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How do economies in EU-CEE cope with labour shortages? Study update from wiiw research report 452

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How do Economies in EU-CEE Cope with Labour Shortages?

Study Update from wiiw Research Report 452

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This is an update of the earlier study [wiiw Research Report 452](#) commissioned by the Chamber of Labour, Vienna.

Abstract

The EU member states in Central and Eastern Europe (EU-CEE) have been experiencing increasing labour shortages, which only briefly subsided in the wake of the COVID-19 pandemic. Ongoing demographic decline suggests that labour shortages will only get stronger over time. As a result, the bargaining power of labour has increased, wages have been generally rising ahead of labour productivity, and industrial action (strikes) – the level of which has remained low in recent decades – has emerged in some instances. In the face of labour and skill shortages, people have been investing in education. The share of employees with tertiary education has increased, and vocational training has gained in importance, although active labour market policies have been used only selectively. Employers have increasingly been investing in fixed assets, especially in manufacturing, and the degree of robotisation has risen strongly. Despite domestic concerns that automation would generate massive job losses, our findings suggest that capital deepening has taken place faster where labour was in higher demand. Thus, labour was not substituted with capital, but rather the complementary effect prevailed. Employment actually increased in EU-CEE over the past two decades – despite the shrinking working-age population. Employers could hire not only the formerly unemployed, but also the formerly inactive, and used the relaxed immigration policies to attract foreign workers, especially from Ukraine and the Western Balkans. Czechia, Hungary, Slovenia and Slovakia and most recently Poland have become net receivers of migrants, while in Bulgaria immigration largely compensates for the natives who go abroad. However, immigration from non-European countries as a general solution to the problem of labour shortages in the region is highly problematic in the current domestic political context. Overall, both our findings for the EU-CEE region over recent years and the experience of Western Europe during the ‘golden age’ (1950-1973) suggest that labour shortages are not in themselves an obstacle to rapid structural change and income growth. However, for such an economic model to be sustainable, more active government policies will be needed, such as greater public investment in education and training, higher minimum wages in order to encourage automation, and more extensive welfare networks in order to deal with the possible negative short-run side-effects of automation.

Keywords: labour shortages, trade unions, migration policy, active labour market policy, investment, vocational training, ‘golden age’, populism

JEL classification: J21, J23, J24, J31, J52, J61, N14, N34

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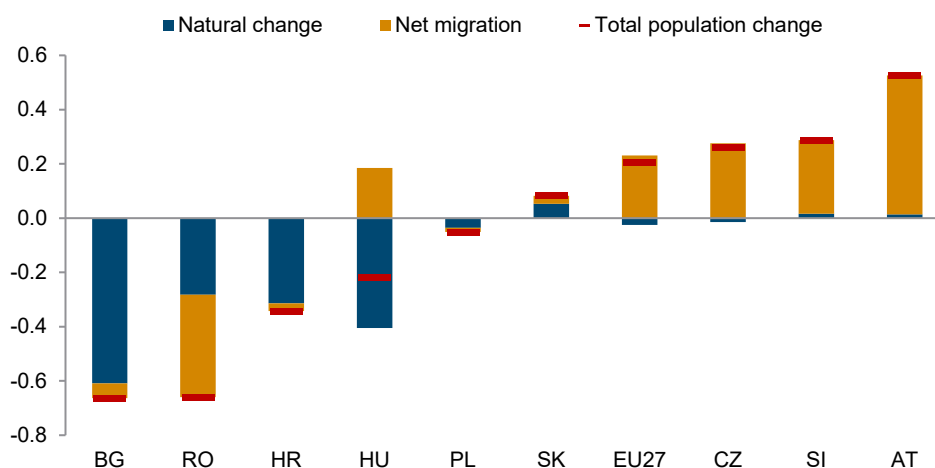
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1. Labour shortages in EU-CEE: an outline of the situation

1.1. DEMOGRAPHIC TRENDS AND FORECASTS¹

The development of labour shortages in the eight EU member states of Central and Eastern Europe (EU-CEE: Bulgaria, Croatia, Czechia, Hungary, Poland, Romania, Slovakia and Slovenia) is to be considered against the background of labour demand and supply. Labour supply in past decades was influenced by ongoing population ageing and, in some cases, outright population decline. As demonstrated by Figure 1.1, natural population growth was mostly negative during the period 2002-2021, particularly in Bulgaria, but also in Romania, Croatia and Hungary. In addition, in each of those four countries, except for Hungary, negative net migration aggravated the trend of population decline. In contrast, the population nearly stagnated in Poland and Slovakia, while positive net migration resulted in average annual population growth of about 0.3% in Czechia and Slovenia. Positive net migration towards the Visegrád countries² and Slovenia is a rather recent phenomenon. Upon EU accession, outward migration, mostly to Western Europe, was common in all EU-CEE countries (except for Czechia).

Figure 1.1 / Annual average rates of natural change of population, net migration and total population change, in %, 2002-2021



Source: Eurostat.

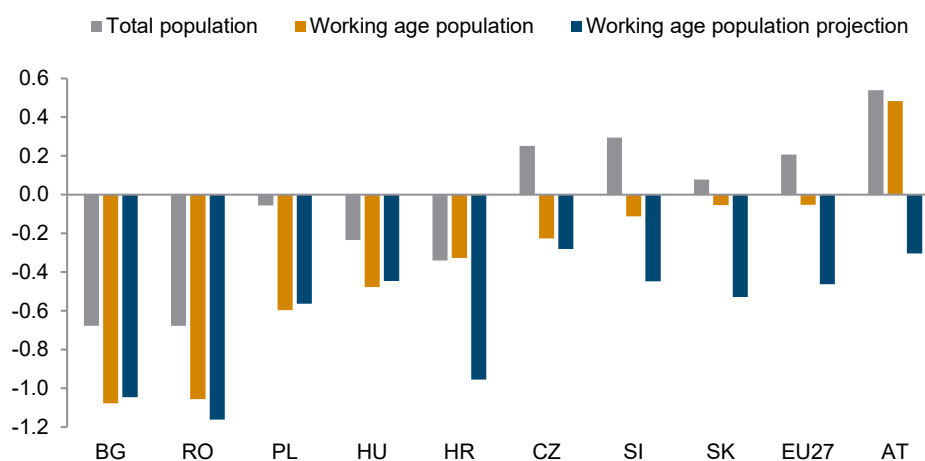
Owing to the ageing of the population in the EU-CEE countries, where emigration was concentrated among younger age groups, the working-age population (those aged between 15 and 64) generally showed a much stronger decline than the total population, with the exception of Croatia (Figure 1.2). Over the period 2002-2021, the working-age population shrank in all EU-CEE countries, ranging from an

¹ This section is based on the findings of Leitner et al. (2019), Stehrer and Leitner (2019), and Astrov (2019).

² The Visegrád countries comprise Czechia, Hungary, Poland and Slovakia.

annual average decline of 0.05% in Slovakia to 1.1% in Bulgaria and Romania. For comparison, in Austria the working-age population *grew* by 0.5% per year over the same period. The COVID-19 pandemic did not bring about any radical changes in the above trends. Although some EU-CEE migrants returned to their home countries and decided to take up jobs there, this phenomenon has not been strong enough to counterbalance the labour shortages.

Figure 1.2 / Annual average growth rates of total population and working-age population (15-64), 2002-2021 and projections of working-age population (15-64), in %, 2021-2040



Source: Eurostat.

