FINAL EXAM; SECOND HALF OF FALL 2008

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Consider a village of n people, each belonging to one of $m < n$ households; the number of people in the ith household is given by n_i. You have data on basic demographic characteristics of all of these n people, and a panel of data collected over several years on income (y_{it}) and expenditures (c_{it}) collected at the level of the m households.

(1) Assume that the people who live in the village are all risk-averse, with time-separable preferences, and a CES momentary utility function. Explain in detail how you would go about using these data to test whether or not there was full risk-sharing in the village.

(2) Now suppose that you wanted to measure inequality. Explain in detail how you would go about using these data to describe the extent of inequality within the village.

(3) Any of the inequality measures we've discussed assume an ordering among households, from less-well-off to better-off. Another possible ordering would be from smallest discounted, expected utility to greatest discounted expected utility. Under what circumstances will these two orderings coincide? How could you test whether or not these circumstances actually prevail?

(4) Suppose for the moment that you are unable to reject the null hypothesis of full risk-sharing in the village. Nonetheless, there is tremendous inequality in the village. An NGO, noticing this inequality, proposes to introduce a micro-credit scheme which would make loans to the poorest villagers; however, the NGO can't subsidize these loans (i.e., the NGO can't expect to make a loss via its lending operations). What do you predict will be the effect of this lending operation on the welfare of the poor and the non-poor if the NGO faces the same interest rates which prevail in the village? If the NGO faces lower rates?

(5) The NGO decides to go ahead with its microcredit scheme, but to follow the common practice of restricting membership to poor women. You're curious about the effects of the introduction of this program on intra-household allocation, and have a chance to collect additional data both before and after the introduction of the scheme. What data would you collect and what regression would you estimate to test the predictions of the collective household model?

(6) A colleague of yours, using the same original data, is interested in knowing how increases in the price of rice (the major staple in the village) influence well-being. He uses a time series on rice prices $\{p_t\}$, and estimates the regression

$$\log c_{it} = \alpha_i + \beta \log p_t + \epsilon_{it},$$

where $\{\alpha_i\}$ is a set of household fixed effects, and $\{\epsilon_{it}\}$ a collection of disturbance terms. He claims that since p_t is a market price determined outside the village, p_t is exogenous, and the coefficient β can be interpreted as the elasticity of expenditures with respect to rice prices. He obtains a significant, positive estimate of 0.45. Is this evidence that villagers are not insured against shocks associated with rice prices? If so, explain. If not, suggest an alternative interpretation.

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