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Directorate-General for Economic and Financial Affairs

Economic Convergence in the Czech Republic and Slovakia

By Michal Havlat, David Havrlant, Robert Kuenzel and Allen Monks

Summary

This brief discusses economic convergence in the Czech Republic and Slovakia vis-à-vis the EU-28 during the past two decades, focusing mainly on developments in Gross National Income (GNI) per capita. It addresses three questions. First, did economic convergence take place in both countries? Second, did convergence speed and patterns differ between the two? Third, have growth and convergence paths changed since the global economic and financial crisis of 2009? This brief concludes with a 'yes' to each of the above questions.

The Czech Republic and Slovakia witnessed considerable catch-up growth relative to the EU average, particularly in the period between 2003 and 2008. In this pre-crisis period the rate of convergence was much stronger in Slovakia than in the Czech Republic, thereby substantially reducing the relative income gap that existed between Slovakia and its supposedly richer twin. Differences in the average speed of convergence between the two countries since the late 1990s can be largely explained by a simple model of "absolute beta convergence", which suggests that countries with initially lower levels of economic development should grow faster than higher-income countries.

In order to further explain the specific economic developments in the two countries, this brief examines various policy-related and structural factors, including their industrial legacies and the attractiveness for FDI, labour market reforms, and EU accession combined with the receipt of EU structural funds. It further argues that Slovakia's euro adoption in 2009 is likely to have boosted its economic advancement, even though it is probably too early for an exact quantification of this supportive effect. Finally, the global crisis appears to have marked the start of a slowing - and temporary stalling - of convergence in the Czech Republic and Slovakia.

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Introduction

This brief discusses the economic convergence of the Czech Republic and Slovakia vis-à-vis the EU-28 following the transition of Czechoslovakia from a planned economy in the early 1990s and the subsequent dissolution of the country into its two constituent parts in 1993. In particular, this brief examines the extent and timing of per capita income convergence in the two countries since 1998 and list a number of explanatory factors, including their accession to the European Union in 2004 and Slovakia's entry into the euro area in 2009.

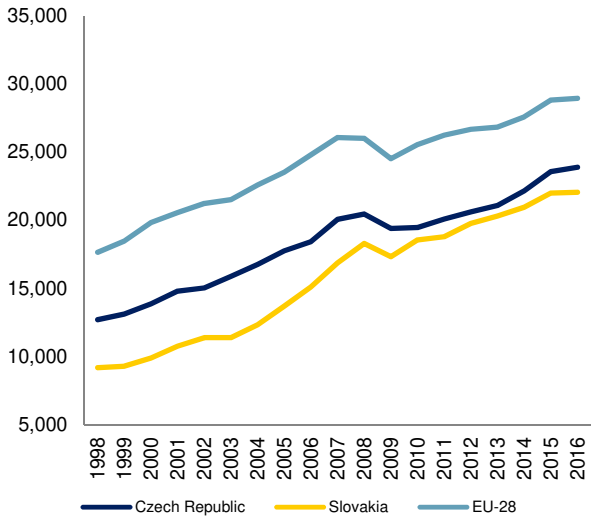
This brief is structured as follows. Section 2 presents the stylised facts of economic convergence in the two countries, as well as a primary analysis of GNI and potential GDP growth over the past two decades. A box provides methodological details on the measurement of convergence. Section 3 examines factors that contributed to convergence since 1998, including Slovakia's lower starting level of income, the timing and intensity of investment activity and inflows of foreign direct investment (FDI), labour market reforms, and EU accession and structural funds. Section 4 briefly comments on convergence in the post-2009 period, touching upon the role of fiscal consolidation and of Slovakia's euro adoption; section 5 concludes.

Convergence performance of the Czech Republic and Slovakia

Understanding the patterns and determinants of economic growth has been a central motivation in the field of economics. In the context of European integration, which has helped to successively link Member States' economies with one another, the degree to which growing interrelationships have benefitted poorer and/or more recent entrants into the EU is of particular relevance. Economic convergence has been a long-standing policy objective underpinning EU economic policy coordination and financial assistance. Moreover, efforts to deepen and complete Europe's Economic and Monetary Union aim at creating more jobs, boost growth and investment, and increase social fairness and macroeconomic stability.[1] The degree to which economic convergence takes place, and under which conditions, remains a contested issue in both theoretical and applied economic research This brief approaches the convergence question by investigating the natural experiment represented by the split of Czechoslovakia into two states (and economies) with the aim of drawing lessons for economic policymaking.

Economic convergence between countries and regions can be measured by relative developments in nominal income per capita adjusted for relative changes in price levels. This brief mainly focuses on developments in GNI per capita adjusted for changes in the price level using Eurostat's purchasing power standard (PPS). Measuring economic convergence using GNI (as opposed to GDP) is warranted in case significant parts of national income are generated in the domestic economy but flow out as dividends and earnings to non-residents, as is the case in the two FDI-intensive economies in question; Box 1 provides further explanations on this. The empirical analysis generally starts in 1998 as earlier national account data for the Czech Republic and Slovakia are quite volatile and, in the view of the authors, not sufficiently reliable. This likely reflects the transition of these economies from planned to market-based systems as well as issues related to the quality of available data.

