Week 2

> **Comparative advantages (ch. 2) & Supply and Demand (ch. 3)**
>
> **Classroom exercises: Exercises 2.1 and 2.2 (ch. 2), 2.3 to 2.5 (ch. 3)**
>
> **Home exercises: Exercises 2.6 to 2.14 (ch. 2), 2.15 to 2.27 (ch. 3)**

Classroom Exercises

Exercise 2.1 (Exam 6.1.2009/P.1**)**

Suppose that countries A and B produce goods X and Y only. Both countries are of similar size and their only resource is labour. Each country has 40 hours of labour a week, which they can allocate to the production of goods X and Y. The table below shows the number of hours required to produce one unit of each good in each of the countries.

	Country A	Country B
Good X	1	2
Good Y	5	4

a) Draw the countries' production possibility frontiers (PPFs) on the same two-axis diagram. Measure good Y on the vertical axis, and good X on the vertical axis. Label your diagram adequately.

b) For each country write the PPF equation and calculate the opportunity cost of good X in term of good Y. Show and explain your calculations.

c) What are the countries' comparative advantages? If the countries engage in trade how much will each country produce of each good?

d) Suppose country B improves their X manufacturing technology, and now requires one hour only to produce one unit of good X. Does the pattern of comparative advantages change? Explain.

Exercise 2.2 (Repeat Exam 2012-13)

Countries *A* and *B* produce goods *X* and *Y* only. Labour is the only input, and both countries have the same amount of labour. The countries' production possibility frontiers are given by $Y_A = 300 - 2.5X_A$ and $Y_B = 400 - 5X_B$.

a) Draw the countries' production possibility frontiers in a single graph and explain the economic meaning of a production possibility frontier.

b) Has country *A* an absolute advantage in the production on any good? Explain.

c) What comparative advantages do the countries have? Will they specialise in any of the goods if trade is allowed between the countries? Explain.

d) Suppose country *B* develops a new technology that allows it to increase production of both goods by 25%.

    i) Show mathematically and graphically the effects of this new technology on country B's production possibility frontier.

    ii) Explain the effects of country B's increased productivity on the pattern of comparative advantages and specialisation of countries *A* and *B*.

Exercise 2.3A (EXERC 2008-09, n. 1)

Consider a demand curve given by the function $D = 16 - 2p$, where D is the quantity demanded measured in tons per year, and p is the price in currency units.

  a) Draw and interpret function D.
  b) Will the curve D remain the same if the price rises from 3 to 5 currency units?
  c) Suppose that owing to rising consumers' income the quantity demanded at any price increase by 4 tons per year. What happens to the demand curve? Show what happens in a diagram.
  d) Will the demand curve change if consumers change their preferences and switch to other goods? Explain.

Exercise 2.3B (EXERC 2008-09 nº1)

Supply of a good is given $S = 2p$, where S is the quantity supplied measured in tons/year and p is the price in currency units.

  a) Draw and interpret function S.
  b) What happens to supply when the price falls from 7 to 5?
  c) Suppose that, caeteris paribus, the price on an input goes up. What will happen to supply? Explain with the help of a diagram.

Exercise 2.3C (EXERC 2008-09 nº1)

Suppose D = 16 − 2p e S = 2p.

  a) Explain and give numbers for the market equilibrium.
  b) What happens to market equilibrium when the quantity demanded owing to consumers' rising income increase by 4 tons/year at any price?
  c) Suppose sellers manage to set the market price at 7 currency units. What will happen in the market? What if the price was forced down to 3 currency units?

Exercise 2.4

If two goods are complementary and the price of one of them falls:
  a) The price of the other good increases;
  b) Demand for the other good does not change;
  c) Demand for the other good increases;
  d) Demand for the other good falls.

Exercise 2.5 (In-term test 09.11.2010 (version C)/ EM. 6)

Suppose the market for cheese spread is described by the following equations:
       Demand: $Q^d = 5p_{OC} + 10p_B - 20p_{CS}$
       Supply: $Q^s = 40 + 30p_{CS}$
where p_{OC} is the average price of other cheeses, p_B, the price of butter, and p_{CS}, the price of cheese spread.
  a) Find the market equilibrium when $p_B = 2$ and $p_{OC} = 5$.
  b) According to the equations above what sort of relationship is there between butter (*B*), other cheeses (*OC*) and cheese spread (*CS*). Explain.

