

Department of Economics
Queen's University

ECON239: Development Economics

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Assignment #3

Due Date: 4:00 pm, Monday December 7, 2009

Section A (40 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. Group lending schemes can offer a way to mitigate the consequences of enforcement problems in rural credit markets.

A2. According to the Lewis-Fei-Ranis model of development, once surplus labour in agriculture has been exhausted modern sector wages must rise in response to increased demand.

A3. According to the Harris-Todaro model, the best policy approach to reducing the size of the urban informal sector is to expand formal sector employment by, for example, offering tax incentives to employers.

A4. While import substitution policies may create welfare-reducing distortions to trade in the short term, they are justified because they generate growth in the long term.

A5. South Korea's "export-driven" growth during the postwar period is an excellent example of the benefits of opening an economy's borders to unfettered global market forces (Hint: Take a look at the article "Industrial and Export Policy in South Korea" by Smith, ch. 15, which is on the Course Outline page of the ECON239 web site).

Section B (60 percent): Answer the following **Long Questions**.

B1. Consider the following lending contract between a farmer and a bank, both of whom are risk-neutral. The farmer needs a to borrow \$100. If she puts in a certain level of effort, the investment will pay off for sure and generate a crop yielding a value \$150. However, if she “shirks” (i.e. does not put in the effort), the crop yield is uncertain. Specifically, her yield will be \$150 with probability 0.5 and 0 with probability 0.5. The cost of providing the effort is assumed to be 40 and the gross cost of the funds to the bank is 80. The bank must decide what repayment R it will require as part of the contract. Assume that the borrower has limited liability.

- (a) For a given repayment R , what is the expected income of the borrower if she does not shirk? What is her expected income if she does shirk?
- (b) Use your answer to part (a) to derive the maximum repayment R^* that the bank can charge while still inducing borrower not to shirk.
- (c) Illustrate on a diagram how the bank’s expected profits vary as R is increased from 0 to some value $R > R^*$. Will the bank make the loan ?

Suppose now that two such borrowers form a group and borrow from the bank under a joint liability clause. Assume also that the borrowers act in unison so as to maximize their joint payoff.

- (d) For a given repayment R , what is the expected joint income of the borrowers if they do not shirk? What is their expected joint income if they do shirk?
- (e) Derive the maximum repayment, R^{**} , that the bank can charge while still inducing borrowers not to shirk. Will the bank make the loan now?,

B2. Indostania is a hypothetical developing country that produces and consumes two goods — cotton and electronic components — using two factors of production — land and labour. Cotton production uses land relatively more intensively, so that electronics production uses labour relatively more intensively. Indostania is a small open economy that trades freely in international markets, and faces world prices for cotton given by P_C and for electronics given by P_E .

- (a) On a diagram showing the economy’s production possibilities frontier and indifference curves, illustrate a situation where the world relative prices of cotton and electronics are such that Indostania exports cotton and imports electronics.
- (b) Suppose that, as the world economy grows richer it spends an increasing proportion of its income on electronic components and a decreasing proportion on cotton. Illustrate on a diagram, like the one in part (a), how this is likely to affect the consumption and production of the two goods in Indostania, and hence the exports/imports of each.

(c) Explain the distributional consequences of the changes described in (b) for landowners and workers.

(d) Suppose the government of Indostania recognizes that the relative demands for the two goods are likely to continue to change in this way in the future. How would you expect this perspective to influence its trade policy? Under what conditions would this intervention be justifiable on economic grounds?

(e) Assuming that cotton production is concentrated in rural areas and electronics production is concentrated in urban areas, how might such an interventionist trade policy affect relative wages, internal migration and urban living conditions? What problems might arise, in the long run, as a consequence of the policy described in (d)?

B3. In class we discussed the effect of a tariff on a small open economy. However, some countries (e.g. the US) consume so much of some goods that their domestic demand significantly affects the world price. In this question, we will show that under such circumstances a positive tariff may be optimal for a large country.

(a) For simplicity, suppose that a good is fully imported, so that there are no domestic producers of it. On a diagram, draw the domestic demand curve and the foreign supply curve of the good to this country and show the free trade equilibrium. Mark off the equilibrium price (p^*) and the equilibrium quantity of the good. Shade the amount of consumer and producer surpluses generated by the equilibrium.

(b) Now draw another diagram which displays a tariff at rate t on the good. Show the new equilibrium price and quantity. How does the sum of consumer surplus, producer surplus and tariff revenue compare with the sum of producer and consumer surplus in part (a).

(c) Expand the problem to include import subsidies (negative tariffs). Show as in part (a), that the sum of consumer surplus, tariff revenues and foreign producer surplus is maximized when the tariff is set equal to zero. Draw a diagram (with tariffs/subsidies on the horizontal axis and the sum of surpluses on the vertical) that relates this total surplus to the tariff.

(d) Show that, if the supply curve is upward sloping, foreign producer surplus consistently increases as tariffs are lowered to zero and continues to increase with import subsidies. Draw this curve on the same diagram as in part (c).

(e) If the domestic government's objective is to maximize the sum of consumer surplus and tariff revenue, show that this will lead it to set a strictly positive tariff.