Figure 1: **GNI per capita (in PPS)**

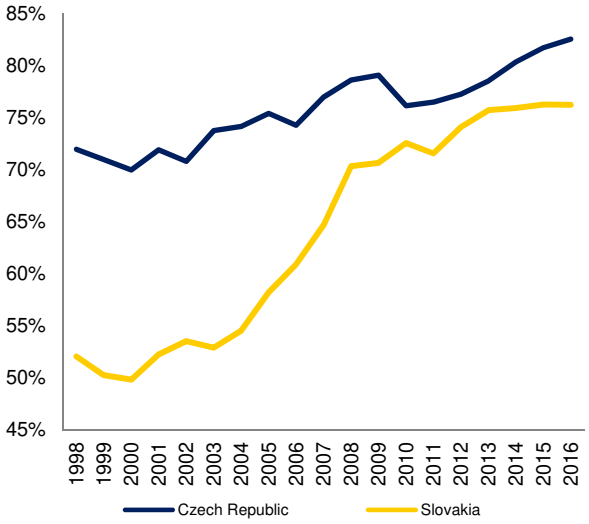


Source: AMECO, own calculations

Per capita income levels rose significantly between 1998 and 2016 in the Czech Republic and Slovakia[2], ensuring catch-up with the EU average. GNI per capita (adjusted for PPS) more than doubled in Slovakia and almost doubled in the Czech Republic over the period in question (Figure 1). While in both countries per capita incomes

broadly traced the trend of the European Union as a whole, Figure 2 shows that Slovak income per capita rose from 52% of the EU-28 average in 1998 to 76.2% in 2016, an increase of 24.2pps., while Czech GNI per capita rose by a more modest 10.6pps. from 72.0% to 82.6%. In both cases much of the contributing increase occurred in the period before 2009. The timing of this convergence pattern, as well as the possible existence of a structural break marked by the economic and financial crisis, will be revisited later on in this brief.

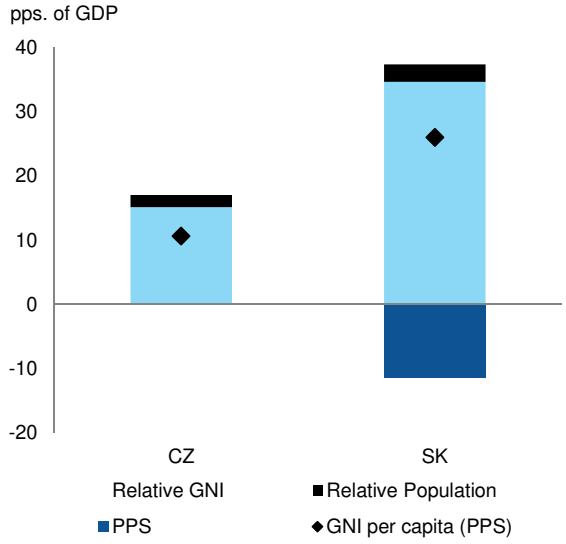
Figure 2: **GNI per capita (PPS) as % of EU-28**



Source: AMECO, own calculations

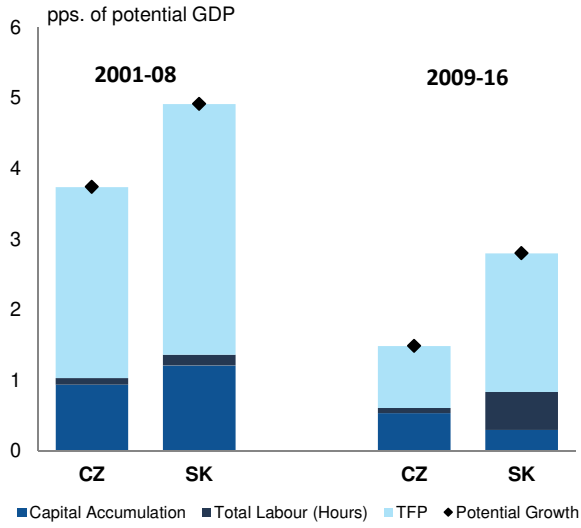
Rising aggregate national income drove per capita income convergence in both countries, in spite of relatively fast increases in domestic prices. Figure 3 shows the contribution of the three components of relative GNI per capita to the overall change in these ratios.[3] In both countries, more rapid growth in nominal GNI was the main driver of convergence towards the EU-28 average, with the stronger contribution in Slovakia reflecting a larger GNI increase. Relative population developments also made a positive contribution, with lower population growth in these two countries relative to the EU-28. In contrast, a more rapid increase in the price level in both countries than in the EU contributed negatively to real economic convergence.[4]

