Department of Economics
Queen's University

ECON239: Development Economics
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Assignment #4
Due Date: 4.00pm, Monday December 6, 2010

Section A (40 percent)**:** Briefly 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. The text for each answer should be no longer than a page, but you also should also include diagrams or examples where appropriate. They have equal value.

A1. When rural labour markets function according to the nutritional efficiency wage model, increased demand for agricultural labour may have little impact on the earnings of individual workers.

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. 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.

A4. The Prebisch–Singer hypothesis is a sensible motivation for a policy of import substitution.

Section B (60 percent)**:** Answer the following long questions**.** They both have equal value.

B1. 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 of 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. Note that a probability cannot exceed 1.

(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?

B2. Imagine there are only two countries that make up the world economy: North (N) and South (S). In this simple world, only two commodities are produced: computers and rice. Both N and S are capable of producing both commodities and, to begin with, assume that the only factor of production is labour. Each country has 400 units of labour. Assume that producers are competitive and that labour is perfectly mobile between production sectors. The following table describes how many units of labor are required to make one computer and one sack of rice:

Labour Required	One Computer	One sack of rice
in N	10	5
in S	20	5

(a) If country N were in autarky and both goods were produced and consumed, what would the price of computers be relative to rice have to be ? Explain.
(b) If country S were in autarky and both goods were produced an consumed, what would the price of computers be relative to rice have to be ? Explain.
(c) If *both* goods are consumed once the economies are opened to trade, within what range must the international relative price of computers to rice lie ? Why are both countries better off in this example? What happens to the wages in each country?

Now suppose we replace the assumptions above with those of the Heckscher–Ohlin neoclassical trade model. Both goods are produced using skilled and unskilled labour, but computer production is more skill–intensive than rice production. Assume now that the two countries are identical except for the fact that North has more skilled labour than South.
(d) Explain, with the aid of diagrams, why this model predicts that the autarky relative price of computers is higher in the South than in the North?
(e) When, under these assumptions, the countries open up to international trade, which factor would be predicted to gain and which factor to lose in the South? Carefully explain your reasoning.