Home Exercises

Exercise 2.6 (Exam 27.01.2001/P.16)

Jane and Mark use their labour only to produce fish and apples. Each has a total of fifty hours a week to allocate to the production of both goods. The table below shows the number of hours Jane and Mark need to produce one unit of each good.

	Fish	Apples
Jane	2	2
Mark	4	5

a) Draw the producers' production possibility frontiers (PPF) on the same two-axis diagram. Use the horizontal axis for apples and the vertical one for fish.

b) Assume the producers PPFs can be represented by continuous functions. Find their mathematical expressions and the opportunity costs of fish in terms of apples. What is the meaning of opportunity cost?

c) Which producer has absolute advantages in which goods? Explain.

d) Which producer has comparative advantages in which goods? Explain.

e) Suppose Mark now has twenty extra hours per week. How, if at all, does the pattern of comparative advantage change?

Exercise 2.7 (In-term test 27/28.10.2008 (version A)/EM.5)

Countries A and B produce goods X and Y only. Country A has a comparative advantage in the production of good X. Them:

a) Country A has an absolute advantage in the production of good X too;

b) Country B has comparative advantages in the production of good Y;

c) Country A has an absolute advantage in the production of good Y.;

d) Countries A and B should not engage in trade, because, although country a has a comparative advantage in the production of good A, country B has no comparative advantage in any of the goods.

Exercise 2.8 Textbook *CYU 2-1, 1*. (p. 39)

Exercise 2.9 (In-term test 31.03.2008/ EM.8)

The simplest model describing economic flows in a society shows the interaction between firms and families (individuals). So, in this model:

a) We only show transactions of non-durable consumption goods;

b) Families and firms are active in the markets for goods and service, but firms alone act in markets for factors of production;

c) Firms supply families with goods and services, and families supply firms with factors of production;

d) We focus on real flows of goods, services, and factors of production, while ignoring money flows for the sake of simplicity.

Exercise 2.10 (In-term test 29.10.2009/ EM.13.)

Suppose a country has a linear production possibility frontier and can produce at most 60 units of Y (and none of X) or 30 units of X (and none of Y). The opportunity cost of X in terms of Y is:
   a) 0,5.
   b) 2.
   c) 90.
   d) The available data are not enough to answer the question.

Exercise 2.11 *(In-term test 29.10.2009/ EM9.)*

The production possibility frontier (PPF) is concave if:
   a) There are opportunity costs;
   b) Resources are scarce;
   c) There are gains from trade;
   d) The opportunity cost of a good rises as we increase production of that good.

Exercise 2.12 (Final exam 30.01.2007/ A1)

George runs a printing business that prints leaflets and pocket calendars. The same printer is used for both, and it can print a batch of leaflets in 30 minutes and a batch of calendars in 15 minutes regardless of the total number of batches printed each day. The shop works 10 hours a day.
   a) Draw the daily production possibility frontier in the (x,y) space, where x is the number of leaflet batches and y is the number of calendar batches.
   b) Can George produce 16 batches of leaflets and 6 batches of calendars in a day? Why? Represent the situation on the diagram, and comment on its productive efficiency.
   c) What is the opportunity cost in terms of leaflets of producing an additional batch of calendars? Explain.
   d) George decided to work two hours more every day. How does the daily production possibility frontier change?

Exercise 2.13 (In-term test 26.10.2009/ EM.6)

The table below shows the maximum quantities of beans and chickpeas that countries A and B can produce if they fully specialise in one good:

Country	Beans	Chickpeas
A	40	20
B	10	10

Both countries have the same amount of resources. So the figures above show that country A has absolute advantage in the production of
   a) Beans;
   b) Chickpeas;
   c) Both goods;
   d) None of the above.

Exercise 2.14 (Exam 26.01.2015)

In the late 19th century the maximum production of wool and wine in France and Italy were as shown in the table below. Both countries have the same endowment of labour, which is the only relevant input.