Figure 3: **Contributions to per capita income convergence (1998-2016)**



Source: AMECO, own calculations

Figure 4: **Contributions to annual potential GDP growth**



Source: AMECO, own calculations

Growth in aggregate national income was primarily driven by total factor productivity (TFP) gains, with support from capital accumulation. Figure 4 presents a production-function approach to estimating potential GDP growth according to the EU's commonly agreed methodology.[5] It confirms that Slovakia enjoyed stronger GDP growth than the Czech Republic in

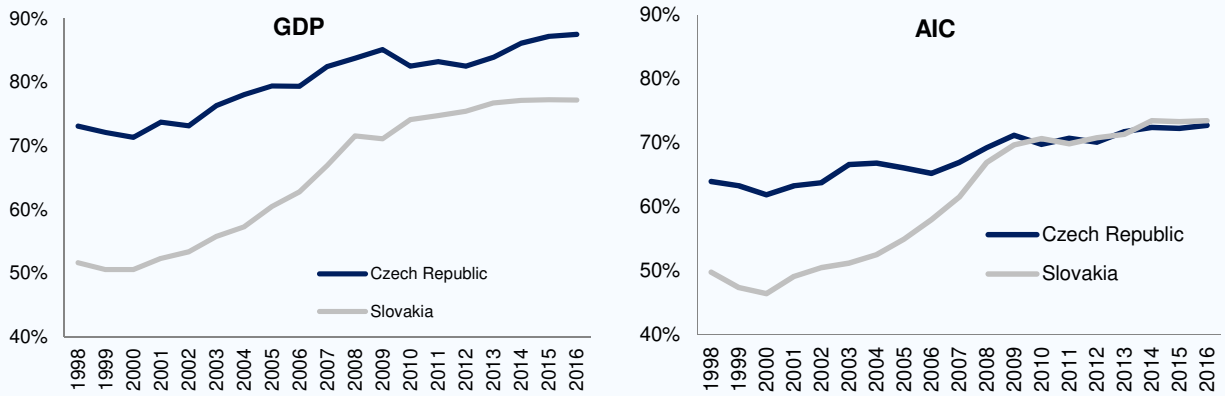
both the pre- and post-2009 periods, and that in both periods this was mainly driven by relatively faster TFP growth (which, as a residual product of the estimation, includes technical progress and changes in labour quality). Moreover, both countries saw the contribution of capital investment to potential growth decline after 2009, with the swing having been particularly strong in Slovakia.

Box 1: **MEASURING ECONOMIC CONVERGENCE**

While economic convergence is typically measured using relative GDP per capita, it is also useful to look at the evolution of measures of national income and consumption. This is particularly important for countries with a significant stock of FDI such as the Czech Republic and Slovakia, in which FDI-related dividend payments abroad and other earnings outflows can drive a wedge between GDP and GNI, with the latter providing a more accurate picture of national income available for domestic economic activities. However, it is instructive to also consider alternative measures of economic activity and spending. Besides GDP, the concept of Actual Individual Consumption (AIC)[i] can also shed light on the evolution of the welfare and living standards of households, but it suffers from the drawback of excluding investment activity and cannot account for productivity gains – two factors of central importance in driving convergence. Given the importance of adjusting nominal variables for relative price level changes, we employ Eurostat estimates of purchasing power standards (PPS). The PPS is an artificial currency unit which adjusts for price level differences using purchasing power parities.

In the case of the Czech Republic and Slovakia, the choice of national income aggregate can significantly impact the assessment of economic convergence. For example, a comparison based on GDP (Figure 5) suggests that the Czech Republic reached a (PPS-adjusted) GDP per capita level of nearly 90% of the EU-28 average in 2016. However, on a GNI per capita basis (Figure 2) this ratio falls to around 80%. Furthermore, while the GDP-based measure suggests swift Czech convergence during the pre-crisis period, the GNI equivalent shows a more muted trend. A comparison of the Czech Republic and Slovakia based on GDP per capita also suggests a somewhat larger gap between the two countries in 2016 than one based on GNI per capita. By contrast, a comparison based on AIC per capita (Figure 5) arguably suggests a broadly similar standard of living – or at least of consumption – in Slovakia as in the Czech Republic.

Figure 5: **National account aggregates per capita as % of EU-28 (PPS): 1998-2016**



Source: Eurostat, AMECO, own calculations.

[i] AIC refers to all goods and services actually consumed by households. It encompasses consumer goods and services purchased directly by households as well as services provided by non-profit institutions and the government for individual consumption (e.g., health and education services). In international comparisons, the term is usually preferred over the narrower concept of household consumption because the latter is affected by the extent to which non-profit institutions and general government act as service providers.