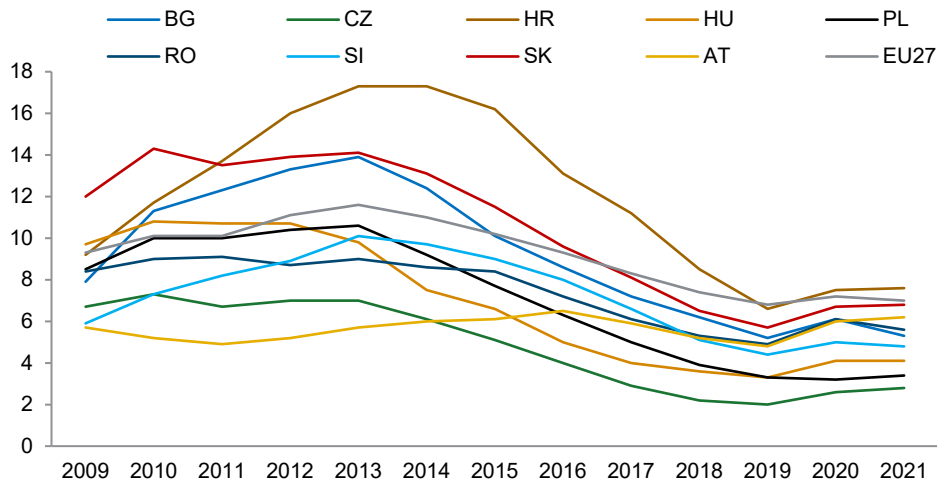
Eurostat projections suggest that the trend of declining working-age populations in EU-CEE is likely to persist or even intensify in the coming decades (Figure 1.2). Negative natural population growth will be the chief reason for these declines. On the one hand, birth rates are projected to decline slightly (from already rather low levels) and stay below the levels observed in Western Europe. On the other hand, and more importantly, mortality rates in the EU-CEE countries are substantially higher than in Western Europe and are projected to rise further (IMF, 2019).

1.2. LABOUR MARKET DEVELOPMENTS

The secular decline in the working-age population of the EU-CEE countries has been only partly offset by integration of the previously inactive population into the labour market, resulting in stagnating – and in some countries even shrinking – labour supply. At the same time, the demand for labour has gone up markedly in the wake of the economic upswing, particularly since 2015. The combination of a declining labour supply and a rising labour demand has led to a significant improvement in the labour market situation over the past few years.

One manifestation of this improvement has been a dramatic decline in unemployment (Figure 1.3). This has been particularly notable in Czechia, where the unemployment rate had plunged to 2% of the labour force by 2019, which corresponds practically to a full employment situation. In all other EU-CEE countries, the unemployment rate had also shown a strong downward trend and by 2019 had fallen below the EU average level (6.8%).

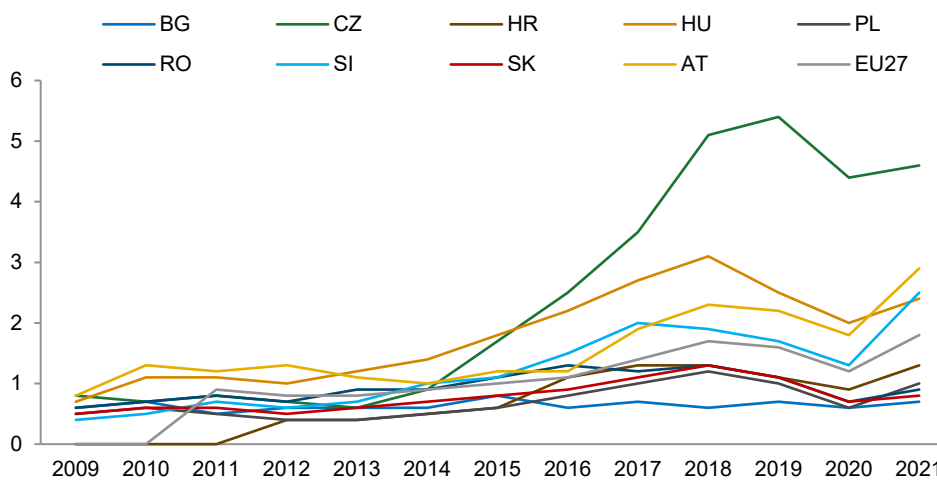
Figure 1.3 / Unemployment rate (LFS), annual average in %



Source: wiiw Annual database.

The decline in unemployment has been accompanied by increasing job vacancy rates, suggesting substantial unmet labour demand in some sectors. Figure 1.4 depicts this trend in the manufacturing sector. Particularly in Czechia, but also in Hungary and Slovenia, job vacancy rates, reported by the public employment services, were above the average EU level from 2015 onwards. Only in 2019 did the labour market situation start to stabilise in most countries (except Czechia).

Figure 1.4 / Job vacancy rate in manufacturing, annual average in %

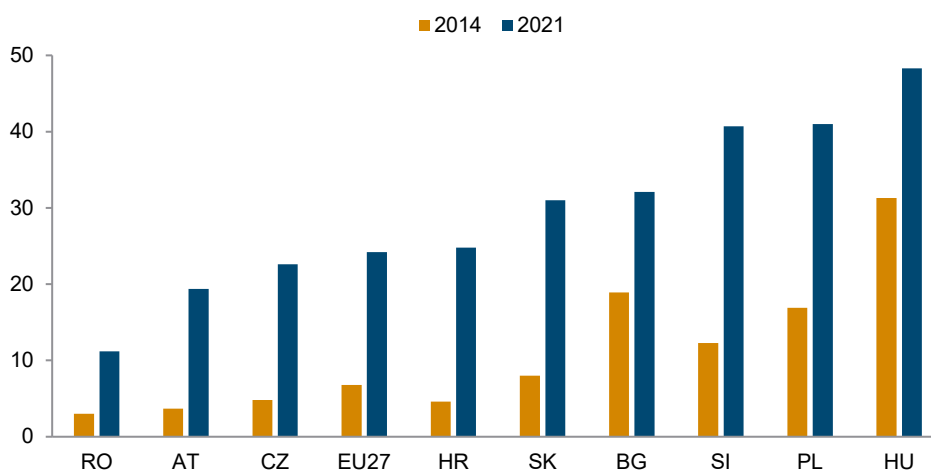


Note: The job vacancy rate is defined as the number of job vacancies in relation to the sum of job vacancies and occupied jobs. Source: Eurostat.

The COVID-19 crisis has had only a short-lived impact on EU-CEE labour markets. Due to the widespread use of short-time work schemes and countercyclical fiscal measures at the national and EU levels, unemployment rates picked up only slightly in 2020, before declining again in 2021 in several countries (Figure 1.3). Job vacancy rates in manufacturing were on the rise again in 2021 and in most EU-CEE countries exceeded the levels of 2018/2019 (Figure 1.4). Business survey data suggest that

labour shortages are now once again on the agenda in almost all sectors of the EU-CEE economies (Figure 1.5). For instance, 48% of firms in Hungarian industry report labour as a constraint on production, an increase from 31% in 2014; in Poland and Slovenia the percentage of such firms stands at 41%. In all EU-CEE countries (except for Romania and Czechia), the share of enterprises reporting labour shortages as a limiting factor for production is higher than the EU average.

Figure 1.5 / Firms in industry reporting labour as a constraint on production, 2014 and 2021, annual average in %



Note: EU27 in current composition.

Source: Business survey data – Eurostat.

