



Terms of trade in foreign trade

Ing. Marián Osúch, National Bank of Slovakia

THEORETICAL BASES

The terms of trade (ToT) express the mutual relationship between a change in export prices and a change in import prices. The following notation is the mathematical expression of such a relationship:

$$ToT = \frac{P_{export}}{P_{import}} \cdot 100,$$

where P_{export} is the export price index and P_{import} the import price index.

The price indexes used are mostly export and import deflators of goods and services from the national accounts.¹ As for international institutions, the European Commission publishes the terms of trade in a statistical annex within its regular economic forecasts (spring, autumn).

If export prices grow faster (or fall more slowly) than import prices, the ToT index is greater than 100, meaning that the price conditions in foreign trade have improved and the country is able to import more goods and services under the same physical import volume. In the opposite case -

if the ToT index is below 100 – import prices have grown faster (or fallen more slowly) compared to export prices.

Some economists consider the ToT one of the indicators of a country's standard of living. In the opinion of other economists, the ToT development does not have to be identical with the development of the standard of living, since the ToT don't tell anything about the volume of country's exports, but only about relative changes between countries. To assess changes in the standard of living, it would be necessary to analyze also changes of foreign trade volumes, changes of labor productivity, changes of resource allocation or changes of capital flows.

The impact of the terms of trade on the performance of an economy is shown by the alternative indicator real gross domestic income (RGDI). The routinely used indicator GDP at constant prices does not distinguish the differing character of prices, i.e. of prices of goods produced and consumed in the home country and prices in foreign trade. Changes of export and import prices of goods and services, however, have an impact on real income, because improving ToT can increase domestic consumption or investment.

A long-term favorable development of ToT expresses an increasing competitiveness of a country, which gives rise to a RGDI growth higher than GDP growth. At the same time, it is a reflexion of favorable quantitative changes in the economy.

Real gross domestic income can be calculated as the sum of real GDP and losses/gains from foreign trade (trading gains/losses - T):

$$RGDI = GDP \text{ at constant prices} + T$$

$$T = (X - M)/P - (X/P_{export} - M/P_{import}),$$

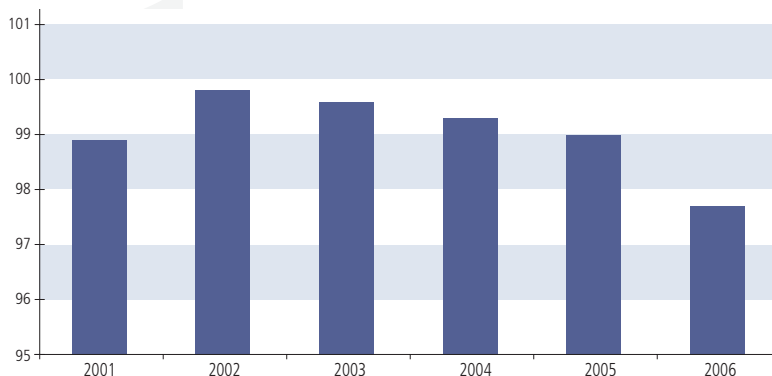
where X are exports of goods and services, M imports of goods and services, P the average export and import deflator, P_{export} the export deflator, P_{import} the import deflator.

DEVELOPMENT OF THE ToT AND RGDI IN SLOVAKIA

Peculiar to the Slovak Republic is a long-term unfavorable development of the terms of trade. The terms of trade decreased by 2.3 pp (chart 1) in 2000 – 2006. With the exception of 2002, when a year-on-year improvement was recorded, the development of the ToT is unfavorable in comparison with the previous year. It has to be said, however, that the relatively great difference between export and import prices in 2006 is probably the result of the impact of the oil price

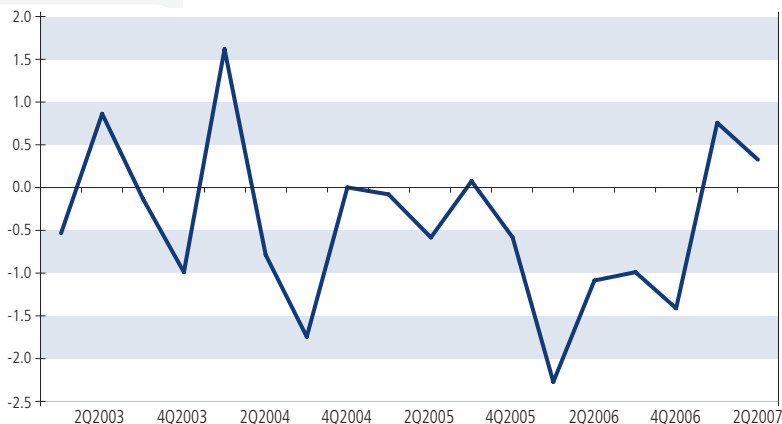
¹ The price indexes from foreign trade statistics, which are calculated using so-called price proxies based on a monthly survey, can be also used. However, as there is no harmonized statistics of foreign trade prices, the ToT calculated this way will differ from the ToT calculated from the national accounts.

