

Second Semester 2012

THE ECONOMICS OF INCENTIVES AND INSTITUTIONS
(IDEC8081)

Writing period: 2 Hours duration
Study period: 15 Minutes duration
Permitted material: None

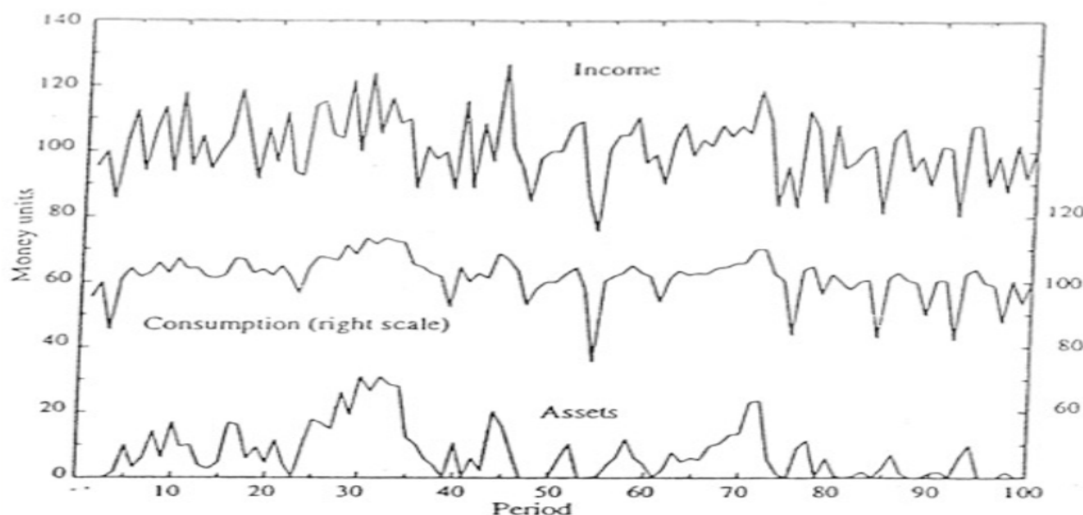
You must attempt to answer all questions.
All questions to be completed in the script book provided.

This exam counts toward 30% of your grade.
Questions count equally toward total grade in each section.

SECTION A: Poverty traps, risk and market failure in agrarian economies (10% total)

It is widely evidenced that farmers in low-income countries are living in poverty trap settings. Agricultural production can exhibit locally increasing return, as there tends to be fixed cost (fertiliser, high-yield seeds, technology) associated with adopting high-yield crop production. Those unable to afford this fixed cost end up producing low-yield cropping, the returns of which are too low to sustain non-poor livelihood.

1. Explain and show graphically the emergence of multiple-equilibria poverty trap in agrarian settings where financial market is missing.
2. Explain briefly how you might proceed to testing the existence of this hypothesised multiple equilibria poverty trap. (Be specific on the kind of data you might seek, methodology and hypotheses you might use)
3. Farmers are facing various kinds of production/income risk. Explain in words, why might farmers care about risk? Use “permanent income hypothesis” to explain how we should hypothesise about farmers’ response to risk
4. Explain briefly how you might proceed to testing the extent to which farmers are able to smooth consumption. (Be specific on the kind of data you might seek, estimation model and hypotheses)
5. The evidence commonly found in low-income settings with missing financial market is below (from Deaton 1997). Explain briefly what these mean. Discuss two possible strategies households use to smooth consumption in the absence of formal financial market. For each strategy, also discuss potential limitations to consumption smoothing.



6. Because of these limitations, most farmers in low-income areas are still facing large “uninsured” risk. Explain two mechanisms by which uninsured risk could reinforce multiple equilibria poverty trap in the settings earlier find some evidence of poverty trap.
7. What might be suitable policy intervention or a suite of interventions in response to poverty trap in these risky agricultural settings? Who should these interventions target?

SECTION B: Creating market for insurance and credit for poor farmers (7% total)

1. Discuss briefly two key market failure problems in credit and insurance market in low-income countries.
2. Suppose you have designed an innovative insurance product that you believe would have good potential in resolving these market failures. You would like to pilot the product in some remote agricultural areas and to conduct a rigorous randomise control experiment to evaluate the impact of the product on famers who buy it. Because of the remoteness and costs, it is only possible for you to randomly select 10 communities for your study.

Ideally, the goal is to estimate the impact of insurance b on household-level outcome Y_i with $T_i = 1$ if household buys insurance and $= 0$ if not.

$$Y_i = a + bT_i + \varepsilon_i$$

Explain briefly how you might design this RCE research. Be specific on (i) how and what you would randomise (at community or household level or both), (ii) what estimation model (s) you propose to estimate the impact of insurance b , (iii) what survey data might you collect.

