DEPARTMENT OF ECONOMICS
QUEEN'S UNIVERSITY

**ECON239: DEVELOPMENT ECONOMICS**

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**Final Examination**

9 am – 12 noon, Monday, December 14, 2009

**General Instructions**

This exam is THREE HOURS long. There are TWO SECTIONS each of which is worth 50 percent of the overall marks. Section A consists of eight short questions of which you should do five (5). Section B consists of three long questions of which you should do two (2).* Please answer all questions in the answer booklets provided. If you attempt more than the required number of questions in each section make sure you delete the ones that you don't want marked. Hand held calculators are allowed.

GOOD LUCK!

* Proctors are unable to respond to queries about the interpretation of exam questions. Do your best to answer exam questions as written.

**Section A** (50 percent)**:** Discuss the validity of FIVE (5) 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 as concise as possible, but you should include diagrams or examples where appropriate. All questions have equal value.

**A1.** Under the assumption that people are rational, we should expect economic institutions to be efficient, at least in the long run.

**A2.** When it comes to the fundamental determinants of economic development, "geography is destiny".

**A3.** Privatization of land rights is an appropriate response to the so–called "tragedy of the commons" problem.

**A4.** Redistributive land reforms are unnecessary because land markets should ensure an efficient allocation of land.

**A5.** Suppose we observe borrowers in the rural sector of a developing country borrowing from the informal credit market, even though there exist a formal credit market where lenders are charging lower interest rates. We can infer that the borrowers are acting irrationally.

**A6.** Trade–credit interlinkages can be a way of increasing the economic surplus involved in a credit transaction.

**A7.** According to the Harris–Todaro model, migration restrictions are likely to result in both an inefficent allocation of labour and increased inequality.

**A8.** The Prebisch–Singer hypothesis is a sensible motivation for a policy of import substitution.

**Section B** (50 percent)**:** Answer TWO (2) of the following **Long Questions.** They are of equal value.

**B1**. Consider the following version of the basic Solow growth model. Suppose the relationship between output per worker, $y$, and capital per worker, $k$, at any point in time is represented by

$$y = f(k),$$

where the function $f(\cdot)$ is increase in $k$ and concave. Suppose also that there is no technological change, population growth is $n$, the savings rate is $s$ and the rate of depreciation of capital is $\delta$.

**(a)** Explain why the model economy is in a steady–state when the capital stock per worker satisfies

$$sf(k) = (n + \delta)k.$$

Illustrate this situation on a diagram.

**(b)** Suppose there are two such economies (A and B). The two economies have identical values of $n$ and $\delta$ and face the same production relationship, $f(\cdot)$. However, country A has a higher savings rate than B: $s_A > s_B$. Explain, with the aid of a diagram, what this implies for the relative steady–state levels of capital and output per worker in each country.

**(c)** Suppose that, in addition to having a higher savings rate, economy A starts out with a higher capital stock per worker than country B. Which economy grows fastest ? Explain with the aid of a diagram.

**(d)** Suppose that, in addition to having a higher savings rate, economy A also has a higher population growth rate than economy B: $n_A > n_B$. Is it possible that both economies have the same steady–state output per worker? Explain.

**(e)** If $\delta = 0.1$, $s_A = 0.3$, $s_B = 0.2$, $n_A = 0.05$ and $n_B = 0.02$, which economy has the highest steady–state output per worker?

**B2.** 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.

**B3**. 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.