ECON 6090 - TA Section 9

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Exercises

Subjective Expected Utility

1. (2014 Final) An individual who has initial wealth $w > 0$ is offered an opportunity to invest in a project with an uncertain return. If the project is successful, which occurs if state S happens, then each dollar invested in the project pays a total return of $R > 0$. If the project is a failure, which occurs if state F happens, then the payoff on the project is 0. Exactly one of the two states S and F will occur. The individual can buy as many or as few shares of the project that he wants at price $p > 0$ per share. Let x be the number of shares purchased. We will also assume that the individual can "go short" in the project; that is, he can choose a negative value for x. If he goes short, then for every share he is short he receives p now and must pay R if state S occurs and 0 if state F occurs. The individual is a subjective expected utility maximizer who likes money and who is risk averse.

   (a) Write the individual's decision problem as a maximization problem.

   (b) Suppose that the individual chooses $x = 0$. What can you say about his subjective probabilities of states S and F relative to p and R ?

   (c) Suppose now that "going short" is prohibited. That is, the individual's choice must satisfy $x \geq 0$. Suppose that some new individual chooses $x = 0$; we are not looking at a choice made by the individual who chose 0 even when "going short" was allowed, this is the choice made by a new risk averse, subjective expected utility maximizer who likes money. What can you say about this new individual's subjective probabilities of states S and F relative to p and R ?