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2. Government policies

Labour shortages emerging in most EU-CEE countries have been addressed by national governments in different ways, such as attracting workers from abroad, taking steps to mobilise their own labour potential (older people, women, other inactive groups), implementing programmes to promote certain occupations, training of the (un-)employed, giving employers more control over (temporary) prolongation of working time, and wage policies (Eurofound, 2018).

2.1. MIGRATION POLICY

Recruiting workers from abroad – either from elsewhere in the EU or from third countries – is the most frequently used measure to tackle labour shortages in the EU-CEE countries. To regulate the inflow of foreign workers, all countries in the region have quota regimes as well as labour market testing (LMT)³ for most occupations. However, in order to facilitate the recruitment of foreign workers for certain occupations, most countries (Croatia, Czechia, Hungary, Poland, Slovakia and Slovenia) have published so-called shortage lists. Foreign workers applying for jobs in these occupations are provided with simplified work permit procedures and are exempted from LMT. For example, in Poland a shortage list was introduced in 2018; it included 289 occupations, mainly medium- and high-skilled jobs in construction, IT, transportation and medical services. Slovakia published its first shortage list in July 2018. In Slovenia, shortage lists have been updated repeatedly from 2017 onwards.

Bulgaria amended its 2016 Labour Migration and Labour Mobility Law (LMLM) in order to liberalise labour market access for foreign workers. The ceiling on employment of third-country nationals was increased from 10% to 25% of a company's workforce. Conditions for receiving the EU Blue Card were relaxed, and LMT abolished for highly qualified workers (OECD, 2019). In 2019 the government adopted regulations to speed up the issuing of visas to seasonal workers.

In *Croatia*, the persistent shortage of labour in tourism, construction, transport, the metal and food industries, and agriculture has been countered primarily by hiring foreign workers, particularly from Bosnia and Herzegovina. After the quota for 2020 had been increased to 78,470, a revision of the quota system was announced. However, this has not yet come into effect, owing to the coronavirus crisis.

In *Czechia*, special programmes were introduced to recruit qualified workers: for example, from Ukraine in 2015, and from Mongolia and the Philippines in 2018. In 2019 authorities passed legislation to facilitate the employment of non-EU nationals, in particular for skilled and qualified workers (key and scientific personnel, qualified and highly qualified employees). Some of the programmes were extended to additional countries (e.g. Belarus, Moldova, Montenegro). Quotas were set for a maximum number of applications for long-term visas for the purpose of business and employment, and the LMT period was reduced from 30 to ten days.

³ Labour market testing (*Ersatzkräfteverfahren*) is a mechanism that aims to ensure that migrant workers are admitted only after employers have unsuccessfully searched for national workers, EU citizens (in EU member states this also means European Economic Area workers) or legally residing third-country nationals with access to the labour market.

In *Hungary*, despite its strong anti-immigration rhetoric, the government has opened the door wide to labour immigration. Foreign workers have been arriving mainly from countries outside the Middle East (this area being the main target of the government's anti-migration campaigns) – primarily from Ukraine and Serbia, followed by China, Vietnam and India.

Poland has implemented a simplified procedure to employ workers from Armenia, Belarus, Georgia, Moldova, Russia and Ukraine, who can work in all sectors for up to six months at the request of a Polish employer. The obligation to carry out LMT has increasingly been eased and now applies only to certain occupational groups. Since 2018 LMT is no longer required for, among others, nurses and caregivers, computer system administrators, insulation fitters, bus drivers, welders, road construction workers, construction electricians, software application developers and individuals who work as domestic help in households.⁴

Slovenia also relies heavily on foreign labour, particularly from the Western Balkans (for example, Bosnia and Herzegovina, Serbia); foreign workers account for about 10% of total employment. In 2018 it implemented amendments to the Employment, Self-employment and Work of Foreigners Act, establishing a fast-track procedure to allow registered employers of high value added or start-up companies to speed up the recruitment of foreigners (OECD, 2019). In 2017 Slovenia facilitated the employment of citizens of Bosnia and Herzegovina by eliminating the previous 30-day application period and by simplifying the procedure for any change of employer after the end of a contract in the first year of employment. In 2018 a new Bilateral Agreement on the Employment of Serbian Citizens in Slovenia was signed to facilitate the labour market integration of Serbian and Slovenian workers in the other country and their reintegration on return.

In *Slovakia*, in 2018 parliament simplified the conditions for hiring third-country nationals in selected professions with a documented shortage of qualified labour in districts where the registered unemployment rate is below 5%. For instance, LMT is not required for shortage occupations. For companies employing fewer than 30% of third-country nationals, an expedited procedure allows vacancies to be filled rapidly by recruiting a temporary foreign worker.

In 2019 *Romania* increased the number of work permits issued to non-EU citizens to 30,000 – an all-time high, which is also the limit for 2020. Although this number corresponded only to 0.4% of the labour force, it accounted for about 30% of job vacancies. The largest numbers of workers came from China, Turkey, the Philippines and Vietnam, to work mainly in construction and catering. Since the beginning of 2019, employers have been obliged to pay them at least the average wage, rather than the minimum wage (as was previously the case). Thus, Romania has become a more attractive destination for temporary migration from less well-off economies. However, emigration of Romanian citizens does not seem to have declined, despite higher incomes and better job opportunities: the wage gap between Romania and the advanced EU countries is still sufficiently wide.

⁴ <http://www.outsourcingportal.eu/en/increasingly-easier-rules-for-employing-foreigners-in-poland>

2.2. ACTIVE LABOUR MARKET POLICY

Active labour market policies (ALMPs) in the EU-CEE countries are generally less developed than in the EU15. With the exception of Hungary, where expenditures on ALMPs in 2016 reached 0.87% of GDP owing to a comprehensive public works programme, spending in all other countries was still far below the EU15 level (0.6%). There are only a few EU-CEE countries which – apart from attracting workers from abroad – emphasise the use of ALMPs in order to mobilise their own labour potential to combat labour shortages. These policies target increased labour force participation by pensioners and older people (Hungary, Slovenia), young people (Bulgaria), women (Slovakia, Hungary), and socially disadvantaged groups (Slovakia).

In *Bulgaria*, the government in February 2020 adopted a national Plan of Action on Employment, seeking to raise activity and employment rates through ALMPs. The Youth Guarantee programme supports training and job search for NEETs (young people not in employment, education or training). The government is also considering special incentives to attract young Bulgarians graduating abroad to embark on a career in their home country (IMF, 2020).

Hungary is targeting pensioners: Public interest co-operatives enable retired people to work occasionally under favourable conditions. Retirees who go back to work are exempt from all taxes (for example, social security contributions) except the 15% personal income tax.⁵

In *Slovenia*, the Ministry of Labour aims to encourage people of retirement age to continue working after meeting the conditions for an old-age pension, by providing them with a 3% pension increase for each additional year of work.

In *Slovakia* (and to some extent in Hungary), authorities are expanding childcare facilities to increase female labour force participation and are scaling up efforts to increase the social inclusion of disadvantaged groups, such as the long-term unemployed (IMF, 2019).

2.3. EDUCATION POLICY

In *Bulgaria*, together with tertiary education reforms, training programmes have been initiated to tackle skilled-labour shortages in specific sectors, such as information and communications technology (ICT), teaching, health and engineering (IMF, 2020).

In *Croatia*, targeted scholarships have been made available in vocational secondary schools to support training in 62 occupations that are in high demand. In addition, the procedure to recognise foreign professionals' qualifications has been simplified (European Commission, 2020a). In order to address the shortage of ICT personnel in Croatia, the reformed general curriculum includes compulsory education and training in digital skills for both teachers and pupils.