3. Now if the rural bank agrees to also provide agricultural credit to farmers who buy insurance. This thus allows you to further test and compare potential impacts of insurance contract alone vs. insurance linked with credit. Explain briefly how you might revise your proposed research design above to allow for this study.

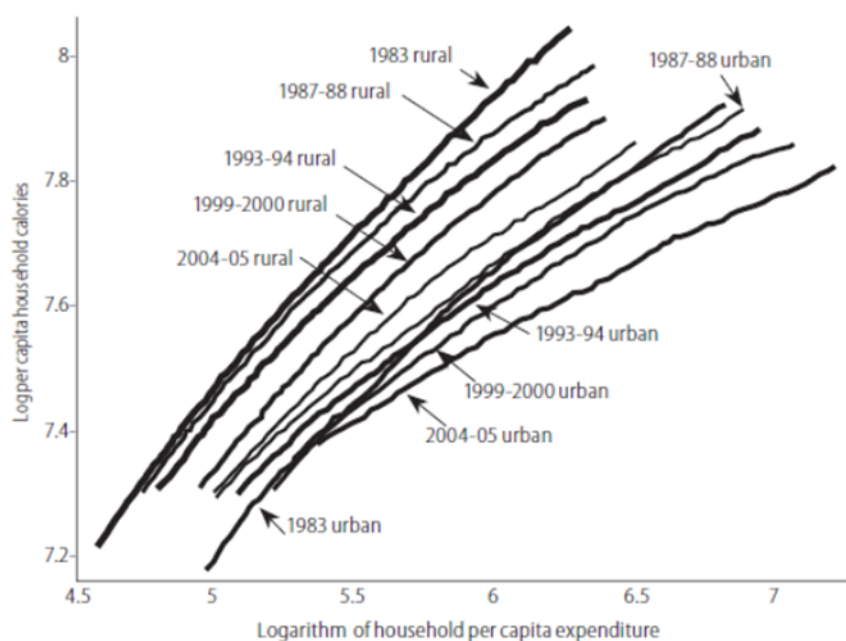
SECTION C: Human capital accumulation and poverty trap (8% total)

1. Human capital is multifaceted indeed. From our lectures, at least we classify them into nutrition, health and education. You would like to have an idea about the status of human capital of some rural villages and you have an opportunity to conduct survey and/or direct measurement of some variables. Give two measures you will take for each of the three human capital proxies above. Explain briefly why you choose them.
2. For H_i representing human capital one owns (combination of nutrition, health and education), explain and show graphically one mechanism how human capital accumulation can reinforce multiple equilibria poverty trap. Discuss suitable policy intervention or suite of interventions in the presence of this poverty trap.
3. Now you are interested in estimating return to schooling starting from a simple wage equation learned from class: $\ln w_i = a + bS_i + \varepsilon_i$ where w_i is earning and S_i represents years of schooling. Discuss briefly why b might not an unbiased estimate of return to schooling? Explain briefly how you might proceed to estimate “unbiased” estimate of b . (Be specific on what variables you would like to control for and/or use as instruments)
4. You now would like to estimate a feedback effect of earning on nutrition consumption N_i (hence an Engel curve relationship) according to $\ln N_i = g(\ln w_i) + X_i b + \varepsilon_i$ where X_i represents some control variables.

Discuss briefly the potential identification problems in this estimation and how you might proceed to resolve them.

Deaton and Dreze (2009) found the following evidence among poor households in India. Interpret this evidence. Have the poor become hungry for more nutrition/calorie over time? What might these imply about policy intervention aiming to improve nutritional status of the poor?

Figure 1: Calorie Engel Curves, Rural and Urban India (1983 to 2004-05)



SECTION D: Impact evaluation of human capital program using non-experimental data (5% total)

During 1980-1990, Thai government implemented school milk program, which distribute milk to primary school kids on a daily basis aiming to improve protein intake to very young kids in highly malnourished areas. All schools in the sub-districts with high proportion of malnourished students were selected to participate in the program. Primary school age in Thailand is from 6-12 years.

You would like to evaluate this program using a large cross-sectional individual data, which contain information on birthdays, birthplaces, nutrition, health and income of individual born between 1950-1967 (age 13-30 in 1980, call this “old” group) and those born between 1968-1984 (age 6-12 in 1980-1990, call this “young” group). You also get access to annual data on proportion of malnourished school kids by sub-district since 1980.

1. Explain and show in Difference in Difference table and econometric model, how might you estimate the impact of this program?