Chart 1 Development of the terms of trade in Slovakia (2000 = 100)



Source: Own calculations based on data of the Statistical Office of the Slovak Republic.

Chart 2 Terms of trade (year-on-year change in %)



Source: Own calculations based on data of the Statistical Office of the Slovak Republic.



and profit transfer. We thus expect the year 2006 to be rectified by a revision of the Statistical Office of the Slovak Republic.

In terms of the individual quarters, the development of the ToT is unbalanced. After more than one year, a year-on-year improvement of the ToT occurred in the 1st quarter of 2007 (the last time it had occurred in the 3rd quarter of 2005), the decrease in import prices having been greater than the decrease in export prices. The year-on-year improvement continued in the 2nd quarter (chart 2).

If we want to identify the impact of the price development in foreign trade on the economic growth based on deflators, it is possible to proceed from a decomposition of the exports and imports of goods and services into a price and a volume (quantity) component. The contribution of the price to the year-on-year increase in imports and exports of goods and services at constant prices has been falling since the 1st quarter of 2006. While the prices have contributed by 7.5 pp to the 27.1% increase in imports in the 1st quarter of 2006, the contribution was negative in the 1st quarter of 2007. A similar situation arose in the development of exports. Aggregation implies that the improving ToTs brought about an improvement of the net exports' (balance on goods and services) share of GDP in the first two quarters of 2007. The average contribution of prices to this was 0.5 pp (chart 3).

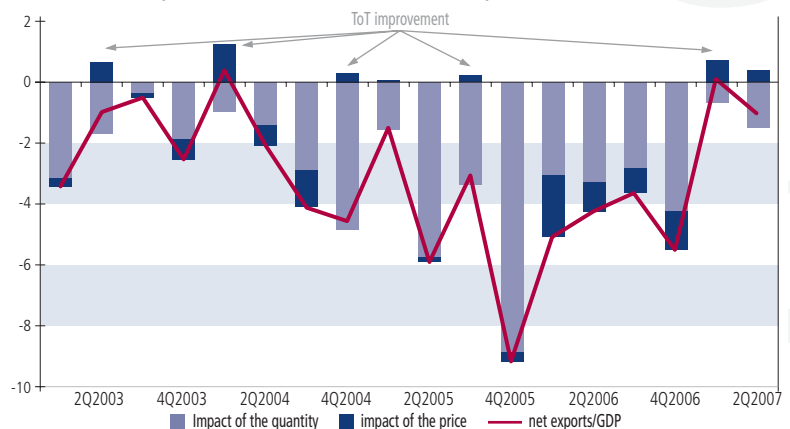
Because the terms of trade have been unfavorable over a long period of time, RGDI's lagging behind GDP can be observed in the development of Slovakia's economy. In some periods, however, the improving terms of trade were enhancing the RGDI (chart 4). In 2001 – 2006 RGDI reached an average growth of 4.8 %, while the average GDP growth was 5.2 %. The terms of trade have been thus reducing RGDI by 0.4 pp as compared to GDP.

INTERNATIONAL COMPARISON

There are considerable differences in the development of the terms of trade between individual countries. This fact is the result of a variety of factors, such as different structure of imports and exports, quality of products or export prices. The most favorable terms of trade among EU countries have been reached by Romania, Lithuania and Spain, while Slovakia, Sweden and Finland are the countries with the worst terms of trade (chart 5).

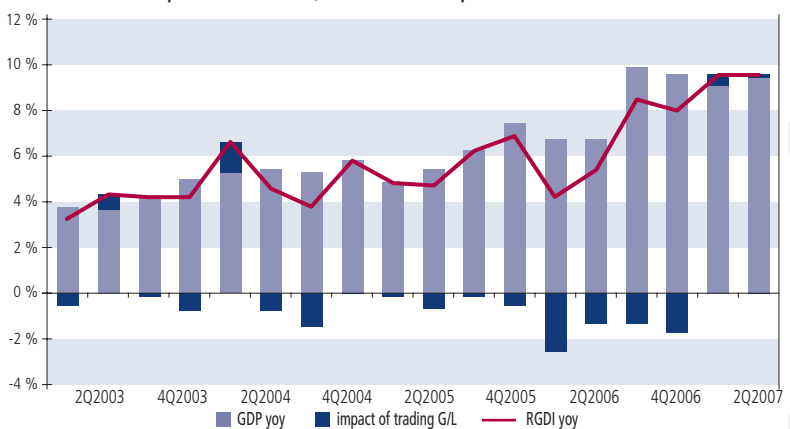
A comparison of Visegrád countries shows that since 2000 the terms of trade have improved most in the Czech Republic (by 4.1 pp), followed by Poland (2.8 pp). In Hungary and Slovakia, the terms of trade deteriorated in the said period (-1.3 and -2.3 pp, respectively). The development of the terms of trade in the Visegrád countries since 2000, as well as their year-on-year changes are shown in chart 6 and 7.

