inštitút finančnej politiky

Policy Brief 2023/3

Ministry of Finance SR / www.finance.gov.sk/ifp

March 27th 2023

On Purchasing Parity

Policy brief on the convergence of the Slovak economy

Daniel Dujava, Branislav Žúdel

According to Eurostat data, Slovakia's GDP in purchasing power parity (PPP) is lagging behind the EU average, despite the fact that real GDP in Slovakia is growing faster than the European average. Why? There are two main reasons:

1. The first stems from methodological shortcomings in the measurement and revision of price levels (PPP)

- **The way prices are collected to calculate PPPs varies between countries, which overstates Slovak housing prices in particular.** If housing prices were to evolve in the Slovakia as in the Czechia, GDP in PPP terms would be at 72per cent of the EU average in 2021, instead of the current 69per cent.
- **Eurostats' revision policy of the PPP time series.** The time series before and after 2015 is not consistent and even minor changes in the PPP calculations after that year are adjusted only 3 years backwards. Therefore, GDP in the PPP sometimes jumps sharply and its year-to-year changes are sometimes difficult to explain.

2. The second reason why GDP at PPP and GDP at constant prices differ is that the two indicators measure two different things. GDP at PPP measures the purchasing power of our income (wages and profits), while GDP at constant prices measures the volume of real output. And in an open economy, we can't always exchange (i.e. import) the same volume of goods for the same volume of output. The growth in the volume of real output is higher than the growth in the standard of living in Slovakia by up to 0.5 p.p. on average each year, because the prices of imported goods are rising faster than the prices of exported goods. This slows down convergence towards the EU average.

In view of the above shortcomings, we recommend using a comparison of GDP developments in nominal prices (EUR) to analyse the convergence of the Slovak economy towards the EU average. This method of comparison also has its shortcomings. However, unless there is full harmonisation of methodologies between Member States by Eurostat, the GDP in PPP indicator will have little predictive value on the development and state of convergence of the countries.

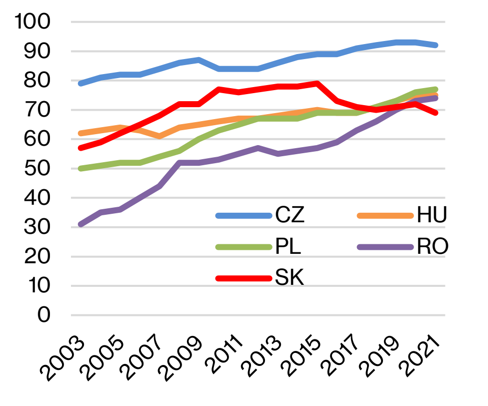
Slovak economy is not converging to EU when measured in PPP

According to GDP at purchasing power parity (PPP), the Slovak economy is moving away from the EU average, while according to GDP at constant prices we are converging. Since 2015, the economies of Poland, Hungary, Croatia, Latvia and Romania have also overtaken Slovakia in terms of GDP in PPP. By contrast, we are converging between 2015 and 2021 by an average of 1 p.p. each year, according to GDP at constant prices. Why do economic performance indicators differ so significantly?

Yet, the economy is converging to EU in nominal terms

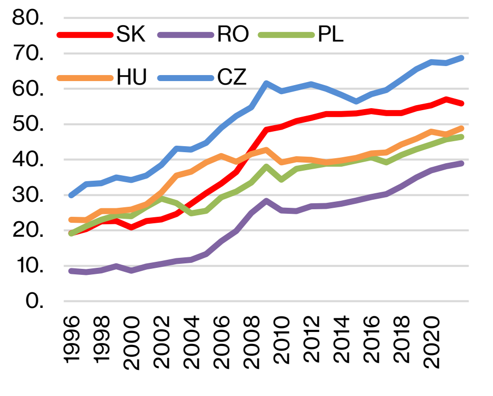
The difference between the indicators stems from different price adjustments for the nominal performance of the economy. Slovakia's nominal performance, measured in GDP in current euros, is still catching up with the EU average, although convergence has slowed. In euro terms, Slovakia has converged towards the EU from 53.7per cent in 2015 to 55.8per cent in 2021. While this is a slower convergence compared to the pre-crisis period in 2008, it is a stark contrast to the PPP conversion, according to which Slovakia's standard of living is almost 10 percentage points behind the EU average over the period.

