



Course: Economics I (macroeconomics)

Study text

14th Chapter

Open Economy

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14 Open economy

Nowadays national economies can not be considered as closed or without relation to abroad. For example, the Czech Republic is a small, very open economy, and significant changes in foreign economic variables are having an impact on the macroeconomic variables - GDP, employment and price level. The fact we have seen quite recently during the 2008-2013 global economic recession. Export decreased sharply, then aggregate demand dropped and gross domestic product, investment fell, unemployment rate increased and the rate of inflation tended to fall.

In this chapter we will examine the characteristics of an open economy. Our task is to answer the question of why there is international trade and why national economies specialize in the production of certain commodities, what the absolute and comparative advantage mean and what gains of international trade are. Finally, the balance of payments will be defined that gives information about the international flow of goods, services and inputs (labor and capital).

14.1 Openness of the economy

The openness of the economy reflects its involvement in international economic relations represented by the flow of goods, services, input factors (except land) and financial assets (capital).

The degree of openness of the economy is usually expressed by the ratios: *export/GDP*, *Import/GDP* or *(Export + Import)/GDP*.

Countries have different causes of different degree of openness. A developed country with a large internal market can have the low level of openness. It may be a self-sufficient economy or it can be underdeveloped economy with low competitiveness at the world market. The high degree of openness can be seen in developed economies involved widely in international trade and developing countries with a high share of exports on GDP due to the narrow specialization, or newly industrialized countries, where export determines significantly the growth of GDP. These economies are called „Asian Tigers“. They shows over-average growth in real output over the period. So far, there were three waves of the „Asian tigers“. Countries from the first wave are now advanced economies - South Korea, Hong Kong, Singapore, Taiwan. Thailand, Malaysia, Indonesia and the Philippines represent the second wave. Vietnam, Laos, China, Cambodia, Pakistan and India are included in third wave of „Asian tigers“.

14.2 International trade and economic efficiency

International trade means all business operations performed between national economies.

Causes of foreign trade may be different. Most often we find the following:

- ***different natural and climatic conditions*** – e.g. tropical fruits (bananas and citrus) or coffee are imported in the temperate zone economies, and cereals to tropical countries, because cereals are not possible to grow in the required quantity. Each country does not dispose oil, therefore it is imported or does not have an access to the sea to be able to offer seaside resorts for tourists;
- ***different preferences and tastes of consumers in different countries*** - this creates the opportunity to specialize in production for foreign markets. In the Czech Republic it may be a Czech glass or pink porcelain demanded abroad, or breeding snails for the French market;
- ***conflict of production and consumption*** - relates to the fundamental economic problem: people have unlimited needs and their needs are constantly expanding, while the resources of the economy are limited. Consumers can increase their total utility when they purchase imported goods and firms can import the necessary raw materials - through the foreign trade;
- ***effect of absolute advantage*** - the country can offer its output at lower prices due to cheaper labor, the use of cheaper and better quality of raw materials, due to improved technology or due to favorable natural and climatic conditions. If a country produces more efficiently – i.e. it offers a higher output when using a given amount of inputs in comparison with other countries, or implements an absolute advantage;
- ***economies of scale*** – it means acting of declining average and marginal cost when increasing amount of output. Country is not limited by the size of the domestic market.

Representatives of the *Classical school of political economy* professed opinion that the specialization of production can be beneficial not only for individuals but also for the entire national economy, and the benefit of international trade means more efficient use of production resources. The international division of labor develops manufacturing and consumer opportunities of national economies, as evidenced by the theory of absolute and comparative advantages.

A. Theory of absolute advantage

Representative of the Classical school of political economy, *Adam Smith* (1723-1790) is considered as the author of absolute advantages. We will explain the principle of absolute advantage by using a simple model. Consider two countries - the country A and country B. Both produce only two products – e.g. cell phones are represented by the variable x and motorbikes by the variable y . Assume that both countries concentrate a half of their resources to the production of cell phones and the second half for the production of motorbikes. Within the model, consider the constant returns to scale saying that inputs and outputs are growing at the same rate.

Tab. 14.1 - Outputs of two countries in the production of goods before specializing

Variable	good x <i>cell phones</i>	good y <i>motorbikes</i>
State A	50	3
State B	40	6

Table 14.1 shows that country A has an output (GDP) in the form of $Y = 50x + 3y$ and country B has an output $Y = 40x + 6y$. The total output of both countries is: $Y_{(A+B)} = 90x + 9y$. As can be seen, country A is more efficient in good x production and country B is more efficient in good y production. In other words, country A has an absolute advantage in the production of cell phones and country B in the production of motorbikes. According to the principle of absolute advantages country A should specialize in the production of cell phones and country B in the production of motorbikes.

