**Final Examination**
(3 hours, 40% of final grade, 100 points)

**Part I.  Respond concisely in words and equations to 4 of the following 6 questions (10 points each)**

1.  Assume a context of very high transaction costs on the food market, so that the price of purchased food is much higher than the sale price.  What would determine the threshold of market participation?

2.  Present very succinctly the idea behind Jenny Lanjouw's identification strategy of whether landlords have information on the productive efficiency of their tenants.

3.  Present very succinctly the argument of Besley and Coate for workfare programs as opposed to welfare program

4.

5.

6.

**Part II. The problem of insurance in rural credit (30 points)**

As poor people do not want to put their assets at risk when taking a loan, the development of credit for the poor needs to be accompanied by some form of insurance. One way this is formalized in the theoretical literature is through credit contracts with limited liability. We will explore in this question how limited liability increases access for the poor and compare the achievement of different institutional arrangements.

Suppose that there are two types of potential borrowers, riskier and safer borrowers, indexed $R$ and $S$. Denote by $\pi_i$ the probability of success ($\pi_S > \pi_R$), and by $X$ the return in case of success. By normalization, return in case of failure is set equal to 0. We assume that loans benefit from a limited liability clause which allows borrowers not to repay anything in case of failure. To focus on the issue of insurance, we assume that there is no problem of enforcement, i.e., that borrowers pay back their loans in case of success.

Your answers can be very concise, but they must be precise, and you should clearly identify the role of each hypothesis that you make.

1. Consider competitive lenders with an opportunity cost of capital equal to $\rho$. Write the contract that a lender with perfect information on the borrowers would offer to each type. We assume the borrowers are risk neutral. Hence, the decision for a potential borrower to participate to the credit scheme proceeds from the comparison of the expected return to the project and the cost. What is the threshold of return $X$ that determines participation of riskier borrowers? What is the threshold for safer borrowers? Is there efficiency in loan allocation? Who is providing insurance? How is insurance paid for?

2. Suppose now that the lender cannot distinguish between the two types of borrowers. Assume that in equilibrium, the proportion of riskier borrowers in the pool of borrowers is $\mu$. Write the contract that the lender would offer. What are now the threshold returns $X$ for participation by riskier and by safer borrowers? How does this effect efficiency in allocation of loan? Who is providing insurance? How is insurance paid for?

3. Consider now a group lending scheme. Groups are of two borrowers. The joint liability clause stipulates that each borrower pays:
> - 0 if his own project is not successful
> - a given amount $r$ if his own project is successful
> - and an additional amount $c$ if his partner's project is not successful.

When both projects fail, the group does not repay and loses access to the credit scheme. Let $F$ represent the discounted value of future benefits from access to the credit scheme.

a) Write the benefit for each type of borrower to be associated with either type of borrower. Under what condition will groups form homogeneously or heterogeneously?
b) Compare the insurance mechanisms under the two cases, and with the individual schemes discussed above.

4. In the real world of micro-finance institutions providing group credit, how should groups form for members to best provide insurance to each other? What are potential trade-off with the other functions of the group (control of moral hazard and adverse selection)?