

### ECON 455, Discussion Section 6

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Office: SS 6470. OH: Wed 8:00-9:30am; Thu 4:15-5:45pm; or by appt.

**Office hours will not be as above during midterm week. See email.**

1. Jimmy wants to put an offer on a house. The house is worth \$200000 to him. He knows the market pretty well and knows that he is guaranteed to win if he submits an offer of \$150000 or above. If he bids  $b \in [0, 150000]$ , he will win with probability  $b/150000$ . If he wins, he pays his bid. Assume he has no outside wealth, so that his assets,  $x$ , are worth  $200000 - b$  if he wins and zero if he loses.
  - (a) Suppose Jimmy is an expected utility maximizer with  $u(x) = \sqrt{x}$ . Is Jimmy risk-averse, risk-loving or risk-neutral? What is his optimal bid?
  - (b) Suppose Jimmy is an expected utility maximizer with  $u(x) = x^2$ . Is Jimmy risk-neutral, risk-loving or risk-neutral? What is his optimal bid? Explain why the answer here is lower than the answer in (a).
  - (c) Now suppose that Jimmy is a prospective utility maximizer. His value for gains and losses  $x$  is  $v(x) = \sqrt{x}$  if  $x > 0$  and  $v(x) = -\sqrt{-x}$  if  $x < 0$ . Suppose also that he has a linear probability-weighting function, i.e.  $\Pi(p) = p$ . If his reference point is that he purchases the house for \$150,000, then what is his optimal bid.
  - (d) What about if his reference point is that he purchases the house for \$0?
  - (e) Continue to assume his reference point is that he purchases the house for \$0, but now assume that his probability weighting function is  $\pi(p) = p^2$ . Solve for his optimal bid. (Warning: Math gets awful - use WolframAlpha or skip it!)
  - (f) Now take the approach of Cumulative Prospective Utility and rewrite the maximization problem from (e) in this framework.
  
2. Remaining time to be spent going over PS2.