Drivers of Economic Convergence

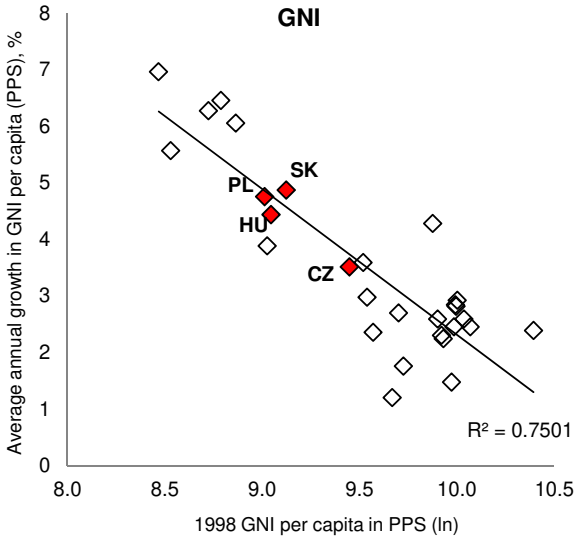
This section examines a number of elements that likely contributed to differing speeds of convergence between the Czech Republic and Slovakia over the past two decades. First the role of the initial level of economic development is examined in order to show that Slovakia's faster growth rate is consistent with a simple model of "beta convergence". Then the role of investment and FDI in driving growth in both countries is discussed, highlighting differences in investment intensity and the timing of FDI inflows. Next, the role of labour-market reform in Slovakia in the early 2000s is analysed. Finally, the effects of EU accession and EU structural funds in supporting convergence since 1998 are discussed.

a) Initial income level

Classical economic theory suggests a negative correlation between the rates of economic growth experienced within a group of countries and their initial levels of economic development ("unconditional beta convergence"). Such a concept implies that economic convergence vis-à-vis the EU-28 should have been faster in Slovakia than in the Czech Republic due to the lower starting point of the former. This hypothesis can be tested by looking at the growth rates of these countries in the wider context of all EU-28 Member States. Figure 6 shows a comparison in the form of a scatterplot, highlighting the "Visegrad Four" countries.

This simple analysis suggests that lower starting levels of national income favour faster income growth, i.e. that unconditional beta convergence holds true in the EU.[6] Indeed, the R-squared of this regression suggests that the initial starting point explains around 75% of average GNI per capita (in PPS) growth over the period. This offers at least a partial explanation as to why GNI per capita grew so much more rapidly in Slovakia than in the Czech Republic. The pace of economic convergence of the Czech Republic has been slightly slower than suggested by the model, having controlled for its initially higher level of economic development, while that of Slovakia has been slightly faster. Replicating the analysis in Figure 6 with pre- and post-2009 subsamples (not shown) confirms that beta convergence still holds in both periods, but with the regression line showing a relatively flatter slope and a lower R^2 in the post-2009 period compared to the full sample. This confirms a more general slowing of convergence in the EU since 2009 and underlines the critical juncture caused by the global economic and financial crisis.

Figure 6: **Beta convergence in EU-28 Member States (1998-2016)**

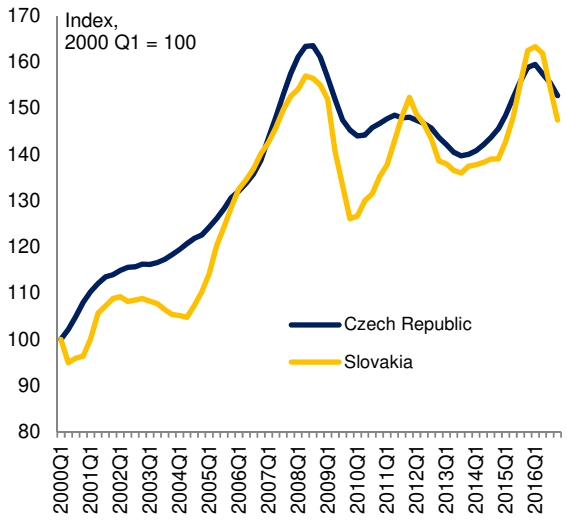


Source: Eurostat, AMECO, own calculations

b) Capital investment, FDI and TFP

Fixed investment has generally been the second-most important factor in driving economic growth behind TFP. Figure 7 shows gross capital formation levels since 2000, revealing broadly similar and strong growth trends, albeit somewhat less volatile in the Czech Republic. While Slovakia experienced a soft patch in investment until 2004, it made up ground in the following four years until the global crisis hit in 2009, which marked a turning point in both countries' investment cycles. In 2015 both economies saw investment levels again come close to (or even surpass) pre-crisis peaks. This was heavily influenced by the ending of the drawdown period for the outgoing EU structural funds programming period.