Table 14.2 shows when a country stops to produce motorbikes and concentrates a half of resources for the production of cell phones, so in terms of constant returns it will produce output $Y = 100x$. Country B produce output $Y = 12y$ after the specialization. The total output of the two countries is $Y_{(A+B)} = 100x + 12y$. It is evident that the total output of both economies increased.

Tab. 14.2 - Outputs of countries in the production of goods after specialization

Variable	good x <i>cell phones</i>	good y <i>motorbikes</i>
State A	100	0
State B	0	12

Country A will demand motorbikes and supply cell phones to country B and country B will demand cell phones and supply motorbikes. If the demand for good x is expressed by offering goods y, it is called **reciprocal demand**. We do not know how exactly international exchange transactions take place, but we can say that the output of both countries increased after specialization, therefore, GDP increased (A + B) and also consumption increased. So we talk about **benefits from international trade**.

B. The theory of comparative advantage

Another representative of the Classical school of political economy *D. Ricardo* (1772-1823) is considered as author of comparative advantage. According to Ricardo, international trade is advantageous, even if one country is more efficient in the production of all commodities than other countries. Consider the model of 4 countries. As shown in Table 14.3, country A is the most advanced and implements an absolute advantage in the production of both goods, computers and watches (good x, good y). Its output is $Y = 10x + 6y$. The output of less developed countries B, C and D are the same and for each country it is $Y = 2x + 3y$. We can see that the countries B, C, D lag in the production computers than in the production of watches.

Tab. 14.3 - Outputs of countries in the production of goods before specialization

Variable	good x <i>computer</i>	good y <i>watch</i>
State A	10	6
State B	2	3
State C	2	3
State D	2	3

The total output of all countries is $Y = 16x + 15y$. According to the principle of absolute advantages the specialization would not occur. In contrast, the principle of comparative advantage enables international trade between countries with different levels of development. It is necessary to find out the ratio of the production in less developed countries (country B, C and D) and production in developer country. In the production of computers, a ratio is 10:2 and in the production of watches the ratio is 6:3. The shares are 5 and 2. This means that country A is 5-times more efficient (productive) in the production of computers and 2-times more efficient (productive) in the production of watches. According to the principle of comparative advantages the country A will specialize in the production of computers - where it has a comparative advantage. Country A will export computers and import watches from countries B, C and D. Countries B, C and D will produce watches and import computers.

Tab. 14.4 Outputs of countries in the production of goods after specialization

Variable	good x <i>computers</i>	good y <i>watch</i>
State A	20	0

State B	0	6
State C	0	6
State D	0	6

As can be seen in Table 14.4, after specialization and assuming constant returns to scale country A now produces 20x and countries B, C, D produces each 6y. Total output increased from $Y = 16x + 15y$ to $Y = 20x + 18y$. The principle of comparative advantage shows that all countries will benefit and of international trade and there is impact on the growth of total production and consumption.

Alternatively, it is possible to express a comparative advantage using **the opportunity cost**. Comparative advantage is concentrated in the sector in the country where the lowest opportunity cost is.

C. Dynamisation of comparative advantages

So far we have assumed constant returns to scale. But costs can decrease when increasing the production and it leads to a change of comparative advantage. Reasons may include the following:

- ***economies of scale*** or benefits of scale, with the increasing volume of production firms can observe declining average costs (e.g. using discounts when large supply of raw materials or credit with lower interest rate);
- ***acquired experience and skills*** that would allow the production factors to become more productive (there is technological progress), while any number of production;
- ***spreading of technology in a world*** where the initial comparative advantage based on technological progress is undermined by the spreading of the product in the world; where technically advanced production equipment, including the relevant production processes, is spreading, where countries possessing cheaper labor force, and developed countries invest in research and development and produce new products.

Fulfilling the principle of comparative advantage may encounter barriers such as protectionist measures (import quotas, tariffs, limited mobility of capital and labor etc.).

14.3 International capital flow

International capital flow represents changes in assets and liabilities of the entities of the economy (residents) from abroad. International capital movements are recorded in the balance of payments. Includes payments for the supply of goods and services,

the service factor, also has form of transfer payments and intervention operations central banks in regulating exchange rates, further captures holdings of short-term and long-term capital. Short-term capital includes assets with short maturities, usually within 1 year, and „hot capital“ - that represents arbitrage and speculative trading operations. Arbitration is risk-free and using the differences in exchange rates (prices of the currencies between markets to make a profit).

