ECON239: Development Economics

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Assignment #3

Due Date: 2:30 pm, Monday, March 31, 2008

Section A (50 percent)**:** Discuss the validity of each of the following statements. In your answer define or explain as precisely as possible any terms or concepts which are underlined, with particular reference to the context in which they are being used. Your answer should be no longer than a page (single–spaced), and you should include diagrams or examples where appropriate. All questions have equal value.

A1. Trade–credit interlinkages can be a way of increasing the economic surplus involved in a credit transaction.

A2. In a casual labour market, where worker productivity depends on past income due to their nutritional status, the introduction of a minimum wage may increase the profits of employers.

A3. Permanent labour contracts in rural areas of LDCs reflect the lack of access to credit.

A4. Rapid urban development and/or increased trade with the rest of the world may cause a deterioration in the economic institutions governing trade in rural areas.

A5. The Prebisch–Singer hypothesis is a sensible motivation for a policy of import substitution.

Section B (50 percent)**:** Answer the following **Long Questions.**

B1. Consider a development bank that is lending to rural borrowers and wants to just break–even. All borrowers require a loan of $100 and the gross cost to the bank of making such a loan is $160. There are two types of borrower: type 1 and type 2. A type 1 borrower can get a gross return of $200 with certainty. A type 2 borrower can obtain a gross return of $360 with probability 0.75 and 0 otherwise. The opportunity costs for type 1 and type 2 borrowers are, respectively, $18 and $20. However, when extending the loan, the bank does not know the types of each borrower and only knows that 50% are of type 1 and 50% are of type 2.

Assume to begin with that the bank lends to each borrower on an individual basis.
(a) Compute the gross repayment required by the bank from each borrow in order to just break even on average, assuming both types borrow. What is the implied interest rate on loans?
(b) Under these terms would both types of borrower actual want to borrow? What is the implied break-even interest rate given this fact.

Now suppose the bank can lend to groups consisting of two borrowers each. Assume that the bank is able to impose a joint responsibility default clause: a borrower will have to pay for her partner when her partner fails or else both borrowers will be excluded from future financing. Assume also that the borrowers know each others' types and engage in positive assortative matching when forming their groups.
(c) Assuming that successful type 2 borrowers can always repay the debt of unsuccessful ones, what are the possible outcomes of a lending contract with a risky pair? What is the probability of each outcome
(d) Compute the break–even interest rate in this case.
(e) Verify that the assumption made in part **(c)** is valid. Will both types of borrower want to borrower under these terms? Explain.

B2. Consider a simple economy with only two sectors — urban and rural. Workers in the urban sector who do not obtain formal sector jobs are assumed to be able to obtain informal sector jobs. The wage in the informal sector is fixed at $w_I = 10$. There are 10 million workers in the economy and they are all identical and risk–neutral. The following table represents the marginal product of labour (MPL) in the two sectors for various levels of employment:

Workers (millions)	Urban MPL Formal	Rural MPL
0	50	40
1	45	36
2	40	32
3	35	28
4	30	24
5	25	20
6	20	16
7	15	12
8	10	8
9	5	4
10	0	0

(a) On a diagram with the number of workers in the urban sector on the horizontal axis, plot the marginal product labour in each sector. Based on this diagram, estimate what would be the number of workers and the marginal product in each sector in a competitive migration equilibrium?

(b) Now suppose the formal sector wage is raised to $w_F = 30$. What would be the demand for workers in the formal sector? Starting from the situation in part (a), what would be an estimate of the probability of obtaining a formal sector job? Would workers start to migrate? Explain

(c) Compute the probability of obtaining a formal sector job, when the number of workers who have migrated to the urban sector is equal to 2, 3, 4, 5, 6, 7, 8 and 9 million respectively.

(d) Use the values from part (c) to compute the expected wage in the urban sector at each of these migration levels. On a new diagram like that in (a), plot the expected urban wage from and the marginal product of labour in the rural sector from the table above.

(e) Based on the diagram in part (d), estimate the numbers of workers in the informal urban sector and the rural sector in a Harris–Todaro migration equilibrium. What is the equilibrium wage in the rural sector? How many more workers migrate relative to the competitive equilibrium?