

EC4041 Development Economics

Problem set 2

Question 1 (Ray (1998), chapter 14)

A lending organization is attempting to provide loans to small farmers in groups of two.

1. Provide at least two reasons why a strategy of group lending may be better than a strategy of lending to individuals. Provide at least two reasons why it may be worse.
2. A sequential lending strategy is one in which group members are given loans in some order, with the next member receiving a loan only after the earlier member has repaid. A simultaneous lending strategy is one in which all group members are given loans at the same time. In both cases, assume that default by any one member blacklists the whole group. Compare and contrast the two strategies.

Question 2

Consider a moneylender who faces two types of potential customers: a *safe* type and a *risky* type. Each type of borrower needs a loan of size L to invest in some project. The borrower can repay only if the investment produces sufficient returns to cover the repayment. The safe type is always able to obtain a secure return of R ($R > L$), while the risky type can obtain a higher return R' ($R' > R$), but only with probability p . With probability $(1 - p)$ he gets a return of 0. Assume that the moneylender can freely set the interest rate. The lender has enough funds to lend to just one applicant. What is the interest rate chosen by the moneylender?

Question 3

Suppose that a village is populated by a large number of identical farmers. Assume that the output can take two values only: High (H) and Low (L). For each farmer there are two possible probabilities of producing the high output, p and q . The probability of high output is p if the farmer exerts effort in cultivating the land. The probability of high output is q if the farmer puts no effort in cultivating the land, where $p > q$. Denote with C the cost of effort.

Let $H = 2000$ and $L = 1000$. Assume that $p = 3/4$ and $q = 1/4$. The cost of effort is equal to 2. The utility function for each farmer is: $u(x) = \sqrt{x}$.

1. No insurance.

Show that the farmer would prefer exerting effort when insurance is not provided.

2. Insurance

Solve for the second-best insurance scheme.

Question 4 (Ray (1998), chapter 15)

Quite apart from considerations on altruism, discuss why insurance among members of an extended family is more likely than insurance among a group of strangers of the same size and occupational composition.