In *Hungary*, the government launched a Digital Education Strategy in 2016 in order to improve the population's digital skills.

⁵ <https://hungarytoday.hu/pensioners-workforce-hungary/>

In *Poland*, programmes to promote shortage occupations have been set up: for example, one programme aims to increase the number of students on technical courses and another to increase the number of girls in science, technology, engineering and mathematics (STEM) education by sparking their curiosity in these subjects. These programmes are funded through the European Social Fund (ESF).

2.4. FAMILY POLICY

Some EU-CEE countries such as Poland and Hungary also tackle labour shortages and population decline via family policy.

Poland introduced a universal child benefit scheme (Family 500+) in 2016. The programme guaranteed PLN 500 per month (approximately EUR 120) for the second and each subsequent child in the family, and the same amount for the first child in families with incomes below a specified threshold. The total costs of the programme have amounted to 1.1% of GDP per year. As of July 2019, the benefit was made fully universal for all children aged 0-17, an extension that nearly doubled its total costs (to 2% of GDP per year) and mainly benefited middle- and high-income households.⁶

Hungary has implemented progressively more generous family benefits since 2015. In 2019 the government launched the Family Protection Action Plan – a seven-point programme worth close to 5% of GDP – in order to support families and encourage childbearing. The plan includes a loan programme to support home purchases, subsidies on cars for large families, and a lifetime exemption from personal income tax for women who have raised at least four children.⁷ Married couples can receive up to HUF 10 million (approximately EUR 30,000) if they have three children in ten years.

2.5. OTHER MEASURES

In 2018 the government of *Hungary* amended the labour law to enable employers to increase the maximum number of overtime hours from 250 to 400 a year. In addition, companies are allowed to delay paying employees for extra hours for up to three years and, as an alternative to paid compensation, employers could opt to provide days of leave. The move was quite extreme, as it potentially allows the reintroduction of a six-day working week. This so-called ‘Slave Law’ was extremely unpopular, but the (initially fierce) protests died down within a few weeks.

Tax breaks and other financial incentives for skilled workers have been initiated in *Romania*, with a focus on the ICT sector.

In *Czechia*, employers are trying to make jobs more attractive by offering part-time and teleworking options and other flexible working arrangements to attract job seekers, in addition to wage increases. Demand for low-skilled workers is particularly high, which unions say is linked to insufficient investment in new technologies. Czechia (and probably other EU-CEE countries as well) needs cheap human labour to perform tasks that have been automated in Western Europe (Eurofound, 2018).

⁶ <https://freepolicybriefs.org/2019/12/16/from-partial-to-full-universality-the-family-500-programme-in-poland-and-its-labour-supply-implications/>

⁷ Couples must be married, and it must be the first marriage for at least one of them; the wife must be aged 18-40 years; and one of them must have paid social security contributions in the last three years and at least 180 days of those in Hungary: <https://www.euronews.com/2019/07/29/hungary-offers-30-000-to-married-couples-who-can-produce-three-children>

2.6. MINIMUM WAGE POLICY

All EU-CEE countries have a national statutory minimum wage set by the government, in some cases after consultation with or recommendations by social partners (Table 2.1). Minimum wages have been in place since the early 1990s, but initially they were set at moderate levels and affected relatively few workers at that time (IMF, 2016). However, Bodnár et al. (2018) found that minimum wages in EU-CEE play a more important role than in other EU countries. This is mainly because of the significantly higher proportion of low wage earners in EU-CEE and their more equal distribution across age groups. The shrinking power of trade unions and the decreasing coverage of collective bargaining may be another reason why a national minimum wage has become increasingly important in the EU-CEE countries, ‘as the minimum wage provides some protection for workers not covered by collective bargaining’.

As Leitner (2018) concludes, in recent years, governments in the majority of the EU-CEE countries have used minimum wage increases above and beyond general wage developments as a means of combating income inequality and supporting domestic demand. These have not been a large burden for state budgets. Their impact on the general wage level is mainly determined by institutional factors and varies from country to country. In some EU-CEE countries (such as Romania), wages in the public sector are officially linked to the minimum wage. Thus, a minimum wage increase in those countries has an impact on the overall wage level that is higher than in those EU-CEE countries where this is not the case (for example, Poland).

Table 2.1 / Minimum wage-setting institutions in EU member states

| Government following recommendation of commission specialized on minimum wage | Statutory minimum wage | | | | | Non-institutional decision | Minimum wage setting relying on collective bargaining |
|---|--|-----------|--|------------|--|----------------------------|---|
| | Institutionalised decision | | Government extends collective agreement by legislation | Indexation | Government following tripartite decision | | |
| | Government following bilateral/tripartite consultation process | | | | | | |
| DE | BG | PT | LT | BE | BE | CZ | AT |
| EL | ES | SI | PL | EL | FR | | CY |
| IE | HR | RO | SK | | LU | | DK |
| FR | HU | | | | MT | | FI |
| UK | LV | | | | NL | | IT |
| | MT | | | | SI | | SE |

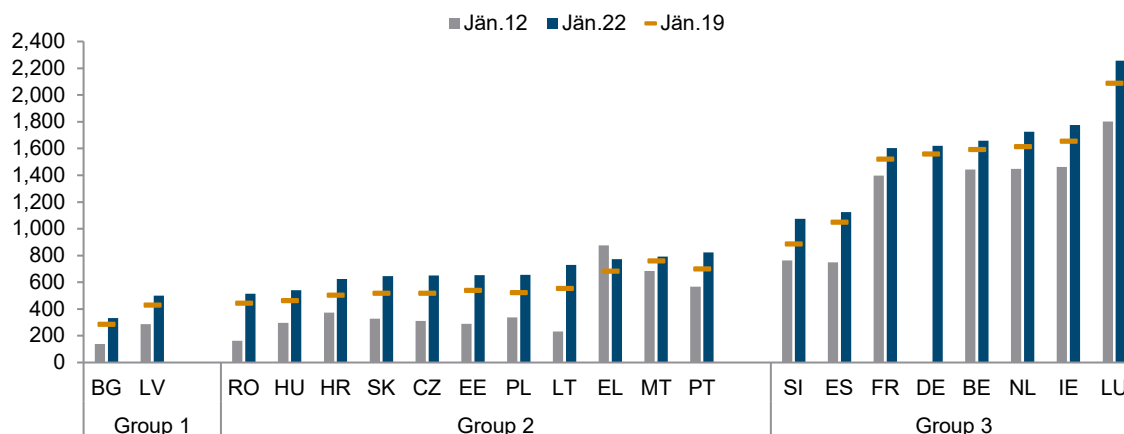
Source: European Commission Consultation Document C(2020) 83 final.

Minimum wages in EU-CEE stand on average at around one-third of the levels in other EU countries in absolute terms (Figure 2.1). A Eurostat comparison of 22 EU member states with minimum wage legislation⁸ shows that two EU-CEE countries – Bulgaria and Latvia – make up the group with the lowest minimum wages, corresponding to EUR 332 and EUR 500 per month, respectively (as of 1 January 2022). Most other EU-CEE countries belong, together with Greece, Portugal and Malta, in the medium minimum wage group, ranging from EUR 515 per month in Romania to EUR 730 per month in Lithuania. Only one EU-CEE country – Slovenia – falls into the group with the highest minimum wages, with a statutory minimum wage of EUR 1,074 per month.

