

# TERMS OF TRADE IN FOREIGN TRADE

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In the context of foreign trade, the terms of trade (ToT) are one of the most important indicators of the quality of a country's integration into the international distribution of labour. The higher are terms of trade, the greater a country's advantage from price developments in foreign trade. The economic basis of the terms of trade is represented by the existence of a causal relationship between the ratio of the prices of two products and the ratio of the volume in which these two products will be bartered. Where the price of a product that a country intends to export develops more favourably over a given period than the price of a product that it intends to import, then the subsequent trade will see the country acquire a greater volume of the imported product for the same volume of the exported product. In that case, the country's terms of trade will record an improvement.

The terms of trade may be defined as the ratio of a price index of a country's exports to a price index of its imports over a given period:

$$ToT = \frac{P_{Ex}}{P_{Im}}$$

where  $P_{Ex}$  represents the price index of exports and  $P_{Im}$  the price index of imports.

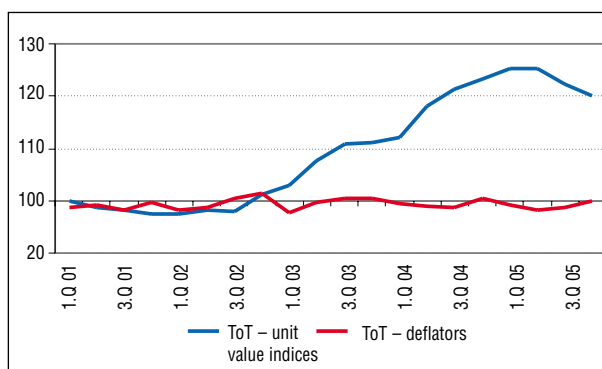
By as much as its final ratio is higher than 1, or in percentage terms higher than 100%, so a country reports a higher increase in value arising from its development in foreign trade prices. According to economic theory, ToT should be greater than 1, in other words, the terms of trade should improve for those countries which lead the way in applying the results of scientific and technological progress in production. Most countries, however, are late in adjusting to economic and technical trends, and therefore report ToT of less than 1.

Some economists say that the terms of trade may be considered one of the indicators of a country's standard of living. Others maintain that the terms of trade need not correspond to changes in the standard of living since they do not indicate the volume of a country's exports, but only the relative changes between countries. In order to assess changes in the standard of living, it would also be necessary to analyse volume changes in foreign trade, labour productivity, allocation of resources and capital flows.

The calculation of the terms of trade depends on the use of a price index that measures export and import prices. As far as Slovakia is concerned, the following may be considered price indices of exports and imports:

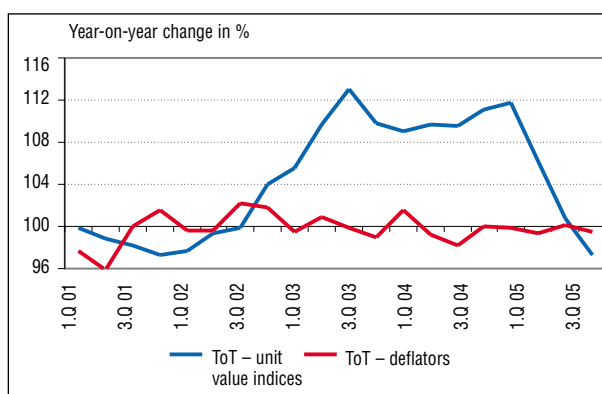
- the deflator of exports and imports of goods and services (based on the quarterly national accounts, basis year 2000),
- indices of prices in foreign trade (unit value indices compiled from value and volume data given in unified customs declaration and in INTRASTAT-SK reports; basis year 2000).

Chart 1 Terms of trade according to price index



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

Chart 2 Year-on-year development in the terms of trade



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

Evaluating the development of the terms of trade for Slovakia is not easy, since the use of various statistical data for export and import prices give differing views on

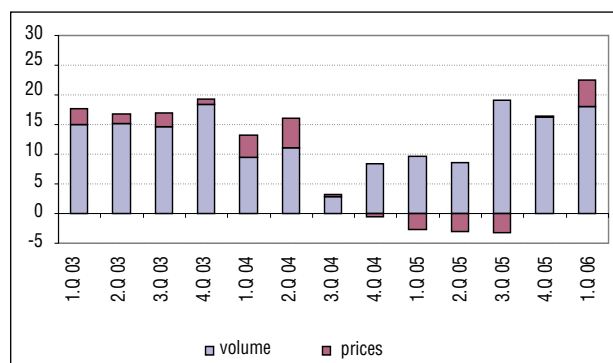


the terms of trade. According to price indices based on revised national accounts, Slovakia's terms of trade in the years 2001-2005 were just below the 100% threshold (the Slovak economy therefore had an almost satisfactory balance with price development in foreign trade), though the figure has worsened year-on-year since 2003. If evaluated through unit value indices, the terms of trade are seen to have been improving year-on-year since 2002 at a relatively substantial pace. The divergence between the selected indices could be related to the methodology of their calculation, since the unit value indices have probably not fully identified the production structure change in the automotive industry (the effect of production changes at Volkswagen).

