International Trade: Theory and Policy 5EN455
Final Examination – May 27, 2014

This is the final (and the only) examination. It will take 60 minutes.

In order to pass successfully the exam, read the following instructions carefully:

• write legibly, unintelligible handwriting will not be corrected and will receive zero points
• make answers short and to the point – irrelevant material may be penalized
• the exam has 4 pages (including one extra page for notes), make sure you have all pages
• negative points are awarded for wrong answers (only) in part I
• if you have a question, you must ask it publicly and I will answer publicly
• any violation of academic honesty will be punished to the fullest extent possible

I. Multiple choice questions (circle the correct answer) – more than one answer can be correct, points are subtracted for incorrect answers (30 points total, -30 points minimum)

1. (6 points) According to Eaton-Grossman equilibrium in the Bertrand-type price competition between two producers on a third market the introduction of an export tax in one country (ceteris paribus)
   a. leads to profit maximization of the taxed company given the reaction curve of the company from the other country.
   b. leads to higher product price of the taxed company than it would have been otherwise.
   c. leads to lower product price of the taxed company than it would have been otherwise.
   d. leads to higher profits of the competing company (untaxed) from the other country.

   a. a correlation between savings and investments of nations was very low.
   b. a correlation between savings and investments of nations was very high.
   c. international capital mobility was still rather very limited.
   d. supported the view of highly globalized financial markets.

3. (6 points) The parameter $\varepsilon$ in the Dixit-Stiglitz monopolistic competition (and hence Krugman model)
   a. measures the elasticity of substitution between two different varieties.
   b. measures the price elasticity of demand for a variety.
   c. is used as a measure of economies of scale in equilibrium.
   d. none of the above is correct.

4. (6 points) Global Gruber-Lloyd between 1962 – 2006 rose steadily from about 0.2 to 0.4. The rise in value of the index suggest that
   a. the intra-industry trade is becoming less important over the time
   b. the Hecksher-Ohlin theorem becomes more relevant in explaining patterns of international trade
   c. the intra-industry trade is becoming more important over the time
   d. none of the above is correct.
5. (6 points) In the large country in a general equilibrium setting, where M, F are the only produced and consumed goods and M is imported and F is exported the imposition of tariff on import of M in that country
   a. leads to reduction in the volume of trade.
   b. leads to suboptimal production.
   c. leads to lower exports of F.
   d. leads to higher production of M and lower imports of M.

II. True, False or Uncertain? Explain in space provided! (30 points total, 0 points minimum)

1. (6 points) Capital intensity parameter $\alpha$ in the usual Cobb-Douglas production ($Y = K^\alpha L^{1-\alpha}$) function represents the share of total costs paid for the use of capital in the production process. Reminder: Prove your answer!

2. (6 points) According to Hecksher-Ohlin theorem the country abundant with capital will produce only capital intensive goods. Reminder: Prove your answer!

3. (6 points) Recall a specification of the demand function in the Dixit-Stiglitz model:
   \[ c_i = p_i^\epsilon (P^\epsilon I) \]
   From the specification of the demand function it is fair to argue that the term in brackets is treated as a constant by a producer of the item i because P and I are macroeconomic entities.
Questions 4 and 5 use the same graph and setting. The graph depicts the situation of a monopolist in a country of Alusia that is producing an olive oil. The country is closed to international trade to begin with.

4. **(6 points)** After the opening of the country to international trade there would be no production of olive oil in Alusia.

5. **(6 points)** An intersection of MC and demand curves give a point of equilibrium (a combination of quantity and price – indicated by dashed lines in the graph) that is maximizing the profit of a domestic monopolist. So this point is market equilibrium without an international trade.
III. Write a detailed answer (30 points total, 0 points minimum)

1. **(10 points)** Is copper imported or exported in the free trade situation? Explain how you can derive this information from the graph. Show production point, consumption point, exports, imports, production of food and copper.

(10 points) How would market equilibrium change if price of copper would decrease relative to price of food? Indicate also where we can find terms of trade.
2. **(20 points)** Let’s assume that labour is easier to reallocate than capital, which we refer to as sector-specific (in the short run and intermediate run, but not in the long run). The picture below depicts the value marginal product of labour (VMPL) for manufacturers/M (bottom left origin) and food/F (bottom right origin), given the distribution of capital. In equilibrium, a sector’s VMPL is equal to the wage rate. The distance between two origins is equal to the total labor force; the allocation of labor to manufacturers is measured from the left-hand origin and the allocation of labor to food from the right-hand origin. In both sectors the marginal product of labor (and VMPL) declines as more labor is used.

a) Depict the equilibrium \((E_0)\) and resulting wage rate for manufacturers \((w_{m0})\) and wage rate in the food sector \((w_{f0})\).

b) Now assume that from exogenous reasons the price of manufacturers increases. Depict the short run equilibrium \((E_1)\) and resulting wage rates \((w_{m1}, w_{f1})\). (Note: in the short run labor and capital allocation do NOT change).

c) In the medium term the allocation of labor DOES change. So, depict the medium term equilibrium \((E_2)\), resulting wages \((w_{m2}, w_{f2})\) and explain in the production of manufacturers and food (if any).

d) In the long run both labor and capital allocation DO change. So, depict the long-run (neoclassical) equilibrium \((E_3)\). Explain the movement of rental rate for manufacturers. Relate the result to the Stopler–Samuelson theorem.