Figure 7: **Real gross fixed capital formation (4 quarter moving average)**

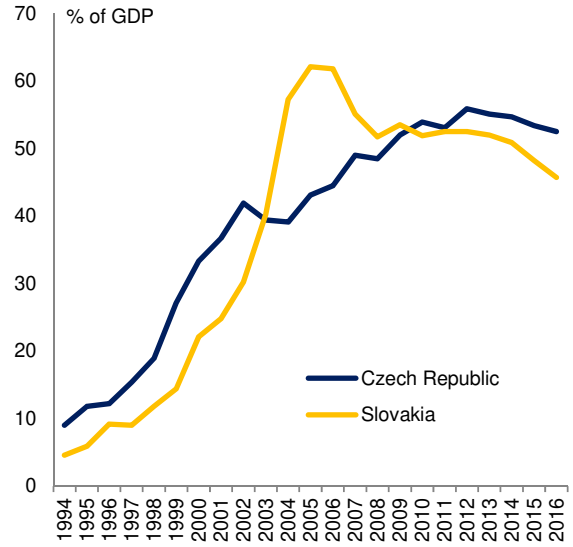


Source: Eurostat

Investment in both economies was supported by a boom in FDI, with Slovakia experiencing a particular surge in the pre-crisis years. Figure 8 shows the net FDI stock, i.e. netting out FDI assets abroad. This confirms that up until 2002 the Czech Republic was significantly more FDI-intensive than Slovakia. Thanks to exceptionally strong FDI inflows into Slovakia from 2002 onwards, its net position quickly surpassed the Czech Republic's before moderating after 2007. Not only did the corresponding FDI inflows require major productive investment, but they are also likely to have boosted TFP growth by allowing for rapid technology and skills transfer in the manufacturing sector.

FDI inflows into both countries were facilitated by the relatively low starting level of wages and proximity to the most developed European markets. FDI flows into (then) Czechoslovakia began quite soon after its initial transition to a market economy, with Volkswagen's purchase of Skoda in 1991 being one of the first major FDI projects. While privatisation initiatives gave rise to significant brown-field investment in both countries in the years following independence, the availability of skilled but cheap labour[7] and proximity to Western European markets encouraged foreign firms to also make export-oriented green-field investments.

Figure 8: **Net FDI stock (year-end)**



Source: Eurostat

Note: Positive values represent a net liability position vis-a-vis the rest of the world. Data compiled on BPM6 basis from 1995 (CZ) and 2004 (SK) onwards; prior data compiled on BPM5 basis.

The Czech Republic's industrial starting position and business environment favoured early FDI inflows. Firstly, industrial activity has historically been more concentrated in the Czech Republic than Slovakia[8] and there were differences in the structure of industrial activity at the time of independence in 1993, with a higher share of manufacturing in higher-value products in the Czech Republic. The legacy of a larger pre-existing manufacturing infrastructure allowed the Czech Republic to become a front-runner in attracting brown-field FDI inflows in the industrial sector.[9] Secondly, FDI in the Czech Republic was facilitated by a greater openness to foreign investment and an initially more attractive FDI policy framework, which contrasted with unwillingness on the part of the Slovak Government to privatise strategic companies during the 1990s (United Nations, 2003).

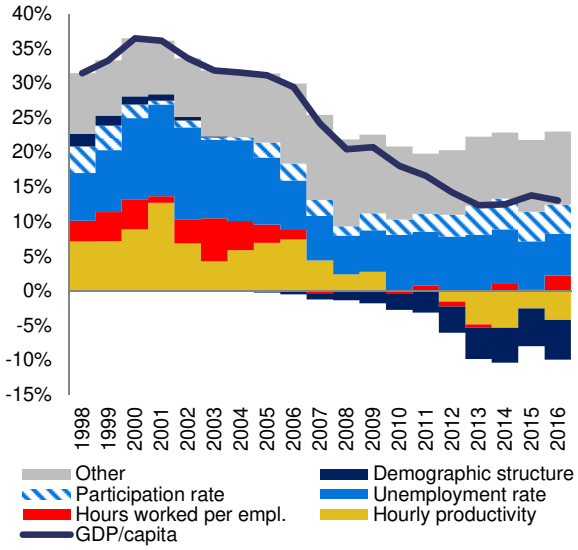
Slovakia's wide-ranging tax and benefit reforms of 2004 transformed its investment climate and helped to boost investment and FDI. Slovakia comprehensively reformed its tax and benefit system with effect from January 2004, which included not only the introduction of a flat personal income tax rate of 19% and a uniform VAT rate of 19%, but also a further cut in its corporate income tax (CIT) rate from 25% to 19% - in 1999 the CIT rate had

been 40%. The CIT tax base was broadened through the scrapping of various deductions and rules on loss carry-forwards were relaxed. Finally, dividend taxation at shareholder level was cancelled, which eliminated the double taxation of investment income and reduced the previously existing debt-equity bias. Taken together, these reforms are found to have significantly raised the attractiveness of both domestic corporate investment and of FDI.[10] Furthermore, as discussed in UN (2003), changes in the FDI regime arising from the adoption of the EU's *acquis communautaire* likely also contributed to the rapid increase in inflows. Overall, Slovakia's ability to make up ground in the early 2000s in terms of boosting the quality of its business environment is reflected in Slovakia being cited as the world's top reformer in the World Bank's *Doing Business 2005* report.