Chart 3 Net exports' share of GDP at current prices



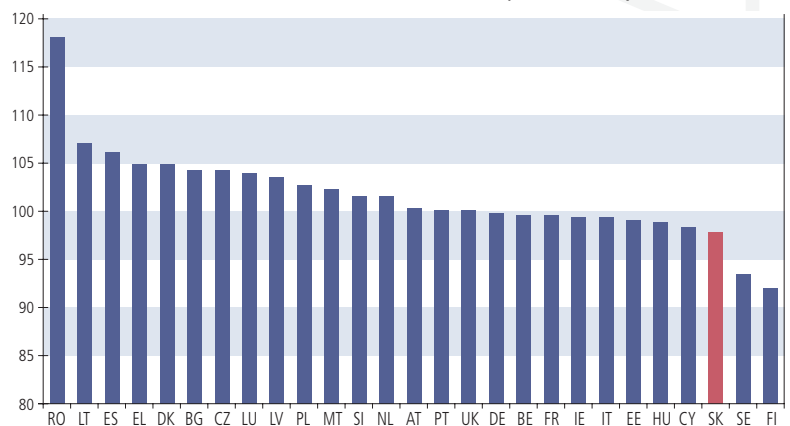
Source: Own calculations based on data of the Statistical Office of the Slovak Republic.

Chart 4 Development of GDP, RGDI and impact of the terms of trade



Source: Own calculations based on data of the Statistical Office of the Slovak Republic.

Chart 5 Terms of trade in EU countries in 2006 (2000 = 100)



Source: Statistical Annex of European Economy, Spring 2007.

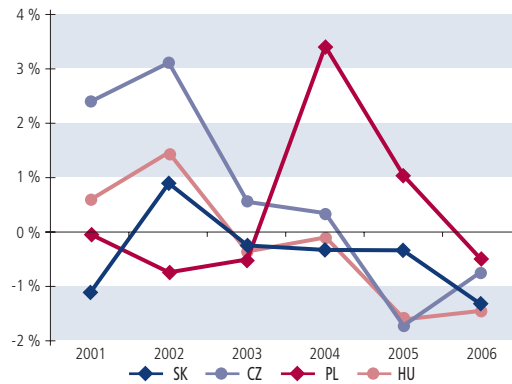
COMPARISON WITH THE CZECH REPUBLIC

The Czech Republic has been characterized by a long-term improving trend in the development of the terms of trade. However, the terms of trade have deteriorated over the last two years (just like in most EU countries), primarily due to an increase in the prices of imported energy raw materials.

The positive development of the terms of trade in the Czech Republic manifested itself in a faster real gross domestic income growth as compared to GDP, on an average by 0.3 pp (table 1, chart 8).

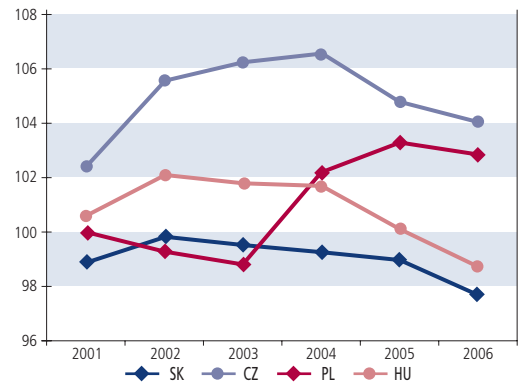


Chart 6 Terms of trade (year-on-year change in %)



Source: Statistical Annex of European Economy, Spring 2007.

