University of California, Davis
Department of Economics
Public Finance

Date: July 11, 2008
Time: 3 hours
Reading Time: 20 minutes

PRELIMINARY EXAMINATION FOR THE Ph.D. DEGREE

Please answer all three (3) of the following questions. Put your identifying number on your exam.

Question 1. This question has six parts (A through F). Answer all parts.

First scenario: You are considering the impact of a public policy antipoverty intervention on a health outcome. You have a range of potential control variables: other policies, community level macroeconomic variables, and individual demographics, income, and education.

a   In an OLS regression setting, some argue for controlling for as much as possible. "When in doubt, put it in the regression". Explain, as precisely as possible, the rationale for this argument.

b.   Under what circumstances do you want to **not** include a potential control variable? Be as comprehensive and precise as possible.

Second scenario: You are estimating an OLS regression where you expect the bias to be positive (such as in a regression of earnings on education). You find a plausible instrument, perform IV, and to your surprise the coefficient goes up, not down!

c.   List four to six (or more) categories of reasons that can explain this, and briefly explain the issue for each.

d.   Also, explain as carefully as possible what sort of ancillary evidence you can use to distinguish amongst them or further diagnose the situation.

Third scenario: Experiments are often considered the "Gold Standard' of evidence for assessing public policy.

e.   What have been the most important (actual) experiments in the US public policy context? Give a few details about each one that you discuss.

f.   What do we know about the ability of nonexperimental methods to get at the results that an experiment would have found? Be as specific and comprehensive as possible regarding particular methods, the relevant literature, and other relevant issues.

Question 2.   Willingness to Pay: The Certainty and Uncertainty Cases

Suppose that there are n goods, the first of which serves as the numeraire. While income is fixed at y_0, a public project changes consumer prices from q^A to q^B which results in an increase in utility from u^A to u^B.

a.   Use the expenditure function to write down an expression for equivalent variation (EV), defined in such a way that it is positive in this case.

b.   Now write down an expression for equivalent *surplus* (ES), also defined so as to be positive.

c.   Draw a diagram which compares EV to ES. Use your diagram to show that $EV \geq ES$, and explain.

d.   Prove algebraically that $EV \geq ES$.

Now suppose instead that the benefits of the public project depend on which of two states of nature occurs. There are n consumers, each consumer experiences the same state of nature, and there are no insurance markets (no risk sharing). Consumer i's willingness-to-pay locus is the set of pairs $\{x_i, y_i\}$, where x_i is the amount to be paid in the event the first state of nature occurs and y_i is the amount to be paid if the second state of nature occurs. The probability of the each state of nature occurring is *1/2*. For positive values of x_i and y_i the locus satisfies

$$x_i^2 + y_i^2 = 8.$$

e.   What is the option price for consumer i?

f.   What is the fair bet point?

g.   What is the appropriate notion of aggregate willingness to pay in this case? Explain.

h.   Suppose the probability of the first state of nature occurring increases to 2/3. In which direction would the intercept of the willingness to pay locus with the x-axis move? Explain how you know.

Question 3. Answer the following questions about social insurance.

a) Consider one of the social insurance programs we have studied. Present an argument as to why there are incomplete private insurance markets in this case. What is the likely (insurance) outcome in the absence of government intervention?

b) The optimal social insurance problem is a balance between protection and distortion. Discuss each of these in the context of the unemployment compensation literature. What are we concerned about distorting? What are we protecting? What are the key elasticities that we need to measure to determine optimal UI benefits? How does each qualitatively affect the optimal UI benefit?

Two of the key social insurance benefit programs in the US are disability insurance (DI) and social security (SS). Both programs are federal; therefore all persons face the same eligibility and benefit structure (e.g. no variation across states). Further, benefits are a function of prior earnings.

c) Discuss the challenges for causal identification of the impact of social insurance (DI/SS) on labor supply given the program characteristics listed above.

d) Suppose we estimate the impact of the social insurance program by regressing labor supply (L) on the DI or SS benefit (B) using cross sectional data (for example, $L_i = \alpha + \beta X_i + \gamma B_i + \varepsilon_i$). Discuss the validity of this estimator and the sign of the possible bias for the parameter of interest (γ).

e) Describe an identification strategy used in the literature on DI or SS that you think provides the best alternative approach for estimating the impact of B on L. Focus your discussion on the identification strategy.