*International trade*

## 1. Ricardian model

The production data of a two-country world economy is given by the table below. Calculate the production surpluses that can be achieved through specialisation and the mutually beneficial relative price range (when the relative price of services is given in terms of machines)! (4 points)

| country | production data | | prod. in autarky | |
|---|---|---|---|---|
| | services | machines | services | machines |
| South | 10 hour/u | 4 hour/u | 28 units | 40 units |
| North | 6 hour/u | 3 hour/u | 40 units | 60 units |

## 2. Samuelson's model

There are only two goods produced in Gondor: iron (denoted by x), produced with the use of labour and the sector-specific capital; and corn (denoted by y), produced with the use of labour and the sector-specific land. The amount of factors available in Gondor are: 8 units of labour, 16 units of capital and 3 units of land. The production function of the two sectors: $x=2\sqrt{K}*L_x$ and $y=2T*L_y$. In autarky the consumers of Gondor trade 3 units of corn for a unit of iron.

a) Calculate the production possibility frontier (transformation curve) of Gondor!
b) What combination of goods are produced and consumed in Gondor in autarky?
c) What is the distribution of labour between the two sectors?
d) What is the nominal wage paid on Gondor's labour market, if the price of iron is 30?
e) What is the income of capital owners expressed in units of iron?
f) After Gondor starts to trade with Rohan, the price of iron rises to 40 units, and so the international relative price is changed to 4. What is Gondor's new production combination?
g) Where will labour be redistributed to after these changes?

## 3. Tariff analysis

A good is traded between two countries. The domestic supply and demand of the good in Country I: D=1000-0,5P; S=0,5P-400; in country II: D=700-0,25P; S=0,25P-300.

a) Derive the import demand and export supply functions!
b) What is the price and traded quantity of the good?
c) What would be the world market and the domestic price of the good, if a 90 unit specific tariff was introduced in the importing country?
d) What are the costs and benefits of the tariff?
e) What is the net welfare effect?

*International factor movement*

1. The marginal product of labour in country A is MPL=50-2L. The partner country (B) uses the same technology, and has the same amount land available. Country A has 15 million units of labour, country B has 5 million units.

    a. Describe the common labour market of the two countries with a graph!

    b. What is the real wage and the value of production, if the labour market of the two countries is closed?

    c. What are the changes in the real wage, production values, and the factor incomes, if the free flow of labour is allowed?

2. From the cases listed above, which are the ones in which the intertemporal production possibilities are shifted towards current consumption, and in which ones toward future consumption?
    a. Argentina and Canada in the 19th century, after the regulatory changes allowed the mass immigration of Europeans.
    b. Saudi-Arabia or Kuwait, country that try to exploit there oil reserves.
    c. Norway, where a large stock of raw material resources were found, the exploitation of which require huge investments.
    d. The United States that is losing from its dominance in technology and production.
    e. South-Korean and Chinese Taipei, which countries are catching up fast to the developed world thanks to the fast growing industrial production and exports.

### *Exchange rate regimes*

1. The forint is pegged to the Euro at 300 Ft/€, with a horizontal band of ±10% by the central bank. The foreign exchange market is characterised by a $S_€$=50E-6.000 and a $D_€$=28.000-50E currency supply and demand function.

   a) What is duty of the central bank in this situation?
   b) How do the reserves the central bank change?

2. Hungary uses the managed floating regime, and the foreign exchange market is characterised by $S_€$=200E-43.000 and $D_€$=50.000-100E functions.

   a) What is the equilibrium exchange rate?
   b) Foreign investors remove €900 from the country, while the central bank sells €600 from its reserves. What is the new equilibrium exchange rate?

3. The interest rate on HUF denominated savings is 4%, while on Euro savings is 1%. One Euro currently costs 330 Forint, and the exchange rate is expected to rise to 363 in a year's time.

   a) In which currency is it worth keeping our savings?
   b) How does our decision change if the investors expect to have a 333.3 exchange rate in a year?
   c) What is the decision if the interest rate of the Forint is raised to 8% (the expected exchange rate is 363 Ft/€)?

4. The following are known about the money market of two countries. Country $A$: $M^S{}_A$ = 150 000; $L_A$ = $2Y_A$ — $500R_A$; $Y_A$ = 10 000; $R_A$ = 0,05. Country $B$: $M^S{}_B$ = 30 000; $L_B$ = $4Y_B$ — $600R_B$; $Y_B$ = 5 575; $R_B$ = 0,08.

   a) Determine the exchange rate of currency B in terms of currency A by using the monetary approach to exchange rates!

5. The price of the reference goods basket in the EU is $P_€$=500€, the price of the Hungarian one is $P_{Ft}$=62.500Ft. The supply and demand on the foreign exchange market is $S_€$=100E-15.000 and $D€$=85.000-300E.

   a) What is the real exchange rate?
   b) What will be the real exchange rate in a year, if the Hungarian inflation is 5%, and the European one is 2% during that year? (the nominal exchange rate stays unchanged)
   c) What kind of intervention is needed if the goal of the central bank is to keep the real exchange rate stable?