Chart 7 Terms of trade (2000 = 100)

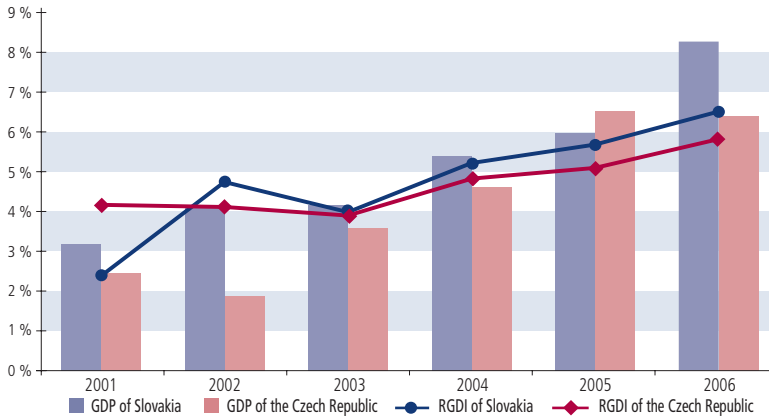


Source: Statistical Annex of European Economy, Spring 2007.

Tab. 1 Comparison of the development in Slovakia and the Czech Republic

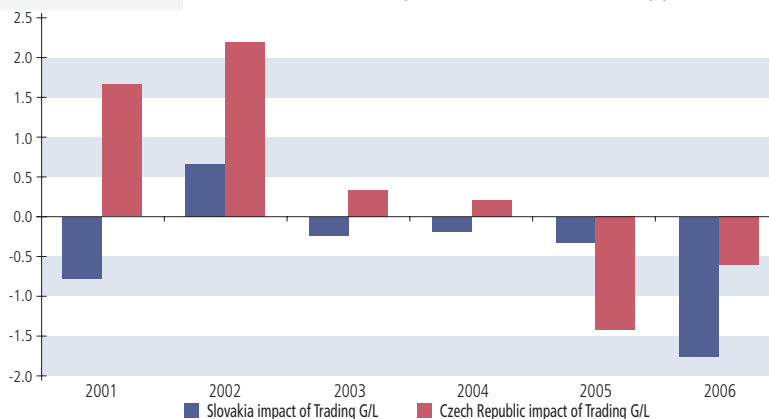
	2001	2002	2003	2004	2005	2006	Average
Slovakia							
RGDI (y-o-y %)	2.4	4.8	4.0	5.2	5.7	6.5	4.8
GDP at const. prices (y-o-y %)	3.2	4.1	4.2	5.4	6.0	8.3	5.2
Czech Republic							
RGDI (y-o-y %)	4.1	4.1	3.9	4.8	5.1	5.8	4.6
GDP at const. prices (y-o-y %)	2.5	1.9	3.6	4.6	6.5	6.4	4.3

Chart 8 Development of RGDI and GDP in Slovakia and the Czech Republic (year-on-year change in %)



Source: Own calculations based on data of the Statistical Office of the Slovak Republic.

Chart 9 Comparison of the impact of foreign trade gains (losses) on RGDI in Slovakia and the Czech Republic (contribution in pp)



Source: Own calculations based on data of the Statistical Office of the Slovak Republic and of the Czech Statistical Office.

Table 1 and chart 8 show that, in the long-run, Slovak economy generates a faster RGDI growth in comparison with the Czech Republic, although the difference is not so marked as when comparing the development of real GDP in both countries. This fact results precisely from the terms of trade. In the 2001-2004 period, the Czech Republic reached foreign trade gains, while Slovak economy recorded foreign trade losses or just a modest gain (in 2002). In 2005 and 2006, both economies have identical foreign trade losses (on an average by 1 %).

The favorable impact of the terms of trade in the Czech Republic as compared to Slovakia are the result of structural changes in the economy and in foreign trade (shift to higher-value-added activities, technologically more demanding production), which occurred earlier than in Slovakia. The terms of trade have been also positively affected by an influx of FDI and by the development of the Czech koruna exchange rate.

SUMMARY

1. The terms of trade of Slovakia have been slightly deteriorating recently.
2. The impact of the terms of trade on real gross domestic income is modestly negative. This means that the RGDI growth is on average 0.4 pp lower than real GDP growth, while in the Czech Republic the RGDI growth exceeds the GDP growth on average by 0.3 pp.
3. Compared to the Czech Republic, Slovakia has reached both a faster real GDP growth and a faster RGDI growth during the 2001 – 2006 period.
4. In the 2005 – 2006 period, the development



of the terms of trade (hence also the impact of foreign trade gains or losses) has exhibited similar trends both in Slovakia and in the Czech Republic.

5. We expect an improvement of the ToT in 2007. The improvement can however be affected by unexpected development of the prices of energy raw materials. The production of higher-value-added products would con-

tribute to an improvement of the terms of trade in the future.

6. All conclusions regarding Slovakia are the result of our own calculations, because the Statistical Office of the Slovak Republic publishes neither the development of the terms of trade, nor of RGDI. The Czech Statistical Office publishes these indicators.

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