Speculative operations means buying currencies with short-term expectations for growth in value and profit (if you buy a euro will strengthen and after an exchange we get more crowns). Speculation is risky, because we do not know the exact exchange rate in the future. Long-term capital represents long-term loans or FDI (*Foreign Direct Investment*). FDI is investment in the other country in order to obtain a share of common stock and decision makers. Here, the investor is interested in a foreign company and intends to participate in its management (investor's ownership interest in the company is greater than 10 %). FDI may include tax credits or direct subsidies from the state budget.

Variables affecting international capital movements are particularly expected return of financial assets, their liquidity and risk. Furthermore, the expected change in the exchange rate, expected rate of inflation, capital gains tax, transaction costs for the purchase of financial assets, economic and political changes.

14.4 Balance of payments

Balance of payments records all transactions of entities of the economy (residents) with foreign countries. It is an international movement of goods and services, income, transfers in the international sphere, long-term and short-term capital and reserves.

We distinguish between horizontal and vertical structure of the balance of payments.

The horizontal structure consists of individual balance of payments accounts. The most widespread among states is the procedure according to the methodology of the International Monetary Fund (IMF). The balance of payments is divided into 5 parts:

- **current account**, consisting of exports and imports of goods (trade balance) and services (transport, insurance, tourism, licenses, patents, construction work etc.). The balance of goods and services is referred to as the balance of output. The current account also includes input incomes and transfer payments that do not lead to the formation of foreign assets or liabilities (social benefits, gifts, contributions to international organizations, economic aid etc.);
- **capital account** that captures capital transfers. It includes also transfers in relation to the EU budget or emissions trading in Balance of payment of the Czech Republic;

- **financial account**, giving an overview of the development of residents receivables and payables in relation to foreign entities. According to IMF methodology it is divided into direct investment (foreign and foreign inland), portfolio investment, financial derivatives and other investments (short-term and long-term, private and government);
- **errors and omissions, exchange rate differences** that constitute another point of balance of payments. It reflects the fact that all transactions are properly recorded. In some cases, estimates are carried out, because illegal transactions there are not included in the records or data are collected from different sources and inaccuracies are generated. This item balances credit and debit totals;
- **change in reserves (exchange account)** represents the sum of the balances of the previous 4 items and has the opposite sign (negative sign means an increase in foreign exchange reserves and a positive means a decline).

The structure of the balance of payments is shown in Table 5.14. This structure was assembled according to the 5th edition of the *Manual of the Balance of Payments* within the methodology of the International Monetary Fund in 1993. The balance of payments can be found on the website of the *Czech National Bank* (<http://www.cnb.cz>, in the *Statistics – balance of payments statistics*). Reported monthly, quarterly and annual balance of payments statistics.

Tab. 14.5 - Structure of the Balance of payments (valid for the Czech Republic)

I Current account - the balance of trade (exports and imports), balance of services, income (compensation for employees and investment profits), current transfers
II Capital account - revenues and expenditures
III Financial account
1. Direct investment - abroad, foreign inland
2. Portfolio investment - equity securities and shares, debt securities, bonds and notes, money market instruments
3. financial derivatives
4. Other investments – the CNB, government, foreign investments, other sectors
IV Errors and omissions, foreign exchange differences
V Change in reserves (- indicates an increase)

Formally adjusted by and drawn from the source:

http://www.cnb.cz/cs/statistika/platebni_bilance_stat/platebni_bilance/index.html.

The balance of payments of the Czech Republic can be found on the website of the Czech National Bank (CNB). Available at WWW: <http://www.cnb.cz> Statistics - Balance of payments statistics.

The vertical structure of the balance of payments is equivalent to credit and the debit enrollment different transactions. Each transaction is recorded in the balance of payments 2x (double entry accounting). Credit box with + are intended for export goods, the influx of income and transfers and import of capital (increase liabilities and reduce debts). Debit box with sign - are intended for import goods, the outflow of income and transfers and export of capital (decrease liabilities and increase in receivables). If, for example. Czech company exporting goods at a certain value, the amount will be reflected in the current account of balance of payments in the export line (credit notation +) and in the financial account (debit notation -), since it is the increase in receivables.

The external balance of the economy is measured through the balance of payments equilibrium. The balance of payments is in equilibrium when, if there are balances of financial (capital) and current account, or if the deficit (surplus) of current account offsets surplus (deficit) of financial account. The imbalance in the overall Balance of payments balance is reflected in changes of foreign exchange reserves central bank, and these changes will affect exchange rate changes, then they will be affected by other macroeconomic variables.

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