⁸ Eurostat divides these countries into three groups (low, medium and high minimum wages), see http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Minimum_wage_statistics

Figure 2.1 also demonstrates that all EU-CEE countries have raised their nominal minimum wage since January 2019, by 21.5% on average. The steepest jumps took place in Lithuania (31.5%), Czechia (25.6%), and Poland (25.2%), reflecting their stretched labour markets. Given that in the same timeframe minimum wages in EU-14 countries grew by only 8.1%, minimum wages in the EU-CEE countries have somewhat approached West European levels (though they are still at the tail end of the spectrum).

Figure 2.1 / Minimum wages in EU member states, January 2012 and January 2022, in EUR per month



Note: January 2019 is the reference value from the publication of the original Report.

Group 1, national minimum wages below EUR 500 per month in January 2022; **Group 2**, national minimum wages at least EUR 500 but below EUR 1,000 per month in January 2022; **Group 3**, national minimum wages at least EUR 1,000 per month in January 2022.

Source: Eurostat.

Between 2008 and 2018 minimum wages measured in relation to average monthly earnings rose in all EU-CEE countries, with the most pronounced increase recorded in Romania (by 14.5 pp). By 2018 minimum wage levels varied between 38% of average monthly earnings in Czechia and 50% in Slovenia (Table 2.2). In this respect, most EU-CEE countries caught up with EU15 countries. However, since 2018 a few EU-CEE countries have seen a reversal of the previous trend. The most notable decline in the minimum wage in relation to average monthly earnings (by 5.4 pp in 2018-2020) took place in Latvia, which has now the second lowest minimum wage in the EU, highlighting the issue of income inequality in this country.

Data on the share of minimum wage earners are scarce, and available estimates differ quite significantly across countries and sectors. According to the Wage Dynamics Network Survey (WDN3),⁹ in 2013 the share of minimum wage earners in the EU-CEE countries ranged from 4.8% in Estonia to 31.5% in Hungary. For comparison, in France and Germany the minimum wage incidence is around 10% (IMF, 2016). Sectors with the highest proportion of minimum wage earners differ between countries: manufacturing accounts for the largest share in Bulgaria and Hungary, business services in Slovenia and Slovakia, while construction has the largest proportion of workers earning the minimum wage in Poland and Romania. Energy and financial services account for the smallest share of minimum wage earners.

⁹ Company survey within the European Central Bank's Wage Dynamics Network (WDN3) in eight EU-CEE countries: Bulgaria, Estonia, Hungary, Latvia, Lithuania, Poland, Romania and Slovenia.

Table 2.2 / Monthly minimum wage as a share of average monthly earnings, in %

| | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
|-------------|------|------|------|------|------|------|------|------|------|------|------|
| Czechia | 33.3 | 32.5 | 31.7 | 32.6 | 32.8 | 34.4 | 35.5 | 36.9 | 37.9 | 38.4 | 40.8 |
| Hungary | 38.8 | 39.1 | 44.2 | 45.1 | 45.5 | 45.3 | 45.1 | 45.9 | 44.8 | 43.7 | 43.2 |
| Poland | 41.4 | 41.3 | 43.1 | 44.3 | 45.1 | 45.4 | 46.2 | 47.3 | 46.3 | 46.2 | 50.3 |
| Slovenia | 47.5 | 49.0 | 50.0 | 51.4 | 51.2 | 50.8 | 49.8 | 49.4 | 50.1 | 50.5 | 50.6 |
| Slovakia | 36.6 | 36.6 | 36.7 | 36.9 | 36.4 | 37.9 | 38.6 | 39.3 | 40.7 | 41.2 | 43.4 |
| Estonia | 35.6 | 33.8 | 33.5 | 34.6 | 36.2 | 37.4 | 38.6 | 41.9 | 41.7 | 38.2 | 44.1 |
| Latvia | 42.2 | 45.1 | 43.8 | 42.1 | 44.4 | 46.9 | 46.0 | 43.7 | 45.4 | 42.3 | 40.0 |
| Lithuania | 42.0 | 41.1 | 40.8 | 47.3 | 45.7 | 46.6 | 50.3 | 48.2 | 46.3 | 45.7 | 45.3 |
| Bulgaria | 35.8 | 35.3 | 37.8 | 39.0 | 40.3 | 41.2 | 43.3 | 43.5 | 43.6 | 43.2 | 43.5 |
| Croatia | 37.3 | 35.7 | 36.2 | 36.8 | 38.2 | 41.5 | 40.8 | 41.2 | 44.9 | 46.9 | 46.8 |
| Romania | 32.3 | 35.8 | 34.2 | 35.8 | 38.4 | 40.4 | 42.4 | 44.6 | 44.4 | 43.9 | 44.7 |
| Germany | . | . | . | . | . | 41.8 | 40.8 | 41.7 | 40.5 | 40.8 | 40.6 |
| France | 47.4 | 47.0 | 48.0 | 47.9 | 47.4 | 47.1 | 48.2 | 47.7 | 48.0 | 48.2 | . |
| Luxembourg | 45.9 | 46.7 | 46.9 | 47.7 | 47.6 | 47.0 | 46.4 | 46.9 | 46.7 | 47.0 | 47.1 |
| Netherlands | 44.3 | 43.8 | 43.4 | 43.4 | 43.3 | 42.7 | 43.0 | 43.3 | 43.3 | 43.3 | 42.9 |
| Greece | 40.4 | 50.1 | . | . | . | . | . | . | 46.2 | 50.4 | . |
| Spain | 35.3 | 34.6 | 34.7 | 34.3 | 34.2 | 33.8 | 34.1 | 36.9 | 37.9 | 45.6 | 49.6 |
| Malta | 46.3 | 46.9 | 45.8 | 46.3 | 44.6 | 45.7 | 45.4 | 43.6 | 42.6 | 44.0 | 41.7 |
| Portugal | 42.8 | 42.6 | 43.3 | 43.1 | 44.9 | 44.5 | 46.3 | 48.5 | 49.4 | 50.0 | 51.1 |
| Ireland | 42.9 | 43.2 | 42.8 | 42.5 | 42.7 | 42.3 | 44.4 | 44.2 | 44.6 | 44.5 | 44.7 |

Note: average monthly earnings in industry, construction and services according to NACE Rev. 2 classification.

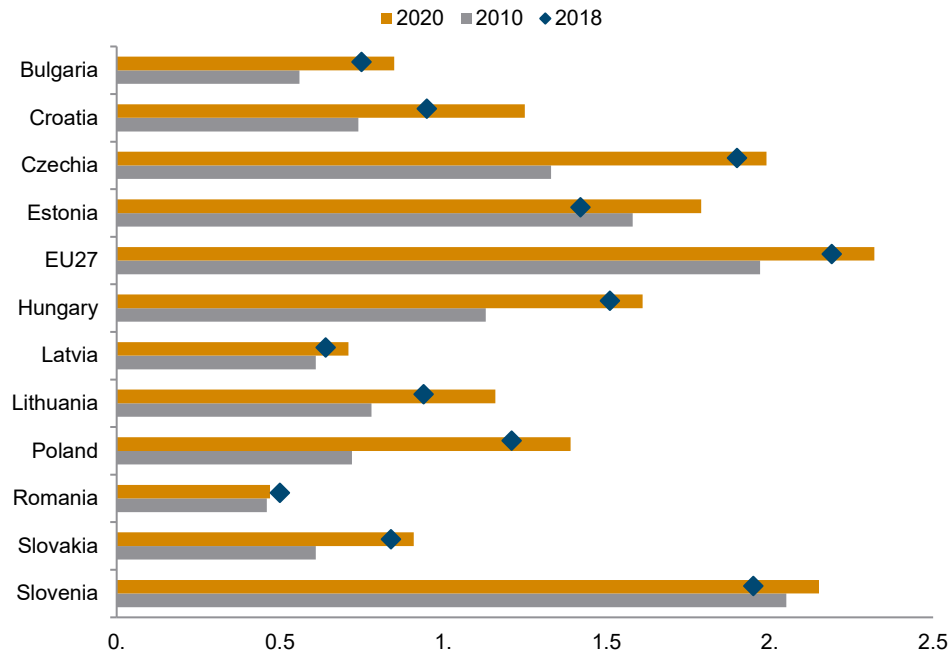
Source: Eurostat.

