Population Economics Field Exam
Spring 2011

Instructions

You have 4 hours to complete this exam.

This is a closed book examination. No written materials are allowed. You can use a calculator.

YOU MUST ANSWER BOTH PARTS I AND II. YOU MUST OBTAIN AT LEAST 75% IN EACH PART TO PASS THE POPULATION FIELD EXAM.

Please answer Parts A and B in separate booklets.

Population Economics (2 hours). Total Points: 150.

1- (50 points) General review questions
1. (10 points) What is the demographic transition and what theories are there to explain it? What is the evidence?
2. (10 points) What are the advantages and limitations of randomized trials in economics?
3. (10 points) Review the methods that are used for estimating the economic value of changes in life expectancy. In particular discuss the differences between methods that estimate "the value of a statistical life" and calibration methods such as the one used in Becker et al (2005).
4. (10 points) What is the basic contribution of the "rational addiction" model to our understanding of consumption of addictive goods? What is the evidence that is used to support this model?
5. (10) Review Manski's concepts on social effects. What are endogenous social effects? Contextual effects? Correlated effects? Give an example of which and explain why we are interested in differentiating between them.

3-(100 points) Empirical application 2: Card et al (2008)
1. (10 points) What is the existing evidence of the effect of insurance on health care utilization and health?
2. (10 points) older studies of the effect of insurance on outcomes simply regressed outcomes on an indicator for having Medicare.
   - What assumptions do you need to make for the OLS estimates of the effect of insurance to be unbiased?
   - Ex-ante do you expect OLS estimates to be upwards or downward bias?
3. (10 points) Card et al use an RD design and estimate the effect of having Medicare insurance on health care utilization and health outcomes Card et al estimate the following regression:

   (1) $$y_{ija} = X_{ija}\alpha_j + f_j(a) + C_{ija}\delta_j + u_{ija}$$

   where the dependent variable is a utilization (or health) measure for individual i in group j at age a, and C is dummy equal to one after age 65 (since individuals become eligible for Medicare at that age).
   - What is the forcing variable in this regression discontinuity design?
   - Are there an issues related to the fact that this variable is age/time?
   - Is it an issue that age is measured in years?
   - Is this a fuzzy or sharp design? Define both.
4. (10 points) What is the key indentifying assumption? How can you verify that it is likely to be met? Are there any reasons to be skeptical in this particular example about identification? Give an example of how RD might fail in this case.
5. (10 points) What does the paper find? What are the limitations of the results?

6. (10 points) Some individuals are not eligible for Medicare (for example foreign nationals and those that never worked). A researcher proposes to use a DD design and look at eligible and ineligible populations above and below 65 to identify the effect of Medicare.
    – Write down the estimating equation
    – What assumptions do you need for this DD to be identified?
    – Is this design better or worse than the RD design? Explain

7. (10 points) A totally different approach consists in finding an instrument for having Medicare. Currie and Gruber (1995) follow such an approach by using changes in legislation at the state level that affect the number of individuals that are eligible for public insurance. Because Medicare is a federal program this approach is not feasible here, but we will imagine that it is here and think about how that might help identification:
    – Write down the equation you would estimate using laws as instruments. Assume that there are changes in legislation over time in many states and that the legislation regulated who is eligible for insurance.
    – What assumptions are needed for the IV estimator to be consistent?
    – In general what are the limitations of using legislative changes as instruments?

8. (10 points) The Card study uses contemporary cross sectional data to infer the effects of Medicare. Instead, one could look at the historical evidence and see what happened to elderly health after Medicare was passed in 1965, as a recent paper by Ken Chay does. Putting aside identification concerns, do we expect the results from the historical study to match the ones that Card et al get? Why or why not?

9. (10 points) An older paper by Doyle (2005) uses car accidents as a random health shock and looks at how the uninsured fare when they reach the hospital after an accident. He compares how the uninsured are treated in the hospital after an accident relative to those that are insured and are also in similar car accidents. What identification problems does this approach solve? What are the potential issues?

10. (10 points) An important limitation of almost all the studies that look at the question of the effect of insurance on health is that they look at the immediate effect of becoming eligible on outcomes—that is they measure outcomes within a few years. However insurance increases access to preventive care, the benefits of which may not be observable for years. Why is it difficult to estimate the long term effect of insurance?

Part II

Development (2 hours). Total points: 100.

