Department of Economics
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ECON239: Development Economics
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Midterm Exam
Monday, October 25, 2010

Section A (50 percent)**:** Discuss the validity of THREE (3) 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. You should aim to make each answer no longer than a single side (two sides if double-spaced), and you should include diagrams and/or real-world examples where appropriate. All questions have equal value.

A1. Suppose there are two goods produced in the world: DVDs, which are traded internationally, and hair cuts, which are not. Assume that transport costs are negligible. The following table shows information on the consumption and prices of DVDs and hair cuts in the USA and China:

Country	DVDs Consumed	Hair Cuts Consumed	Price of DVDs in Local Currency	Price of Hair Cuts in Local Currency
USA	9	4	2	4
China	3	4	10	10

The value of the purchasing power parity exchange rate depends on whether a US or a world–wide basket of goods is used to compute it.

A2. The head–count ratio is a better target measure of poverty than the poverty gap index because it is likely to lead to less of a bias in poverty reduction policies towards individuals who are already close to the poverty line.

A3. The Harrod-Domar model provides a useful approximation of the likely impacts of foreign aid on an economy's growth rate.

A4. Potential settler mortality rates from the period of colonization by European powers are useful in assessing the impact of cross–country institutional differences on economic performance, because they are an exogenous source of variation in political and legal institutions.

A5. The evidence that sharecropping results in low productivity suggests that people in the rural sector of many developing countries are not rational.

Section B (50 percent)**:** Answer ONE (1) of the following **Long Questions.**

B1. Consider the following version of the 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 $f(k)$ 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 δ.

(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 δ and face the same production relationship, $f(\cdot)$. However, country A has a higher savings rate than B: $s_A > s_B$. Explain using 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? Explain using a diagram of the production function.

B2. A plot of land is owned by a Landlord but worked by a Tenant. If the Tenant provides effort L she incurs a cost $C(L)$, which increases at an increasing rate with L. The value of output from the plot is given by the production function

$$y = g(L) + x,$$

where $g(L)$ increases at a decreasing rate with L, and x represents random variations in output due to climatic conditions. The Landlord can observe the output produced by the Tenant, but cannot monitor or infer the amount of effort she exerts.

(a) Using the above information, write down the incomes of the two parties under (1) a wage contract, (2) a rental contract and (3) a sharecropping contract.

(b) In each of these contracts describe how the risk is allocated between to two parties. What about the incentives faced by the Tenant to exert effort ?

Assume that the Landlord is risk–neutral, but the Tenant is risk–averse. This risk-aversion is represented as a cost which increases at an increasing rate with the Tenant's share of output.

(c) With the aid of a diagram, explain how the theoretical constrained–efficient output share received by the Tenant, $1-\alpha^*$, and the associated effort level, L^*, are determined in a sharecropping contract.

(d) Using the same diagram as in **(c)** illustrate the total losses (due to bad incentives and risk) under the sharecropping contract, relative to the full–information case.

(e) As countries become more developed, sharecropping tends to become less prevalent as a form of tenancy. How can the theory outlined above help to account for this observation? Explain your answer using a diagram.