	Wool	Wine
France	1000	500
Italy	900	270

a) Draw the production possibility frontiers (*PPF*) for France and Italy. Assume they are linear. Place wool on the horizontal axis, and wine on the vertical axis. Explain the meaning of a *PPF*. (1.25 marks)

b) Find the pattern of absolute and comparative advantages for these two countries. Explain. (1.25 marks)

c) Will the countries benefit from trading with each other? If so, in which good will they specialise? Explain. (1 mark)

Exercise 2.15 Textbook CYU 3-1, 1-a) and b) (p. 74)

Exercise 2.16 Textbbok CYU 3-2, 1-a) and b) (p. 83)

Exercise 2.17 Textbook CYU 3-3, 1-a) (p. 88)

Exercise 2-18 Textbook Problem 6 (p. 97)

Exercise 2.19 (Exercise 2005-06)

Demand for pork is described by Q_d = 100 -2p and supply by Q_s = 10p − 80. Quantities (Q) are in thousands of tons, and prices (p) in euros per ton.

a) Write the demand and supply schedules for prices from €10 to €20 (whole euros only)

b) What is the quantity demanded if pork is given away for free, and at what price will consumers cease to demand pork altogether?

c) What are the equilibrium price and quantity?

d) Following the outbreak of bovine spongiform encephalopathy, also know as mad cow disease, demand for pork doubled. Find the new demand curve and the new equilibrium price and quantity.

Exercise 2.20 (Final exam 29/01/2008 E.M.1)

Suppose the market for good Y is in equilibrium, and, for some reason, both the supply and demand curves shift to the right. Therefore:

a) Equilibrium quantity and price will both increase;

b) Equilibrium quantity will increase whereas the equilibrium price will fall;

c) From the available information alone we cannot tell what will happen to equilibrium price and quantity;

d) The equilibrium quantity will increase but we cannot tell what will happen to the equilibrium price.

Exercise 2.21 (In-tem test 27-28/10/2008 version B/ E.M.9)

Suppose the milk market was in equilibrium, and then milk producers launch a major marketing campaign. This increases the producers' costs, but demand rises too. The supply and demand model tells us that:
   a) Equilibrium price and quantity will both increase;
   b) Equilibrium price and quantity will both fall;
   c) Equilibrium price will rise, but we cannot tell about the equilibrium quantity;
   d) Equilibrium quantity will increase, but we cannot tell about the equilibrium price.

Exercise 2.22 (In-tem test 12/11/2007 version A / E.M.8)

Equilibrium price and quantity will both fall when:
   a) The demand curve shifts to the left and supply remains unchanged;
   b) Supply and demand curves both shift to the left;
   c) The supply curve shifts to the right, and the demand curve, to the left;
   d) Supply curve shifts to the left and the demand curve remains unchanged

Exercise 2.23 (In-tem test 12/11/2008 version B / E.M.8)

If goods A and B are substitutes, and the price of B falls
   a) Demand for A increases;
   b) Demand for B falls;
   c) Demand for A falls, and demand for B remains unchanged;
   d) Demand for B increases, and demand for A falls.

Exercise 2.24 (In-tem test 29/10/2012 version A)

Suppose that in a particular market consumers' incomes fall and producers' costs increase owing to higher oil prices. Then:
   a) The two events offset each other, and their effect on equilibrium price and quantity is ambiguous.
   b) Quantity traded will fall but the price can change either way.
   c) Price will rise but the quantity traded can change either way.
   d) All other answers are incorrect.

Exercise 2.25 (In-tem test 29/10/2012 version B)

There are two consumers only in a market, Mr. X and Mr. Y. Mr. X buys 2 units if the price is €12, and 4 if the price is €8. Mr. Y will buy nothing at these prices, but at a price of €4 he will buy 2 units, and Mr. X will buy 6. So for prices €12, €8, and €4 quantity demanded will respectively be:
   a) 0, 0, 8
   b) Zero at all prices, because with two consumers only the market is not competitive.
   c) 2, 4, 8.
   d) It is impossible to tell, because we would need the supply curve to find the equilibrium quantities.

Exercise 2.26 (Midterm test 11/11/2013 version A)

Demand for songs in mp3 files is given by $Q_D = 100 - 2p$ and supply by $Q_S = 80 + 10p$, where Q is the quantity in thousands of files, and p the euro price per song. What would be the quantity demanded if songs were given away for free, and at what price would consumers stop buying any songs?

    a) Seventy songs and €20.
    b) A hundred songs and €50.
    c) A hundred songs and €80.
    d) Two songs and €10.

Exercise 2.27 (Midterm test 13/11/2013 version B)

Do the following events cause supply of good X to rise?

       A – The price of good X rises.

       B – The price of an input used in the production of X rises.

    a) Both do.
    b) None does.
    c) *A* only.
    d) *B* only.