1 Review Questions (40 points)

Answer each question below. Cite specific papers when you refer to empirical evidence.

1. (15 points) In theory, in which cases can land redistribution achieve higher efficiency (in addition to higher equity)? Is there empirical evidence on this?

2. (5 points) Very few sharecropping contracts are such that the return to the tenant (the share of harvest kept by the tenant) depends upon the yields of other farms in the area, or the weather. Is this surprising to you? Why?

3. (15 points) Microfinance organizations tend to lend money in groups. What failures can group liability solve? How much evidence is there that these failures are important? How much evidence is there that group liability can indeed solve them?

4. (5 points) In the World Development Report 2004, the World Bank advocates "community empowerment" as a way to increase the quality and quantity of services that reach the poor. Does the evidence to date support this view?

2 Credit and Insurance (30 points)

Consider a cluster of small garment-producing firms in the outskirts of Calcutta. Each household in the cluster has its own small firm, employing both family and non-family labor. Only adults and and teenagers work as garment producers. Firms produce stitched garments for the domestic market. The only fixed capital consists of sewing machines. Working capital (to buy cloth needed to stitch the garment) is crucial. Working capital credit is supplied by cloth merchants from another community, operating from Calcutta.

1. (a) Given the context and what you know about credit markets in developing countries, would you expect working capital credit to be freely available?

(b) Suppose you want to collect data in this garment producing community to find out whether firms are credit constrained or not. If they are not credit constrained, and all other markets are well functioning, what would be the effect of a negative shock in the household (for example: the sickness of a child, necessitating a visit to the hospital) on labor supply, purchase of cloth, production and profit for the household's firm?

(c) If they are credit constrained, what would be the effect of such a shock:

 i. In the presence of some formal or informal mechanism for health insurance (still considering the sickness example)?

 ii. In the absence of such a mechanism?

(d) Assume you want to implement a test based on this idea. Explain:

 i. The data you would collect (Panel? Cross-section? What variables?)

 ii. The main specifications would you would run, and what the potential problems are with these specifications.

3 Health (30 points)

1. The capacity curve relates the work capacity to the employment income:

 (a) Explain the shape of the capacity curve in the figure 1 below.

 (b) Two wage curves have been drawn (v1 and v3). Reproduce this figure on your exam book, then plot the minimum piece rate at which the worker has some non-trivial capacity to work. Let's call this minimum rate v0.

 (c) Plot the individual labor supply as a function of the piece rate. Discuss what happens to the individual labor supply at v0.

 (d) Imagine an economy with a population of identical people whose capacity curve is that of figure 1. Describe the equilibrium if the labor demand intersect the labor supply at $v < v0$, $v = v0$ and $v > v0$. Identify in which case we will have involuntary unemployment.

(e) Assume now that we have landed and landless individuals whose capacity curves are represented in figure 2. Define $v0$ for the landless and $v0_L$ for the landed. Which one is larger? Why? Is the labor market increasing or decreasing the existing inequality in assets? How?

(f) Show that if there is a mix of people with nonlabor income and some without nonlabor income, the individuals with nonlabor income will always do better than the individuals with no such income.

2. Can long-term contracts (such as indentured servitude) allow a worker to offer his labor power at a lower wage? Why would this strategy work? Why might it not be feasible?
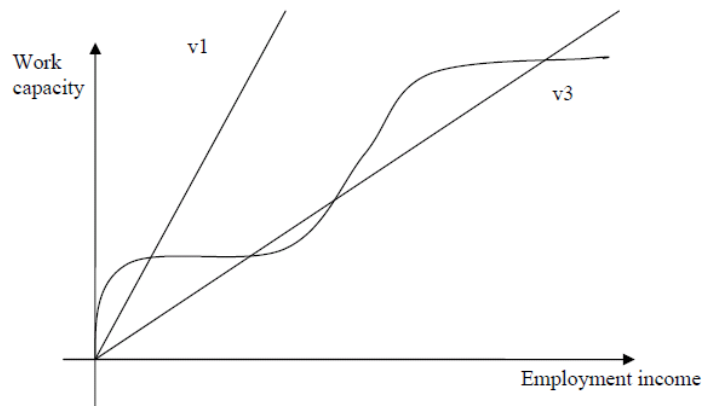
Figure 1: Capacity curve and wages

Figure 2: Capacity curve by land status