2.7. R&D AND DIGITISATION

Government policies in the EU-CEE countries tackling labour shortages are to be seen in the context of their general economic policies in areas such as research and development (R&D) and digitisation. The latter enable their innovative potential to advance and hence automate routine, low value-added tasks.

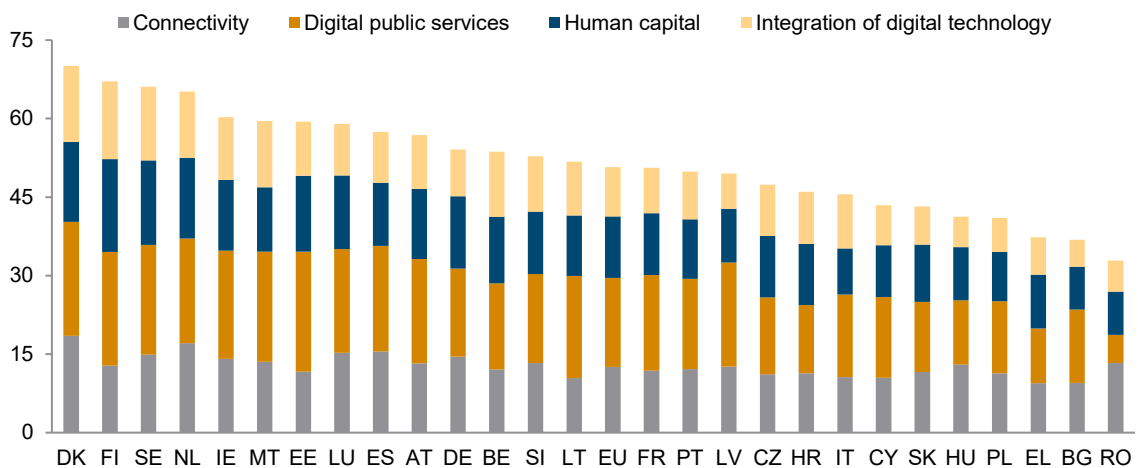
Since 2010 the share of GDP spent on R&D has increased in all EU-CEE countries, most notably in Czechia, Poland, Slovakia and Hungary (Figure 2.2). This has been chiefly on account of private-sector spending, mainly by business enterprises, which picked up in all EU-CEE countries.¹⁰ The COVID-19 pandemic did little to change this trend: all EU-CEE countries with the exception of Romania have increased their share of R&D expenditures in GDP since 2018. This suggests that R&D spending was at least partially shielded from the decline in economic activity caused by the COVID-19 crisis. At the same time, it can also be indicative of the acceleration in digitalisation as a result of the pandemic, as firms were pushed to invest more in innovating their processes. Nevertheless, with the exceptions of Czechia and Slovenia, all EU-CEE countries – Romania in particular – still lag far behind the EU average of 2.3% of GDP when it comes to spending on R&D.

¹⁰ By contrast, the share of public-sector (higher education and government) spending on R&D increased only in Czechia and Slovakia.

Figure 2.2 / R&D expenditures, in % of GDP

Note: 2018 is the reference value from the publication of the original Report. Preliminary data for 2020 in Slovenia, Romania, Lithuania, Czechia and EU27.

Source: Eurostat.

Figure 2.3 / Digital Economy and Society Index (DESI) by dimension, 2021

Note: DESI overall index is calculated as the weighted average of the five main DESI dimensions: connectivity (25%); human capital (25%); use of internet (15%); integration of digital technology (20%); and digital public services (15%). For the calculation of the DESI dimensions, see here: <https://digital-agenda-data.eu/datasets/desi/indicators>.

Source: <https://digital-agenda-data.eu/datasets/desi/#download>.

Almost all EU-CEE countries have adopted and are implementing programmes on digitisation.¹¹ Nevertheless, in terms of the Digital Economy and Society Index (DESI), the majority of the EU-CEE countries – apart from Estonia, Slovenia and Lithuania, which rank above the EU average – are to be found in the mid- to low-range of the EU, with Bulgaria and Romania performing the worst (Figure 2.3). The DESI ranking of countries has remained generally unchanged since the outbreak of the COVID-19 pandemic, while the Visegrád countries in particular have seen a further deterioration in their rankings.

The priorities of *Bulgaria's* national programme, 'Digital Bulgaria 2025', are national ICT-related actions in the economic and social sectors (e.g. ICT research and innovation, modernising school and tertiary education in ICT, e-government). Another document to cover all aspects of digital transformation of Bulgaria, including the economy, is currently under preparation.

In *Czechia*, persistent labour shortages and demographic decline have not only triggered a policy focus by firms on automation and robotisation, but also by the government. Some progress has been achieved in the area of education, for example in promoting the teaching profession and digital skills (EC, 2020). The Czech authorities have launched various national strategies on artificial intelligence (AI), innovation and digitisation, which are part of a government plan, 'Czechia – The Country for the Future'.¹² The authorities are starting to deliver the steps planned in the national strategy for digitisation, 'Digital Czechia' (*Digitální Česko*); the majority of these steps are related to digitisation of public administration and public services. The steady integration of digital technologies increases the importance of advanced digital skills. The Czech authorities have recently launched a 'Digital Education Strategy', supported by EU funds.

In *Croatia*, the curricular reform 'School for Life' was fully rolled out in 2019. It aims to introduce a 'learning outcomes' approach to increase the quality of education and teaching. Progress on this reform is incremental in all primary and secondary schools, but the reform should be fully completed by 2022.

In *Hungary*, the 'National Infocommunication Strategy 2014-2020' was launched in 2014 and continued with the adoption of the 'Digital Success Programme' (*Digitális Jólét Program – DJP*) in 2015 and the 'Digital Success Programme 2.0' in 2017. It includes several specific strategies, covering areas such as digital education, digital start-ups, digital exports, 5G deployment, AI, digitisation in the agricultural sector, fintech and e-health. As for emerging technologies, Hungary has developed an AI action plan, which will serve as a basis for a future AI strategy.

Poland has finalised a new strategy, the 'Digital Competence Development Programme' (*Program Rozwoju Kompetencji Cyfrowych*), which targets the development of digital skills and is co-ordinated by the Ministry of Digital Affairs. The strategy focuses on digital skills needed by citizens, ICT specialists and employees of SMEs and public administration. The new 'Operational Programme Digital Poland for 2021-2027', co-funded by the European Regional Development Fund, is also being prepared. The strategy will include, among others, support for broadband infrastructure, e-services (e-government and e-health), basic and advanced digital skills, upskilling and reskilling, and skills needed for the future.

¹¹ Information on digitisation is based on the European semester 2020 reports https://ec.europa.eu/info/publications/2020-european-semester-country-reports_en and the DESI reports <https://ec.europa.eu/digital-single-market/en/news/digital-economy-and-society-index-desi-2020>.

