

ARE 251/ECON 270A FINAL EXAM

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- (1) Suppose that a village of risk-averse households with time-separable preferences has a custom whereby any household who experiences a negative idiosyncratic income shock is fully compensated for this shock via transfers from other households in the village. Nonetheless, there is tremendous wealth 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 will the effect of this lending operation be 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?
- (2) Consider a village where the inhabitants' momentary utility is given by

$$U(c, a) = \log(c + \gamma) + \log(1 - a),$$

where $\gamma > 0$, and where intertemporal utility is

$$E_0 \sum_{t=0}^T \beta^t U(c_t, a_t).$$

Here c_t is consumption at time t , and a_t is the action taken at t . The single consumption good is produced in each period according to

$$y = Aa^\alpha L^{1-\alpha} \epsilon$$

where L is the land used in production, A and α are technological parameters, and ϵ is some random shock:

$$\epsilon = \begin{cases} 1/2 & \text{with probability } p \\ 1 & \text{with probability } 1 - p. \end{cases}$$

There are two inhabitants of this village. The first owns all of the land (and his own labor), while the other owns nothing but his own labor. There is no storage.

The Villagers' perspective:

Suppose that you're a laborer in this village. The only way to get any of the consumption good is by combining land and labor, so you may want to make some kind of deal with the landowner.

- What's the best deal you can hope to strike with the landowner? What's the worst?
- Assuming that you're able to strike the best deal possible, how much will you work and consume?

The Social Scientist's Perspective:

The problem facing the social scientist is trying to understand what's going on in the village, given that she is unable to observe all the social interactions of the villagers. For example, the scientist might be able to collect data on realized output and consumption, or she may only be able to get verbal descriptions of some of the institutions in the village.

- c) Suppose that you're unable to collect any data in the village, but that you observe during a brief visit that one of the villagers is extremely impoverished, even though he's working very hard for the other villager. What can you conclude about the efficiency of allocations in the village?
- d) You go back to the data you have on consumption, and notice that the growth rates of consumption are different for the land owner and the laborer. Can you draw any conclusions about whether or not production will be efficient? If so, what assumptions do you need to make? If not, why?
- e) An economist claims that, because one of the villagers is nearly starving, there must be incomplete markets in the village. He reasons that the reason the villager is starving is because he has no land, and that the villager would buy land if only he could borrow enough money to pay for it. The fact that the villager hasn't done this, then, the economist takes as *prima facie* evidence that credit markets are imperfect. Do you agree with him? Why or why not?

The Policymaker's Perspective:

Suppose that there are n villages similar to the one described above, but that there's no communication or trade between villages. You're tasked with minimizing the number of people in all villages below the (consumption) poverty line. The landowner in each village will never be below the poverty line.

Your total budget is B . A requirement of the program is that it must be Pareto-improving; thus, you can't e.g., appropriate the wealth of the landowners.

- f) Suppose that the poverty line has been chosen to be a number such that the laborer will fall below the poverty line when the shock in his village is bad, but will be above the poverty line otherwise. Describe a program to minimize the poverty rate across villages, assuming that you can observe the shock in each village, and that the ex post "poverty gap" across all individuals and villages is less than your budget B .
- g) Suppose that the poverty line has been chosen to be a number such that the laborer will fall below the poverty line regardless of the shock in his village. Describe a program to minimize the poverty rate across villages, assuming that you can observe the shock in each village, and that the ex post "poverty gap" across all individuals and villages is less than your budget B .
- h) Now, the poverty line is as in the previous question, but suppose that the ex post poverty gap is greater than your budget. How can you minimize the poverty rate? What would Bentham say about your program?
- i) Now suppose the environment is as in the previous question, but you can't observe the shocks in each village. What sort of program might you institute to achieve your aim of minimizing the poverty rate?