### Terms of trade

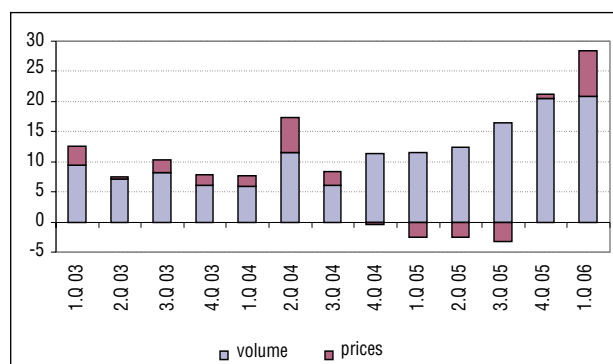
	index 2000=100				
	2001	2002	2003	2004	2005
ToT from deflators	98.9	99.8	99.6	99.3	99.0
ToT from unit value indices	98.6	99.1	108.1	118.8	123.2
year-on-year change in %					
	2001	2002	2003	2004	2005
ToT from deflators	-1.1	0.9	-0.2	-0.3	-0.3
ToT from unit value indices	-1.4	0.6	9.0	9.9	3.7

Chart 3 Effect of volume and price changes on exports



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

Chart 4 Effect of volume and price changes on imports

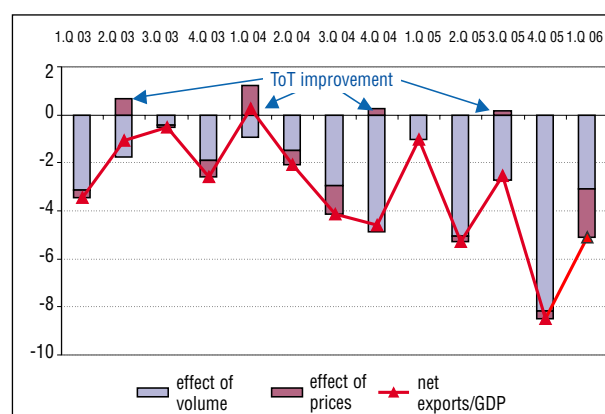


Source: Own calculations based on data from the Statistical Office of the Slovak Republic.

When identifying through deflators the effect of foreign trade prices on economic growth, a basis may be the decomposition of exports and imports of products and services into price and volume (quantity) components. Charts 3 and 4 show in percentage points the effect that volume and price factors have on the year-on-year pace of growth in exports and imports of products and services in current prices.

For example, rising import prices in the 1st quarter of 2006 were reflected in growth in imports of products and services in current prices: of the 28.4% year-on-year growth in imports, higher prices accounted for 7.6 percentage points, with the rest of the increase caused by the higher volume of imports. Export prices rose over the same period, contributing 4.5 percentage points to the 22.5% growth in exports (current prices). It is clear from the aggregation that the deteriorating terms of trade adversely affected net exports (balance of products and services) in the first quarter of 2006 when their share of GDP declined to 5.1%, with prices accounting for 2 percentage points.

Chart 5 Net exports relative to GDP in current prices



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

Chart 5 shows that price development predominantly (albeit to a small extent) worsened the balance of products and services in each quarter between 2003 and 2005 in nominal terms. This fact is probably related to the structure of the Slovak economy, as a result of which a greater physical volume of exports was required to balance out the same unit volume of imports.

An alternative way to view the economy's development is to evaluate its performance in terms of real gross domestic income. Whereas the calculation of GDP cancels out the economy's loss or profit created from the terms of trade (by the conversion of net exports into constant prices through unequal deflators), the concept of real gross domestic income allows for GDP to be explicitly adjusted for the effect of trading gains/losses.



