must z be revealed as a reference for y?
4. Show that the model implies that if $x \in C(\{x, y\})$ and $y \in C(\{y, z\})$ then it must be the case that $x \in C\left(\{x, z\}\right)$
5. Let $\mathbf{T}$ be a a collection of sets such that (i) $\cup T \in \mathbf{T} = S$ and (ii) $T \cap C(S) \neq \varnothing$ for all $T \in \mathbf{T}$**.** Show that the above model implies the following statement must be true if and only if $|T| = 2$ for some $T \in \mathbf{T}$:

   For some $T' \in \mathbf{T}$ we have $C(T') = C(S) \cap T'$
6. Consider the concept of Personal Equilibrium introduced by Koszegi and Rabin. Does this model satisfy that concept? Can it satisfy that concept?
7. Consider the following alternative model of reference point formation are reference effects.. For simplicity we will work with choice functions, so $C(S)$ is always a singeton. There exists

a 'salience ranking' R on X which is a strict linear order. For every alternative $x \in X$ there is a one to one utility function u_x. The decision maker makes choices in the following way

$$C(S) = \max_{x \in S} u_y(x) \text{ for } y \in S \text{ s.t. } yRz \; \forall \; z \in S$$

Show that this model will satisfy the following property: For every choice set S and T and distinct x and y such that $\{x, y\} \subset S \cap T$, if $x \neq C(S) \neq c(S \backslash x)$ then either $C(T) = y$ or $C(T \backslash y) = C(T)$

8. Discuss the relationship between this model and the one you considered in sections 1-6. Are the two models nested? If not how do their behavioral implications differ?