

## Exam ECON1410 – Solution sketch

### Problem 1 (25%):

- a) (5p) Home has a comparative advantage in the production of cloth since the opportunity cost of cloth in Home ( $a_C/a_F = 1/4$ ) is lower than the opportunity cost of cloth in Foreign ( $a_C^*/a_F^* = 2/3$ ). This means that Foreign has a comparative advantage in the production of food.
- b) (10p) When trading with each other, each country specializes according to comparative advantage (students should explain why full specialization occurs referring to Figure 1). Home specializes in the production of cloth and produces  $Q_C = L/a_C = 120/1 = 120$  units of cloth. Foreign specializes in the production of food and produces  $Q_F^* = L^*/a_F^* = 120/3 = 40$  units of food.
- c) (10p) The solid line represents the production possibility frontier (PPF) in Home (left panel) and Foreign (right panel). The absolute value of the slope of the PPF equals the opportunity cost of cloth, which is  $1/4$  in Home and  $2/3$  in Foreign. In autarky, the PPF also represents the economy's consumption possibilities. In autarky, Home could gain  $1/4$  units of food by forgoing 1 unit of cloth, and Foreign could gain 1 unit of cloth by forgoing  $2/3$  units of food.

Trade expands each country's consumption possibilities. The dashed line represents the consumption possibility frontier (CPF) in Home (left panel) and Foreign (right panel). The absolute value of the slope of the CPF equals the relative price of cloth, which is  $P_C/P_F = 1/3$ . Trade allows each country to trade 1 unit of cloth for  $1/3$  units of food. Home specializes in cloth production and gets  $1/3$  units of food (up from  $1/4$  units in autarky) for each unit of cloth. Foreign specializes in food and gets 1 unit of cloth by forgoing only  $1/3$  units of food (down from  $2/3$  in autarky). Each country is better off with trade.

### Problem 2 (30%)

- a) (5p) South has more workers per unit of capital and North has more capital units per worker. It follows that South is relatively labor abundant and North is relatively capital abundant. According to the Heckscher-Ohlin theorem, each country exports the good whose production is intensive in the country's abundant factor. It follows that North exports X and South exports Y.
- b) (10p) Figure 3 illustrates the adjustment of North in autarky equilibrium and in trade equilibrium. In autarky, the economy adjusts at the point where the production possibility curve (PPF) is tangent to an indifference curve. At this point, North produces and consumes D units of good X and B units of good Y. The relative price adjusts such that the isovalue line  $VV_1$  is tangent to the PPF and the indifference curve.

*Opening up for trade, the relative price of X increases and the isovalue line becomes steeper. The economy produces at the point where the new isovalue line  $VV_2$  is tangent to the PPF, i.e. the economy produces F units of X and C units of Y. The economy consumes at the point where  $VV_2$  is tangent to an indifference curve, i.e. the economy consumes E units of X and A units of Y.*

*Opening up for trade, consumption possibilities increase in North and the economy reaches a higher indifference curve. This means that, in principle, winners from trade can compensate losers from trade such that everyone would be better off.*

- c) (5p) *In North, capital owners gain from trade and workers lose from trade. In South, workers gain from trade and capital owners lose from trade.*
- d) (10p) *Opening up for trade, the relative price of X increases in North. Producers of X bid up factor prices and workers and capital move from Y production to X production, until the factor prices equalize between the sectors. As the expanding X sector is capital intensive and the contracting Y sector is labor intensive, the number of workers per unit of capital must increase in each sector, causing the wage rate to fall and capital's rate of return to increase.*

### **Problem 3 (15%)**

- a) (5p) *Internal economies of scale occur when cost per unit falls with the size of the individual firm.*
- b) (5p) *Monopolistic competition: A market situation with a large number of competing firms, in which each firm takes the competing firms' prices as given. The monopolistic competitors produce differentiated goods and each competitor faces a downwards sloping demand curve for its variety. Individual firms act as monopolists, but monopoly profits are competed away by firm entry.*
- c) (5p) *Intra-industry trade: Trade where goods from the same industry are both exported and imported.*

### **Problem 4 (30%)**

*Arguments for and against protectionist trade policy is covered by chapters 9-12 (plus parts of chapter 7). A good exam paper should provide a (thorough) discussion of the arguments listed below.*

- a) (15p)  
*Terms-of-trade argument: If a large country imposes a tariff on an import good, the price received by the foreign exporter falls, creating a terms of trade gain. For a sufficiently small tariff, the terms of trade gain can outweigh the efficiency loss.*

*Market failure arguments: Market failures can justify government intervention. Solving the market failure directly is "first best". Trade policy can be "second best". Examples: Imperfect capital markets, externalities in production, imperfect competition.*

b) (15p)

- *Protectionist trade policy creates an efficiency loss due to a distortion of consumption and production.*
- *It is difficult to evaluate which industries warrant protection*
- *“Beggars-thy-neighbor” policies can lead to retaliation*
- *Protectionist policies can induce wasteful behavior and rent-seeking*
- *Protectionist policies can become hard to remove, even when conditions change such that costs exceed benefits. This is particularly true when the policies are beneficial to politically influential interest groups.*