

**Exam**  
**ECON 2610 - Strategy, Competition and Trade**  
**Fall 2024**

Each question is weighted as indicated. Subquestions within each question are weighted equally.

**Question 1 (20%)**

Explain the following:

- (a) Comparative advantage
- (b) The Stolper-Samuelson theorem
- (c) External economies of scale
- (d) Internal economies of scale

## Question 2 (20%)

Consider a small economy consisting of two sectors A and B, each producing one good. There are two factors of production, Labor (L) and capital (K). In this question, we will consider the short run, such that capital is assumed to be fixed and cannot be moved between sectors.

For each sector  $s$ , the following condition holds:

$$w = p_s \cdot MPL_s(K, L_s)$$

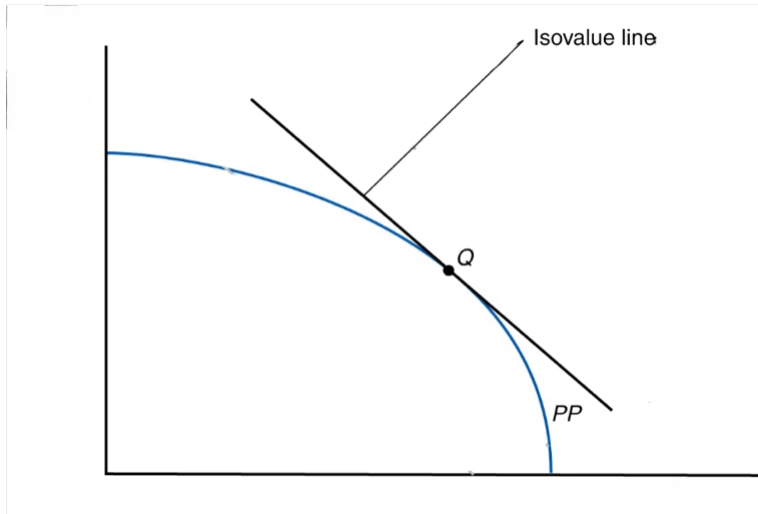
$w$  is the wage,  $p_s$  is the output price, and  $MPL_s$  is the marginal product of labor. We make standard assumptions, in particular that marginal return of labor is decreasing in labor use.

- (a) Use a figure to illustrate the optimal allocation of labor between the two sectors. With help of the figure, explain the condition that determines how labor is allocated in equilibrium and how the wage is determined.
- (b) Assume that sector B is subsidized, leading to an increase in the revenue per unit of the good that is produced in sector B. How will the subsidy change the wage, and the allocation of labor between the two sectors? How is the subsidy affecting the efficient allocation of labor between the two sectors? Use a similar figure as in the last question to explain your answer.

### Question 3 (40%)

There are two countries, Home and Foreign, producing two goods, X and Y, using two factors of production: capital and labor. Both countries have access to the same technology and have the same tastes in consumption for the two goods. The country Home is labor-abundant, meaning it has a larger proportion of labor relative to capital compared to the country Foreign. Additionally, good Y is capital-intensive, requiring more capital relative to labor, while good X is labor-intensive.

- (a) Assume that the country Home is operating in the world market and that the output prices  $P_X$  and  $P_Y$  are exogenous. The figure below shows the production possibility frontier (PP) in the country Home as well as the Isovalue line. In the figure, the vertical axis measures the quantity of good X, and the horizontal axis measures the quantity of good Y. The slope of the Isovalue line is the relative price of the two goods:  $-P_X/P_Y$ . Explain what the PP curve and the Isovalue line are showing. Next, what characterizes point Q and what does it imply.



- (b) The two countries Home and Foreign are trading. Which goods will the two countries export?
- (c) Assume an increase in the country Home's labor supply, increasing the stock of labor in the country. For the given set of output prices, use the figure to explain how the increased labor supply changes the supply of goods in the country Home.
- (d) In this question, we assume that country Home has standard preferences where

utility increases with the consumption of both goods X and Y, and marginal utility diminishes with increased consumption of each good. Hence, the indifference curves are downward sloping.

Country Home obtain utility of consuming the two goods X and Y. Trade makes the country able to separate production from consumption. With the help of a similar figure as earlier, demonstrate and discuss how the separation of consumption and production increases utility. Next, in the same figure, show how a relative increase in the price of good X changes production, consumption, and the utility level of the country Home.

#### Question 4 (20%)

Consider the following normal-form game.

	L	C	R
U	1,1	4,0	5,0
M	0,4	3,3	6,2
D	0,5	2,6	5,5

Player 1 choose between U, M and D, while Player 2 chooses between L, C, and R. Payoffs are given in as  $(x, y)$ , where  $x$  is Player 1's payoff and  $y$  is Player 2's payoff.

- Explain how to determine the set of rationalizable strategies for each player. Which strategies are rationalizable for each player?
- Determine the unique Nash equilibrium in this game.