c) Labour market and demography

The narrowing of the gap in per capita income between the Czech Republic and Slovakia is attributable not only to productivity-related differences, but also to labour market and demographic factors. Supplementing the potential growth decomposition of Figure 4, Figure 9 presents results from a growth accounting analysis of real GDP per capita. While the former estimated aggregate potential growth by explicitly separating capital, labour and TFP, the latter combines these factors into an (hourly) labour productivity component and the determinants of total hours worked. Figure 9 confirms that the Czech Republic maintained a significant but shrinking advantage in living standards over Slovakia between 1998 and 2016. Key reasons for the consistently higher per capita income level include a lower unemployment rate, as well as higher participation rate. Meanwhile, the *shrinking* of the gap to Slovakia was driven by a rise in Slovak hourly labour productivity, relatively less favourable Czech demographic developments, as well as a rise in Slovak hours worked per employee to approximately Czech levels. While the rise in Slovak labour productivity can be understood in the context of the preceding analysis of strong capital investment and TFP growth in the pre-crisis years, Slovakia's labour market improvements deserve further examination.

Figure 9: **Real GDP per capita difference between Czech Republic and Slovakia (in pps. of Slovak GDP per capita)**

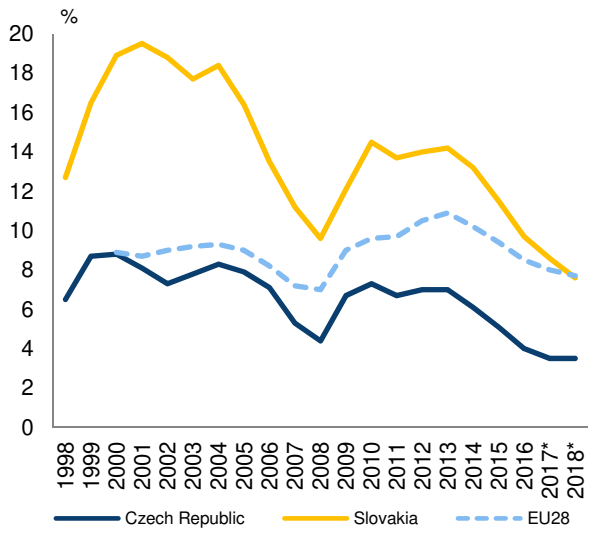


Source: Eurostat, own calculations

Note: Percentages and percentage point contributions show the excess of CZ GDP/capita over SK GDP/capita.

Slovakia's long-standing unemployment problem lessened in spite of the negative impact of the 2009 crisis. Figure 10 shows that Slovakia's unemployment rate has been on average 8pps. higher than in the Czech Republic since 1998. There are a number of reasons for weaker labour market outcomes in Slovakia, including an initially-larger agricultural sector, a larger population in less-integrated social groups (especially Roma), and a high regional concentration of economic activity that favoured a segmented labour market.[11] Overall, however, both countries saw the unemployment rate move in tandem, punctuated in both cases by the global crisis, but with greater absolute changes in Slovakia. Since 2013 Slovakia's labour market has seen a pronounced improvement. In 2017 the Slovak unemployment rate of 8.6% is projected to be only slightly above the EU average of 8.0%, while the Czech Republic, at 3.5%, continues to enjoy record-low unemployment rates, both historically and in relation to any other EU Member State.

Figure 10: **Unemployment rate (15-64yrs)**



Source: Eurostat, AMECO database

Note: (*) European Commission, Spring Forecast 2017

The significant improvement in Slovakia's labour market in the pre-crisis period arose primarily from structural reforms undertaken in the early 2000s. In this period Slovakia undertook a variety of measures to improve labour market flexibility and increase participation. For example, reforms were undertaken to strengthen the flexibility of recruitment and dismissal procedures, to reinforce the representation of social partners in collective bargaining processes and to ease conditions for fixed-term and part-time contracts. These reforms are reflected in a sizeable reduction in Slovakia's score for employment protection legislation (EPL) as compiled by the OECD. While reforms in Slovakia lead to a decline in its EPL index from 2.5 in 2002 to 2.2 in 2004, the Czech Republic's score remained unchanged at 3.3 between 1993 and 2006. The latest available EPL readings (2013 data) are 1.8 for Slovakia and 2.9 for the Czech Republic. Other reforms in Slovakia at the time (but partly reversed by now) included a significant simplification of direct taxation, including by introducing a single, "flat" income tax rate of 19% and reforming welfare payments.

d) EU accession and structural funds

Reforms and institutional changes in the run-up to EU accession seem to have had a favourable impact on the business environment and economic confidence. As mentioned above, the adoption of the *acquis communautaire* brought about wide-ranging changes to legal and administrative aspects of the Czech and Slovak business environment and labour markets. Both countries joined the EU on 1 January 2004, and the evolution of World Bank governance indicators suggests a significant improvement in governance quality from 2000 onwards in both countries. While the Czech Republic has generally outperformed Slovakia in terms of the absolute governance quality scores, both countries continue to score poorly on the control of corruption.