¹² <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52020SC0502&from=EN>

Slovenia is implementing the 'Digital Slovenia 2020 strategy' (*Digitalna Slovenija*), which was adopted in March 2016. Together with the 'Slovenian Industrial Policy' (SIP) and the 'Research and Innovation Strategy of Slovenia' (RISS), 'Digital Slovenia' is one of the three sectoral strategies with guidelines for the creation of an innovative knowledge society. The strategy covers sectors such as public services, entrepreneurship, households and education. Slovenia is currently drafting an all-inclusive AI strategy, while 'Digital Slovenia' is being updated.

In 2019 the government of Slovakia adopted a new 'Strategy for Digital Transformation of Slovakia 2030', aiming at reform of the education system to improve the employability of graduates, introduce lifelong learning programmes and ensure that school pupils gain relevant digital skills.

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3. Business response

While for employees and governments in general labour shortages are beneficial, employers face increased competition for the scarce labour force, notably for skilled labour. Typically, this results in rising wage pressure, which forces producers of tradeable goods, in particular, to increase productivity in order to retain their competitive position.

Entrepreneurs pursue different strategies in order to tackle the problem of labour shortages (Brunello and Wruuck, 2019), which can also be observed in the case of EU-CEE. These can take the form of hiring foreign workers or encouraging particular groups within the population to remain in or take up employment. Furthermore, labour productivity can be raised via investment in machinery and intangibles. This climbing of the 'value added ladder' can also be accomplished via technology transfer in the form of foreign direct investment. In times of scarce labour, entrepreneurs should also be interested in lifting the skills level of their workforce through continuing vocational training.

3.1. STRUCTURAL CHANGES AND INVESTMENT IN TIMES OF LABOUR SHORTAGES

Technological change results in the reallocation of labour, which might be hampered in the case of a scarce supply of skills. However, the shortage of labour may also encourage investment to rise in order to accomplish economic growth with the existing workforce.

In Figure 3.1 we present an overview of structural changes in employment in 2013-2019 for EU-CEE, the EU and Austria. In EU-CEE, the overall employment growth resembled that of the EU and Austria, averaging more than 1% per year. Labour reallocation between broad sectors, however, was much faster in EU-CEE, with pronounced labour shedding in agriculture (A), which saw its share in total employment in the region fall on average by 3.7 percentage points. The decline was particularly strong in Romania and Croatia, but the share of agriculture in total employment also fell by more than 2 percentage points in Poland and Bulgaria (see Figure 3.A.1 in the annex of this chapter for individual EU-CEE countries).

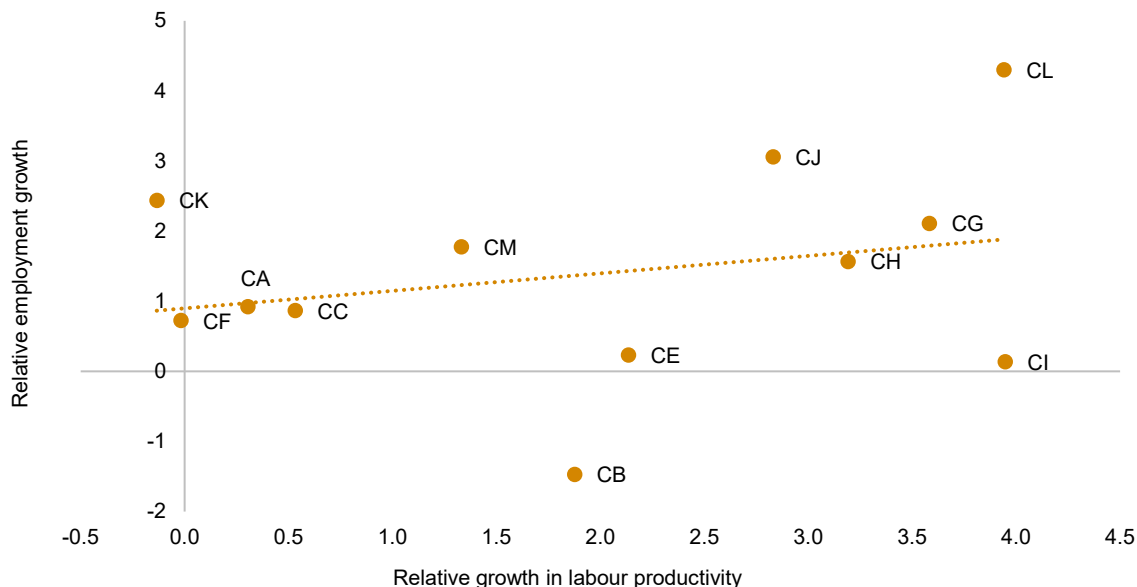
The share of private services (G-N, R-U) in total employment grew much faster in EU-CEE in comparison to the EU average and particularly to Austria. However, it is still much lower in EU-CEE (40%) than in Austria (51%). The share of manufacturing (C) also grew (except in Hungary), albeit not as strongly as that of private services. By contrast, in Austria and the EU, the share of manufacturing in total employment declined over the same period. The shares of other industrial sectors and construction (B, D-F) as well as public service sectors (O-Q) did not change a lot in Austria or in either country group. All in all, Figure 3.1 provides evidence of a marked change in the structure of employment in the EU-CEE countries from agriculture towards private services and, to a lesser extent, manufacturing.

Figure 3.1 / Total employment growth (in %) and shift in employment structure by broad sector (in percentage points), 2013-2019



Note: National accounts employment data.
Sources: Eurostat database, own calculations.

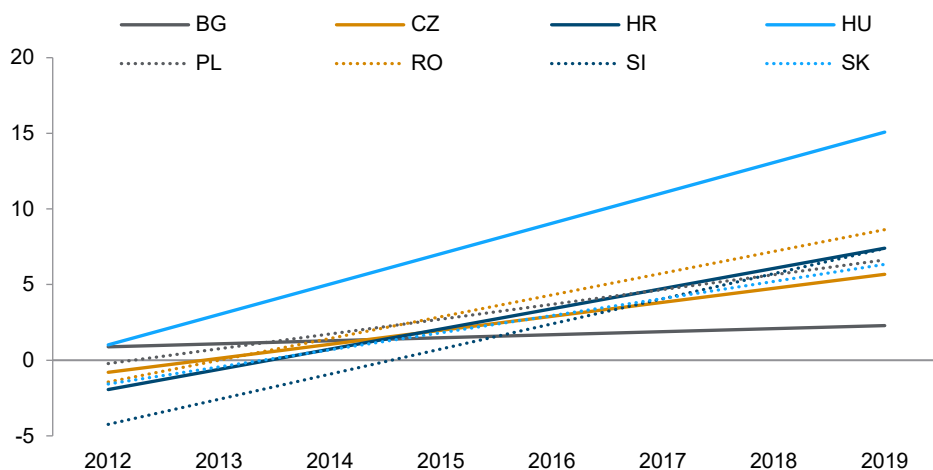
Figure 3.2 / Growth in employment versus labour productivity in manufacturing subsectors in EU-CEE, average annual growth rates in %, 2013-2019



Note: Unweighted average of the EU-CEE countries (excluding Croatia) of manufacturing subsectors excluding coke and refined petroleum products, as this subsector is subject to high (price) volatility.
Sources: wiiw annual database, own calculations.

