Written Exam for the M.Sc. in Economics winter 2012-2013

International Trade and Investment

Final Exam

2nd of November 2012

(3-hour closed book exam)

Please note that the language used in your exam paper must correspond to the language of the title for which you registered during exam registration. I.e. if you registered for the English title of the course, you must write your exam paper in English. Likewise, if you registered for the Danish title of the course or if you registered for the English title which was followed by "eksamen på dansk" in brackets, you must write your exam paper in Danish.

If you are in doubt about which title you registered for, please see the print of your exam registration from the students' self-service system.

Question 1

Consider a model with two output goods and 3 input goods which has the following model for GDP

$$\ln G = lnG(p, V)$$

Where y_i, i=1,2 are the output goods, p are the prices of the input goods and V is the production factors with V_k, k=1,2,3. For simplicity, we do not show the entire equation here but go directly to differentiating the expression with respect to factors:

$$\frac{\partial lnG}{\partial \ln V_k} = \beta_k + \sum_{i=1}^{3} \delta_{ki} V_k + \sum_{i=1}^{2} \Phi ik \, lnp_i$$

As we know, this expression is also equal to s_k, the share of factor k in total GDP

Differentiating the expression with respect to prices yields

$$\frac{\partial lnG}{\partial lnp_i} = \alpha_i + \sum_{j=1}^{2} \gamma_{ij} lnp_i + \sum_{k=1}^{3} \Phi ik \, lnV_k$$

As we know, this expression is also equal to s_i, the share of product i in total GDP.

Some basic assumptions:

$$\alpha_1 + \alpha_2 = 1,$$
$$\sum_{i=1}^{2} \gamma_{ij} = 0, \sum_{i=1}^{2} \Phi_{ik} = 0 \quad \text{for all k=1,2,3}$$
$$\sum_{k=1}^{3} \beta_k = 1, \sum_{k=1}^{3} \delta_{kl} = 0, \sum_{k=1}^{3} \Phi_{ik} = 0 \quad \text{for all i=1,2}$$

The coefficient matrices of δ and γ are symmetrical, so $\gamma_{ij} = \gamma_{ji}$, $\delta_{kl} = \delta_{lk}$.

a. Derive expressions for the Stolper-Samuelson and the Rybczynski effects.

Imagine that we test this model empirically and obtain the following results for the SS effects, looking at the change in factor prices when goods prices change. (+) and (-) denotes the signs of the estimates. Assume all estimates are statistically significant.

	Change in the price of factor 1	Change in the price of factor 2	Change in the price of factor 3
Increase in the price of good 1	+	-	-
Increase in the price of good 2	-	+	+

b. Discuss whether the test supports the Stolper-Samuelson theorem

c. Is your conclusion consistent with what you would have expected in a model with 2 output goods and 3 input goods?

d. Would you expect the Rybczynski theorem to hold in such a model?

You are now told that input good 1 is pigs, output good 1 is pork chops and output good 2 is pork rinds ('flæskesvær').

e. Discuss what this means for the empirical testing of the model.

Question 2

Consider a country that imports capital-intensive goods and exports labor-intensive goods.

a. Explain why in a median-voter model, this country would be expected to introduce an import subsidy (you are not required to develop the median-voter model formally but to give a verbal reference to the results).

b. Given that import subsidies are rarely seen in practice, how can the predictions of the median-voter model be tested emprically?

Question 3

Since 1980, the wages of highly-skilled labor in the US have risen relative to wages of unskilled labor. Discuss the main reasons for this development.

Question 4

Consider a model with two countries, A and B and two input factors L and K. The below diagram shows the allocation of L and K across the two countries. Outputs are z, a continuum from 0 to 1. Labor intensity of the output is a decreasing function of z. Assume the countries are at point M in the diagram.

a. Do you expect factor price equalization to obtain?

b. Where in the continuum of outputs would you expect country A to specialize?