EU Structural Funds helped to raise investment levels and are estimated to have boosted long-term GDP levels. Following their EU accession both countries became eligible for financial support from EU Cohesion Policy funds. During the first full programming period (2007-2013), their annual rates of EU fund absorption rose from less than 0.5% of GDP in 2007 to more than 3% of GDP in 2015, the final year for drawdowns from the expiring funding period. In both countries, more than half of these EU funds were earmarked for infrastructure investment projects, which contributed to addressing long-standing infrastructure deficits, including in the transport sector. Overall, the Czech Republic and Slovakia are estimated to have benefitted from a 3.7pps. boost to GDP levels up until 2015 due to structural support in the 2007-2013 programming period, which supported their overall convergence process.[12]

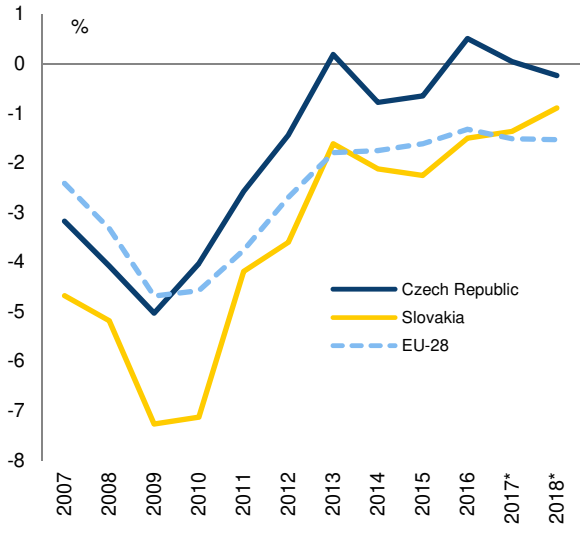
Growth and convergence since 2009

Income convergence in Slovakia and the Czech Republic stuttered in the years following the global crisis, both relative to the EU average and between the two. While the beta convergence hypothesis would predict a general slowing of convergence, both economies saw at least some periods of renewed convergence since the crisis: Slovakia between 2010 and 2013, and the Czech Republic in subsequent years (Figure 2). While full examination of the causes exceeds the scope of this brief and is perhaps too early to attempt, the issues of fiscal consolidation since 2009 and of euro adoption are briefly examined.

While both countries undertook significant fiscal consolidation in the period 2010-2013, the size and composition of the Slovak consolidation is likely to have been more growth-friendly. The deep recessions of 2009 led to a significant

deterioration in Slovakia's and the Czech Republic's public finances that required an appropriately-paced fiscal correction in the following years. Both countries undertook significant adjustments in the period 2010-2013, with their structural balances improving by a cumulative 5.7pps. (Slovakia) and 5.2pps. (Czech Republic) (Figure 11).[13] The Slovak adjustment is likely to have had a somewhat less negative impact on economic growth than the Czech one , for a number of reasons. Firstly, the adjustment in Slovakia partly consisted of transfers from the fully-funded to the pay-as-you go pension scheme. These accounted for around 0.9pps. of the change in the structural balance, and although not unproblematic from a pension sustainability perspective, they did not have a significant short-term macroeconomic impact. Adjusting for this and similar measures, the relevant fiscal adjustment in Slovakia was somewhat smaller than in the Czech Republic. Secondly, the fiscal adjustment in Slovakia is likely to have been more growth-friendly because it protected public investment spending to a greater extent, as investment cuts only made up around 25% of the total adjustment (compared to 45% in the Czech Republic). As shown in Burgert et al. (2016), large cuts in public investment have a negative impact on economic growth in the short to medium term.

Figure 11: **Evolution of the structural balance** [14]



Source: AMECO, own calculations

Note: (*) European Commission, Spring Forecast 2017

Slovakia's euro adoption in 2009 helped to shape its economic convergence. Nielsen (2016) attributed Slovakia's comparatively stronger GDP growth performance since 2009 primarily to its adoption of the euro. It is certainly true that Slovakia has seen faster economic growth than the Czech Republic since 2009. While most advanced economies in the world saw a slowing of economic growth compared to the pre-crisis period, Slovakia managed to maintain a 0.9pps. of GDP growth advantage over the Czech Republic in terms of average annual GDP growth in the 2009-2016 period. Euro adoption in 2009 is likely to have boosted trade and investment through stabilising Slovakia's exchange rates with key trading partners, improving international price transparency and eliminating currency conversion costs. Wach and Wojciechowski (2016) find that Slovakia's euro area membership contributed to the acceleration of inward FDI. However, given that Slovakia's euro adoption coincided with the onset of the global economic and financial crisis, quantitatively separating the growth-enhancing effects of euro adoption from the overlapping effects from wide-ranging changes in financial markets, public finances and global cyclical conditions is difficult. As such, a greater time horizon is arguably needed to fully assess the impact of euro adoption on the Slovak economy.

