AFRICAN ECONOMIC RESEARCH CONSORTIUM

Collaborative PhD Programme in Economics for Sub-Saharan Africa

COMPREHENSIVE EXAMINATIONS IN CORE AND ELECTIVE FIELDS

FEBRUARY 11 – MARCH 2, 2015

INTERNATIONAL ECONOMICS

Time: 08:00 – 11:00 GMT **Date: Monday, March 2, 2015**

INSTRUCTIONS:

Answer a total of FOUR questions: ONE question from Section A, ONE question from Section B, and TWO questions from Section C.

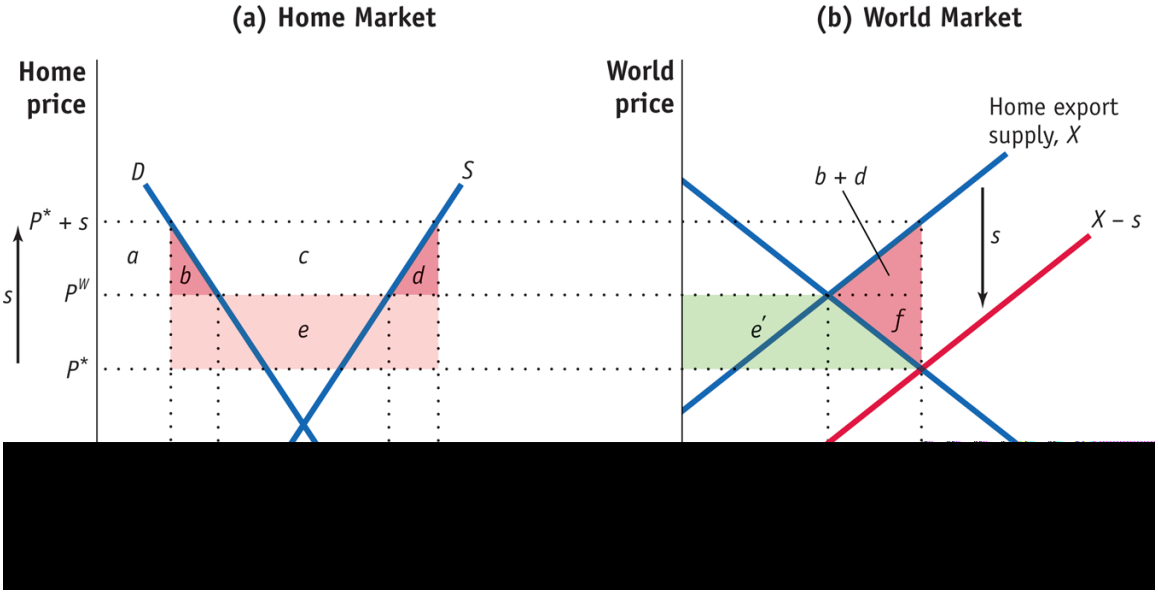
The sections are weighted as indicated on the paper.

SECTION A: (15%)

Answer only ONE Question from this Section

Question 1

A large country is offering an export subsidy to its farmers. Let *s* represent the export subsidy amount. The two graphs presented below show the effect of the subsidy on both the home and the world markets. Note that P^w stands for the world price of the product, X is the initial export supply curve and (X – *s*) is the new export supply curve after the subsidy. Use the letters in each area in the graphs to answer the following questions:



(a) What is the amount of domestic production before the subsidy? **(1 Mark)**

(b) What is the amount of export before the subsidy? **(1 Mark)**

(c) What is the amount of export after the subsidy? **(1 Mark)**

(d) What is the new world price for the product after the subsidy? **(2 Marks)**

(e) What is the effect of the subsidy on consumers in the home country? **(2 Marks)**

(f) What is the effect of the subsidy on producers in the home country? **(2 Marks)**

(g) What is the cost of the subsidy to the government? **(2 Marks)**

(h) What is the effect of the subsidy on the foreign country consumers? **(2 Marks)**

(i) What is the dead-weight loss in the world market? **(2 Marks)**

Question 2

(a) Using the balance sheet of a typical Central Bank, show how the balance of payments is linked to the money supply of a country. **(7 Marks)**

(b) Explain the phenomenon of sterilization using the framework in Question 2(a) above. **(8 Marks)**

SECTION B (25%)

Answer only ONE Question from this Section

Question 3

Regional Trade Agreements (RTAs) and Preferential Trade Agreements (PTAs) are often labeled as the building blocks for wider multilateral trade liberalization. There are some rules under the World Trade Organization (WTO) that a member country should follow to sign any regional trade agreement. The expected benefits of forming an RTA are also not guaranteed. Answer the following questions about RTAs and PTAs.

(a) Explain the different types of RTAs. **(5 Marks)**

(b) Under what conditions does the WTO allow countries to sign RTAs and PTAs? **(7 Marks)**

(c) What are the expected theoretical gains from RTAs and PTAs? **(7 Marks)**

(d) Empirically, how would you test the impacts of RTAs and PTAs on member countries? **(6 Marks)**

Question 4

Explain the following:

(a) Time consistency and credibility in common currency arrangements. **(7 Marks)**

(b) The resource reallocation effect of a devaluation. **(4 Marks)**

(c) The real balance effect of a devaluation. **(4 Marks)**

(d) Monetary policy in a Currency Board system. **(4 Marks)**

(e) Operations of an (N – 1) system in the international financial framework. **(6 Marks)**

SECTION C: (60%)

Answer TWO Questions from this Section

Choose EITHER Question 5 OR 6 and EITHER Question 7 OR 8

Choose EITHER Question 5 OR 6

Question 5

The impact of trade liberalization on economic growth in developing countries has been under scrutiny since 1980s. Initially, the attempt was to establish a link between growth and various indicators of openness at the macro level. However, since the early 1990s, the approach has shifted to micro (firm) – level analysis.

