Written exam for the B.Sc. or M. Sc. in Economics summer 2016

International Economics

Final Exam

June 20, 2016

3-hour closed book exam

All problems must be answered.

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.

This exam question consists of three pages in total including this page.

PROBLEM 1

Determine if the following statements are true or false. Provide a short explanation.

1.1 Trade benefits the factor that is specific to the importing sector.

1.2 The Hecksher Ohlin model fails empirical tests when it is used to predict factor trade.

1.3 In a model of reciprocal dumping, there will be a negative effect of trade on welfare if transport costs are high.

1.4 A number of Asian economies have shown rapid economic growth over recent decades. The reason for the success of these economies is trade liberalization.

1.5 Imperfect competition gives governments incentives to subsidize exports, but these policies are jointly suboptimal.

PROBLEM 2

Offshoring and wage inequality. A final good, y_m, is produced in a perfectly competitive industry from two intermediate inputs, y_1 and y_2, using a concave production function which is homogenous of degree one in the inputs. The intermediate inputs are produced using unskilled labor, L_i, skilled labor, H_i, and capital, K_i $(i = 1, 2)$ with concave production functions that are homogenous of degree one. The first intermediate input, y_1, is relatively unskilled labor intensive, while the second intermediate input, y_2, is relatively intensive in skilled labor. The unskilled labor intensive input may be imported from abroad while the skilled labor intensive input may be exported. Trade in the inputs is balanced such that $px_1 + x_2 = 0$, where $x_1 < 0$ is imports of the first input, $x_2 > 0$ is exports of the second input, and p is the price of the first input. The price of the second input is set to one. The total factor usage in the industry is $L_1 + L_2 = L_m$, $H_1 + H_2 = H_m$, and $K_1 + K_2 = K_m$.

2.1 Illustrate graphically by using the production possibility frontier between the two inputs, y_1 and y_2, how the optimal output of the industry is found in three different

cases: 1) There is no trade in intermediate inputs, 2) Trade in intermediate inputs is possible at the price p, and 3) Trade in intermediate inputs is possible at a lower price $p' < p$. Explain how output of the industry changes as the price of the intermediate input falls.

The corresponding cost functions for each input in the industry are functions of factor prices and output, $C_i(w, q, r, Y_i)$, $i = 1, 2$, where w is the wage rate of unskilled labor, q is the wage rate of skilled labor, r is the rental rate of capital, and Y_i is the output of input i. The cost functions are homogenous of degree one in Y_i.

2.2 Explain how the zero-profit conditions for the two inputs can be written $p = c_1(w, q, r)$ and $1 = c_2(w, q, r)$, where c_1 and c_2 are unit-cost functions (Hint: use that $C_i(w, q, r, Y_i) = Y_i c_i(w, q, r)$).

2.3 Show that the relationships between the percentage change in factor prices and the percentage change prices of intermediate inputs are given by the equations $\hat{p} = \theta_{1L}\hat{w} + \theta_{1H}\hat{q} + \theta_{1K}\hat{r}$ and $0 = \theta_{2L}\hat{w} + \theta_{2H}\hat{q} + \theta_{2K}\hat{r}$, where θ_{ij} is the cost-share of factor j in activity i, with $\theta_{iL} + \theta_{iH} + \theta_{iK} = 1$, for $i = 1, 2$ (Hint: Totally differentiate the zero profit conditions from question 2.2).

2.4 Assume that $\theta_{1K} = \theta_{2K}$, i.e., the cost shares of capital are identical in the production of the two inputs and that the import price of the unskilled intensive intermediate input falls ($\hat{p} < 0$). Use the equations in 2.3 to show that $\hat{w} < \hat{q}$. Provide an interpretation for this finding.

2.5 Assume now instead that $\theta_{1K} > \theta_{2K}$, $\hat{p} = 0$, and $\hat{r} > 0$ and show that this will also imply $\hat{w} < \hat{q}$. Provide an interpretation for this finding.

2.6 Discuss the empirical evidence for the results obtained in 2.4 and 2.5.