Conclusions

In recent decades the Czech Republic and Slovakia have seen economic development, international integration and policy reform that resulted in significant income convergence with the EU and between the two countries. This brief has shown that GNI per capita in both economies rose strongly in the pre-crisis years relative to the EU average, particularly so for Slovakia, thereby also closing the relative gap between the two countries. This pattern is consistent with the hypothesis of absolute beta convergence, for which empirical support is found when analysing a sample of all EU Member States. Convergence in the Czech Republic and Slovakia seems to have been driven mainly by TFP growth, with capital accumulation also playing an important role. It is likely that strong FDI inflows in the decade preceding EU accession supported growth by boosting fixed investment and facilitating technology transfer. Several structural reforms – partly motivated by EU accession preparations – gave rise to a greater openness to foreign investors and greater efficiency of the labour market, which also helped to improve labour market outcomes, the latter more so in Slovakia. Following a stalling of

income convergence with the EU between 2009 and 2012, catch-up growth has resumed in recent years in both countries, albeit more slowly than before the crisis. This brief has further looked into the role that the composition of fiscal consolidation played in slowing the convergence process in the Czech Republic during the post-crisis period. Finally, it seems too early to attempt a comprehensive assessment of the effects of euro introduction at this stage.

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[1] Proponents of the classical school of thought argue along the lines of Solow (1956), citing both capital deepening and (exogenous) technological progress as supporting convergence of poorer countries towards richer ones. By contrast, more recent growth models have stressed the role of diminishing marginal returns to capital (Romer 1986, Lucas 1998) and endogenous technological progress (Romer 1990, Aghion and Howitt 1992), which can lead to persistent national income differences or even greater divergence. For a wide-ranging empirical study see Khan (2012).

[2] A Roadmap towards completing Economic and Monetary Union is set out in the Communication from the European Commission of 6 December 2017: http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52017DC0821

[3] Namely: GNI at current prices as a % of EU-28; the population as a % of EU-28; and the PPS rate.

[4] The larger negative contribution of the price level in the Czech Republic is somewhat counter-intuitive, given the higher average HICP inflation rate in Slovakia during this period. This appears to be due to the fact that the PPS figures are expressed in CZK for the Czech Republic but in EUR for Slovakia for the entire period. This may give rise to an exchange-rate effect in the calculation of the price level for the Czech Republic.

[5] For an explanation of the EU's production function methodology see European Commission (2014), Economic Paper 535 http://ec.europa.eu/economy_finance/publications/economic_paper/2014/pdf/ecp535_en.pdf

[6] A similar conclusion for Central and Eastern European Member States is reached e.g. in European Central Bank (2015).

[7] For example, the cost of an employee in Skoda was roughly 18 times lower than in Germany in 1994, according to a report by the Deutsche Bundesbank. See article in the business daily "Hospodářské noviny".

[8] In 1993, for example, the industrial sector employed around 59% of workers in the Czech Republic compared to 48% in Slovakia.

[9] Examples include Skoda Auto (acquired by Volkswagen in 1991), Barum (acquired by Continental in 1992), Karosa (acquired by Iveco and Renault in 1993), Avia (acquired by Daewoo in 1995) and Plzeňský Prazdroj (acquired by SABMiller in 1999).

[10] See European Commission (2006) for a description of the 2004 tax reforms. Moore (2005) cites as indirect evidence for Slovakia's increased FDI-competitiveness Austria's and Hungary's subsequent announcements to lower their statutory CIT rates. Remeta et. al (2015) argue that Slovakia's 2004 reforms reduced both the average and marginal effective rate, thus making Slovakia significantly more attractive to foreign investors than its peers during the early 2000s. While two studies (de Mooij and Ederveen (2003) and Hunady and Orviska (2014)) support the view that labour costs are at least as important determinant of FDI inflows than CIT rates, Slovakia's competitively low wage levels would have thus added to its attractiveness as an FDI destination.

[11] According to Machlica et al. (2014), a representative jobseeker (a male applicant between the age of 29 and 44 years with a college degree) from western Slovakia is more than twice as likely to find a job compared to one from eastern Slovakia. While economic disparities among regions can also be large in the Czech Republic, there are more centres of manufacturing and these are distributed more evenly throughout the country.

[12] The figure presents the impact of EU cohesion and rural investment policies during the period 2007 -2015 on GDP. The percentage deviation from the baseline indicates additional medium to long-term output generated in the economy. The results stem from ECFIN QUEST III model simulations.

[13] The structural budget balance is calculated as the cyclically-adjusted general government deficit, excluding one-off measures.

[14] Estimates of the structural balance are only available from 2010. For the period 2007-2009 we use the cyclically-adjusted net lending or borrowing requirement of the general government. We adjust these figures with estimated one-off measures where available.

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