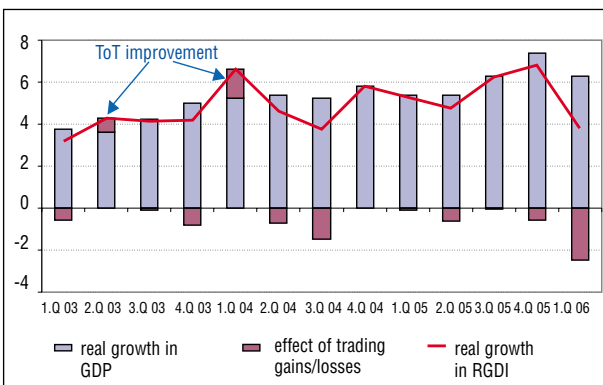
Real gross domestic income (RGDI) may be calculated as the sum of real GDP and *trading gains/losses* (T) as follows:

$$RGDI = GDP_R + T$$

$$T = \frac{X - M}{P} - \left( \frac{X}{P_{Ex}} - \frac{M}{P_{Im}} \right)$$

where *X* represents exports of products and services, *M* imports of products and services, and *P* is a price index (usually the average of  $P_{Ex}$  and  $P_{Im}$ ).

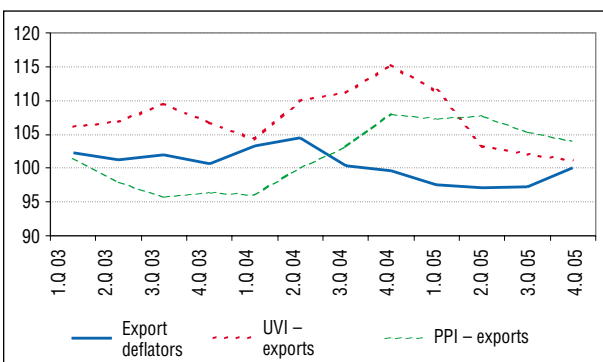
**Chart 6 Effect of the terms of trade on real gross domestic income**



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

It is clear from Chart 6, showing the development of the Slovak economy, that an improvement in the terms of trade was accompanied by an increase in gross domestic income relative to GDP, for example, in the 2nd quarter of 2003 and the 1st quarter of 2004. By contrast, some periods saw trading losses diminish the economy's performance in terms of RGDI. These discrepancies usually arose in relatively short periods, since RGDI for the years 2001 – 2005 was, because of terms of trade effects, on average only 0.2 of a per-

**Chart 7 Export price indices**



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

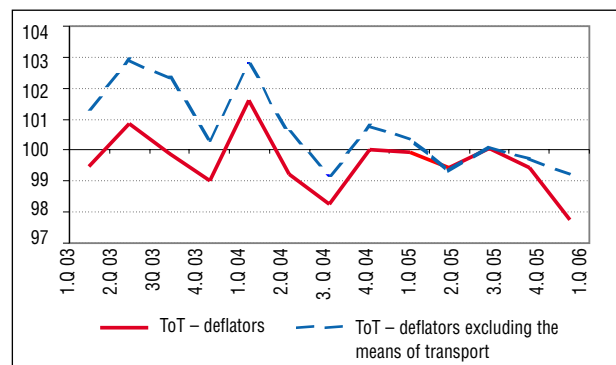
<sup>1</sup> Vintrová, R.: What GDP does not Reveal in Analyses of Economic Growth and Real Convergence. Working Paper CES VŠEM 1/2005.

centage point below real growth in GDP. These results do not therefore bear out the opinions of certain authors<sup>1</sup> that instances of the Slovak economy's relatively high real GDP growth are "artificially" overestimated due to worsening of the terms of trade (effect through deflators).

Using price deflators to assess the terms of trade remains a risk, since various statistics of foreign trade prices indicate a divergent development (as the previous chart makes clear). For example, fluctuations in Slovak export prices are identifiable with three statistics – based on the deflators of national accounts, the value-volume indices of customs statistics (UVI – exports), and on industrial producer prices for exports.

Caution should be exercised when evaluating the effect of the terms of trade on the economy, given both the divergence between the various indices of foreign trade prices and the following reasons. Higher prices of raw material on world markets increase import prices and subsequently impair the terms of trade. Likewise the recording of export and import prices independent of the market development between the subsidiaries of enterprises with foreign direct investment and their parent companies abroad; or the transferring of profits abroad, may distort the relative balance between export and import prices. For example, excluding the terms of trade from the effect of transport equipment exports (PPI prices for exports in this category are in a long-term trend declining) would

**Chart 8 Terms of trade and the means of transport effect**



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

change the outlook for Slovakia's terms of trade, and if applied to the period 2003-2005 it would produce a year-on-year improvement.

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