Chart 1: According to Eurostat, Slovak GDP per capita in PPS is drifting away from the EU (GDP p.c. PPS, per cent EU)



Source: Eurostat

Chart 2: In nominal terms however, the Slovak economy is still converging to the EU (GDP p.c. in euro, per cent EU)

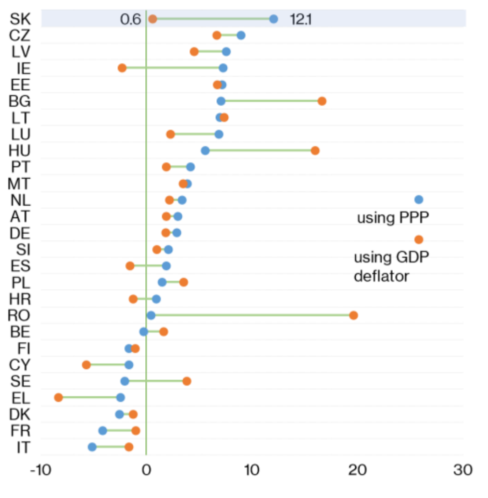


Source: Eurostat

Slovak prices implied by PPP grew fastest in the EU

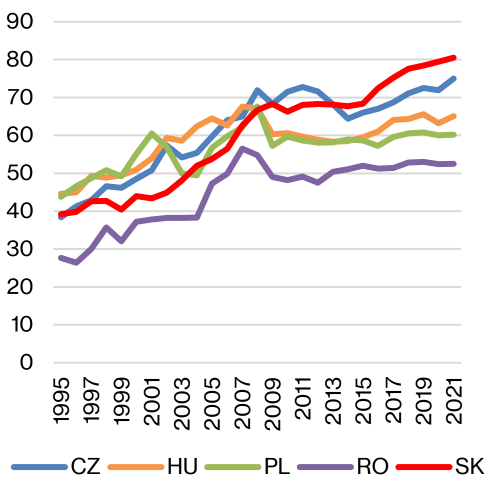
Thre reason for the reported stagnation of the Slovak economy is the growth of the price level in PPP, which has increased the most in Slovakia among all EU Member States since 2015. Slovakia's price level in PPP terms has converged towards the EU average by more than 12 pp. This is in sharp contrast to the evolution of the price level as measured by the GDP deflator, which is used to adjust GDP to constant prices. In the same period, the latter approached the EU average by only 0.6 pp, while consumer prices, as measured by the HICP index, approached the EU average by only 2.7 pp. The opposite is the case in Romania or Hungary, where prices as measured by the GDP deflator have risen sharply, but prices as measured in PPP terms have risen only slightly.

Chart 3: Cumulative change in the price level measured against EU average (2021 vs 2015, pp.)



Source: Eurostat

Chart 4: Slovak prices among the highest when compared to peers (price level in PPP as a per cent of EU)



Source: Eurostat

Eurostat revises prices up to three years back

The first reason for the higher price level in PPP stems from methodological shortcomings

The first reason for the relatively high rate of price growth in PPP in Slovakia lies in methodological shortcomings. In 2019, the Statistical Office of the Slovak Republic (SUSR) made a methodological adjustment that increased Slovakia's price level relative to the EU over the entire horizon. However, according to its own revision policy, Eurostat implemented the methodological change only three years back to 2016. By not taking into account the impact before 2016, an inconsistent time series of prices and GDP in PPPs with a break in 2015 was thus created.

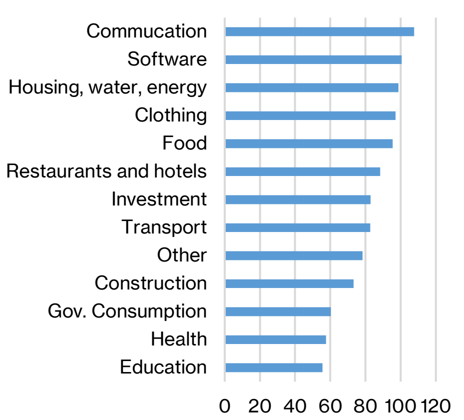
The methodological adjustment to PPP suggests that prices have not actually risen that fast since 2015, but have been much higher already. That is, we were never as rich as the data indicated before the methodology change. If Eurostat had taken into account the methodological change before 2016, price growth in Slovakia would not have been so dramatic because prices would have been higher before 2016. However, the price level would still be over 80per cent of the EU average in 2021, which is high compared to other new EU Member States (prices in Slovakia are 5.5 per cent higher than in the Czechia). Why is this?

National statistical offices collect the data differently, thus leading to non-existing price differences

The methodology for collecting prices via PPP varies across countries and may optically increase Slovak prices and reduce Slovak GDP in PPP relative to our partners. Eurostat allows national statistical offices to collect prices in a number of ways, which can introduce "non-existing" differences in prices and hence living standards between countries. From a Slovak perspective, the largest price differences are in housing, water, electricity, gas and other fuels. Here, Slovakia's price level in 2021 was almost 99 per cent of the EU average, compared to 74.5 per cent in the Czech Republic, 56.2 per cent in Hungary, 38.4 per cent in Poland and 44.1 per cent in Romania. However, in electricity, gas and other fuels, prices in Slovakia were lower than in the Czech Republic (79 per cent vs. 88.3 per cent). This means that in the housing and water category, prices in Slovakia were extremely high compared to the rest of the EU. This is not an insignificant item as it accounts for around 10 per cent of GDP.