Assume that a firm's production function is given as:

$$Y_i = A_i f(L_i, K_i)$$

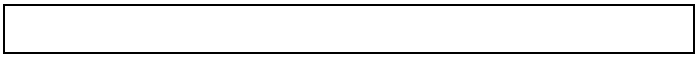
Where Y_i is output, A_i is an indicator of exogenous technology, L_i is labor input, and K_i is capital input. Also consider that W and R are the prevailing market wage rate and rental rate, respectively, and η_i is the price elasticity of demand for the good that this firm produces. The following questions are about the link between productivity and trade indicators.

(a) Derive a total factor productivity function that links productivity with trade under perfectly competitive market. **(8 Marks)**

(b) Derive a total factor productivity function that links productivity with trade under imperfect competition. **(10 Marks)**

(c) Given your results in (a) and (b) above, discuss how you would empirically test the effects of trade liberalization on productivity at the firm level. **(6 Marks)**

(d) Hu and Liu (2014) in their study [Trade Liberalization and firm productivity: Evidence from Chinese manufacturing industries. *RIE*, 22(3), 448-512] estimated the following equation:



where τ_{jt-1}^{output} and τ_{jt-1}^{input} are lagged import tariff rates on industry *j*'s outputs and inputs, respectively. HHI is the Herfindhal industry concentration index.

The authors reported the following fixed effects estimators for the three coefficients: β_1 = 0.293***, β_2 = -1.468***, and β_3 = 0.0157 (where *** implies that $p < 0.001$). Interpret the results for each coefficient and discuss if the results are in line with the implications of trade policy models. **(6 Marks)**

Question 6

Most countries impose some kind of trade restrictions to either limit imports and/or promote exports. The possibility of an *optimal tariff* is one of the reasons why some countries impose tariffs on imports. Consider a *large country* imposing an import tariff. There are some necessary conditions for the large country to improve its welfare after imposing the import tariff. Answer the following questions:

(a) Derive and explain the optimal tariff rate that the large country could charge under a perfectly competitive market. **(7 Marks)**

(b) Derive and explain the optimal tariff rate under which a foreign monopoly exports goods to the large country. **(10 Marks)**

(c) If the large country decides to impose an optimal tariff, under which scenario (a or b, above) does it find it easier to attain the necessary condition for welfare gains from the tariff? Explain. **(7 Marks)**

(d) The welfare benefit from imposing the optimal tariff may be lower (may even be negative) if one considers factors that are not captured in the models considered above. List and explain at least three factors that may contribute to the cost of imposing a tariff. **(6 Marks)**

Choose EITHER Question 7 OR 8

Question 7

Consider a two-period model of consumption allocation in which a representative consumer has a known time profile of real income, Y.

Assume the following:

I. Utility function is $U = f(C_1, C_2)$, which is well-behaved with a time preference discount factor β;

II. The budget constraint is given by

$$C_1 + (1 + r)^{-1} C_2 = Y$$

C_1 and C_2 refer to consumption in the two periods, r is real interest rate; and

III. The price level is fixed.

(a) Derive the utility maximization condition given the constraint and illustrate it in a diagram. **(5 Marks)**

(b) Assume the economy trades with another economy whose interest rate is lower.

(i) Show diagrammatically and explain how this assumption changes the utility maximization and level of welfare. **(3 Marks)**

(ii) What are the implications of this assumption on the current account? **(2 Marks)**

(iii) Suppose the two time periods are inhabited by different generations, how will inter-generational equity be affected? **(3 Marks)**

(a) Assume an initial endowment of a homogenous good, which can be used for both consumption and investment. Also assume the production function exhibits diminishing marginal productivity. Show diagrammatically and explain how the ability to invest using only internal resources can improve the initial endowment. **(8 Marks)**

(b) If the country in Question 7(c) above can borrow externally at a lower interest rate, how does that change the result? What are the implications of borrowing on the current account? **(9 Marks)**

Question 8

Assume an extension to the Mundell-Fleming model in which changes in the exchange rate affect the consumer price index. The model of a small open economy will then be given by:

$$PY = P_c A(Y, i) + PX(Q) - SP^* IM(Q, A) \qquad \text{Goods market equilibrium}$$

$$MP_c(S) = L(i, Y) \qquad \text{Money market equilibrium}$$

Where:

P_c: consumer price index — A: absorption

S: exchange rate — i: interest rate

P: price level of output — Q: real exchange rate

Y: real output — IM: imports

X: exports — M: money supply.

The consumer price index, P_c, is assumed to be a function of the exchange rate, S;

On the supply side we have:

$$W = W_0 P_c \qquad \text{Wage adjustment process}$$

$$Y = y(N, K), \quad y_n > 0, \quad y_{nn} < 0, \quad y_k > 0, \quad y_{kk} < 0 \qquad \text{Production function}$$

$$y_n = W / P \qquad \text{Profit maximization}$$

$$i = i^* \qquad \text{Perfect capital mobility}$$

where W is nominal wage, and all other variables are as already defined. In the context of the supply side, $P_c = f(P, SP^*)$, with $f_1 > 0$ and $f_2 > 0$. Further, assume that P_c is the price level of interest to labour and P is the relevant price level for firms.

(a) Show in P and Y space curves depicting goods market equilibrium, money market equilibrium and an aggregate supply curve. Explain. **(11 Marks)**

(b) Show and explain what happens in the model when there are expansionary fiscal and monetary policies. **(11 Marks)**

(c) How do the results in (b) differ from the 'base-line' Mundell-Fleming model in which the price level is fixed throughout? **(8 Marks)**