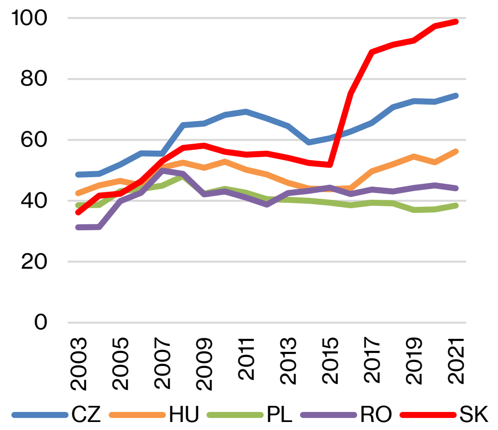
If Slovak housing prices were at the Czech level, Slovak GDP in PPP terms would not be 69 per cent of the EU average, but 72 per cent. Yet, at this point in time, we cannot answer with certainty whether the different methodological approaches do not also influence Slovak prices upwards compared to other countries in other non-housing components.

Chart 5: The highest prices in Slovak PPP are in communications, software and housing (per cent EU)



Source: Eurostat

Chart 6: PPP housing prices in Slovakia are substantially higher compared to peers (per cent EU)



Source: Eurostat

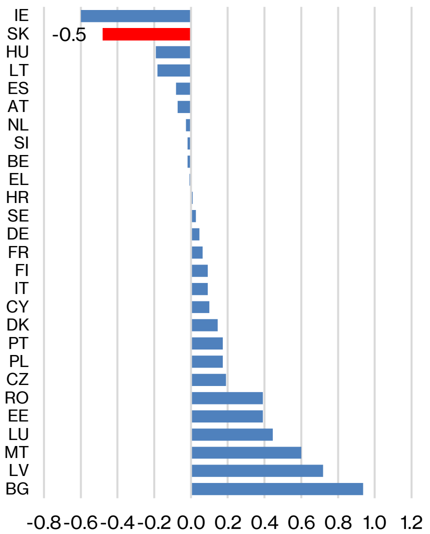
The second reason is the different interpretation of GDP at PPP and GDP at constant prices

The second reason for the difference between GDP at PPP and GDP at constant prices is that they measure two different things. GDP in PPP measures the purchasing power of our income relative to our counterparts, while deflated GDP measures the volume of real output. The evolution of these indicators is similar, but not exactly the same.

Living standards in Slovakia are negatively affected by the terms of trade loss

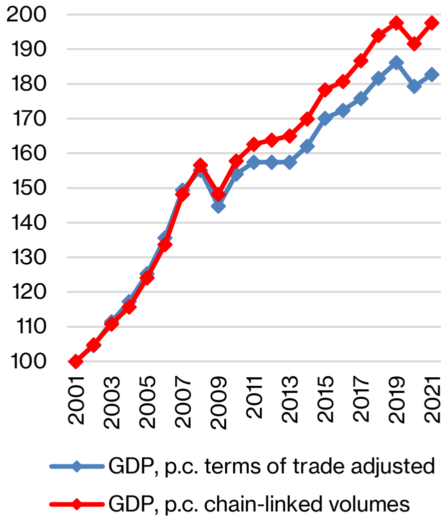
The growth in the volume of real output (real GDP) is inflated by up to 0.5 p.p. on average each year compared to the growth in the standard of living (GDP in PPP) in Slovakia, because the prices of imported goods rise faster than the prices of exported goods. Real deflated GDP aims to measure the physical volume of goods and services produced in the economy. The quantity of output is an important determinant of living standards (consumption and investment), but these can rise without the quantity of goods produced rising. It is sufficient, for example, that the prices of exported products rise. A good example is oil-producing countries, which benefit from rising energy prices. By contrast, a rise in the price of imports lowers living standards even without a fall in real economic activity. The rise in the price of gas over the last year is a case in point. GDP in purchasing power parity is intended to measure precisely the standard of living and therefore this concept does not take into account changes in the prices of exports and imports (when calculating GDP in PPP, the price index of exports and imports is equal to 1). Since export prices have been rising slower than import prices in Slovakia for a long time, the terms of trade are unfavourable for us. In this case, real GDP growth is faster than GDP growth in PPP terms. Conversely, the growth rate of the overall price level as measured by the GDP deflator is more moderate than when measured via PPP. Unfavourable terms of trade have reduced GDP growth in PPP terms in Slovakia's convergence perspective by up to 0.5 pp on average each year since 2011, and the more the Slovak economy opens up, the stronger this effect becomes.

Chart 7: Slovakia has significant terms of trade loss (terms of trade impact, average 2011-2021 pp.)



Source: Ameco, EC

Chart 8: Living standard in Slovakia (GDP in PPP) grows slower compared to real GDP growth because of terms of trade loss (index 100=2001)



Source: Ameco, EC