In EU-CEE manufacturing as a whole, labour productivity grew by almost 3% per year in the period 2012-2019. Within EU-CEE manufacturing, labour was generally reallocated towards sectors with higher productivity growth (Figure 3.2). This shows that, particularly in a period of labour shortage (similar to the 'golden age'), demand for goods drives both demand for labour and productivity developments, as businesses try to increase supply of goods by investing in capital and hiring labour at the same time. High employment growth (between 2% and 4.3% annually) could be observed in EU-CEE in the sectors automotive and transport equipment (CL), electrical equipment (CJ), machinery and equipment (CK) and rubber and plastic (CG); below 2% in furniture, etc. (CM), metals (CH), food, etc. (CA), wood and paper (CC), pharmaceuticals (CF), chemicals (CE) and electronics, etc. (CI). Employment shrank on average only in the textiles sector (CB).

Figure 3.3 / Linear trend of investment growth in manufacturing based on annual real growth rates, in %, 2012-2019

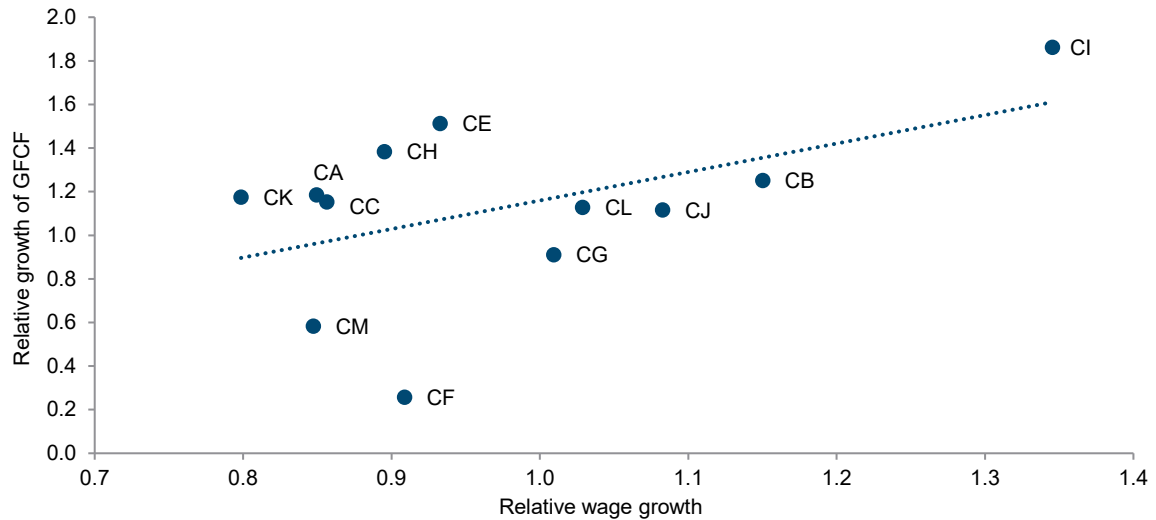


Sources: wiiw annual database, own calculations.

Figure 3.3 shows the trend growth rates of gross fixed capital formation (GFCF) in manufacturing for all EU-CEE countries in 2012-2019. It shows that investment growth has been accelerating everywhere in the region. Only in Bulgaria, the country with the lowest employment growth in manufacturing in the region, the trend growth rate of GFCF remained below 2.5% in the period, while in all others it moved to 5-10% and in Hungary even, to 15% in 2019.

In order to address whether labour shortages influenced investments in EU-CEE, in Figure 3.4 we present the relative growth of GFCF in manufacturing subsectors versus relative real wage growth. It can be seen that investment growth was higher in those industries that showed higher wage growth. The increase in wages is expected to be a good indicator of the extent of labour shortages, as wage-setting in the EU-CEE countries is to a large extent decentralised and determined by the interplay of labour supply and demand.

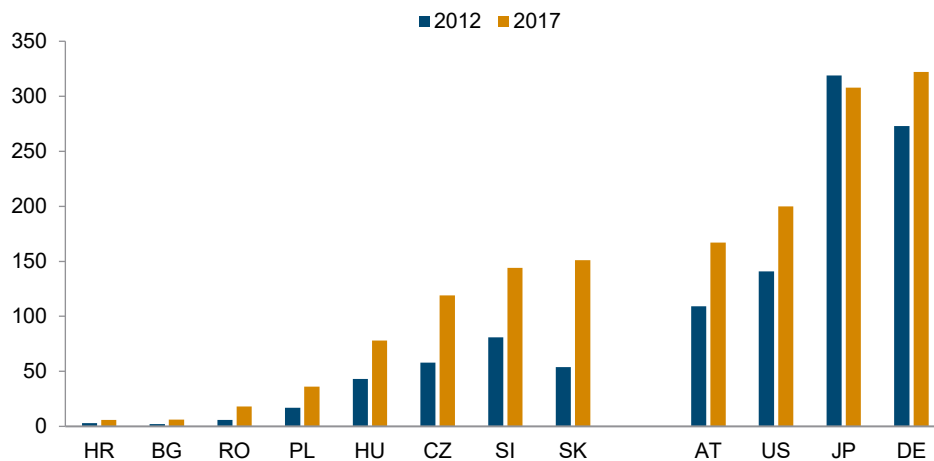
Figure 3.4 / Relative investment growth versus relative growth in real wages in individual manufacturing industries, in %, EU-CEE average, 2013-2019



Note: Unweighted average of the EU-CEE countries (excluding Croatia) of manufacturing subsectors excluding coke and refined petroleum products, as this subsector is subject to high (price) volatility. Growth in subsectors relative to total manufacturing.

Sources: wiiw annual database, own calculations.

Figure 3.5 / Estimated number of multipurpose industrial robots per 10,000 persons employed in manufacturing, 2012, 2017

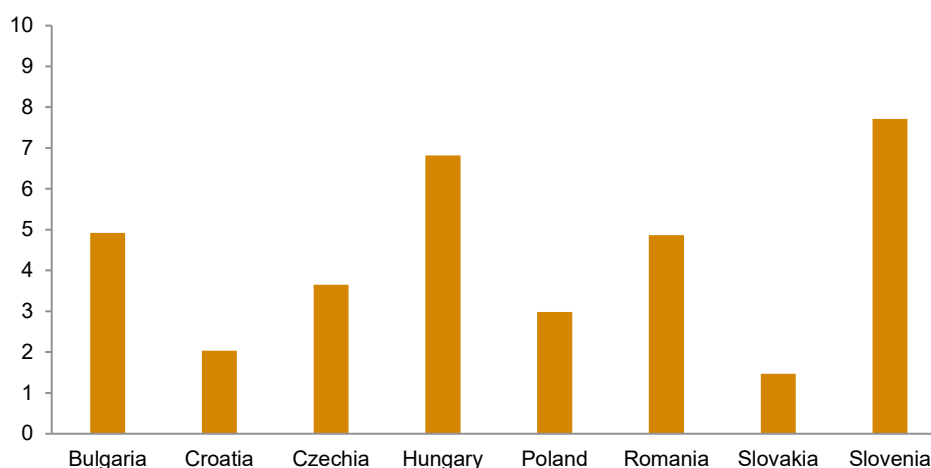


Source: International Federation of Robotics (2018).

Large and foreign-owned firms in particular have reacted to labour shortages and strongly rising wages by increasing automation and robotisation (Bykova, 2019; Astrov, 2019). The degree of robotisation has risen strongly in the period 2012-2017 (Figure 3.5) in EU-CEE: in Slovakia, Bulgaria and Romania it more or less tripled, while in Hungary, Slovenia, Czechia and Poland it doubled. However, in most of these countries this increase started from a very low level. Moreover, the level of robotisation also depends upon the industrial structure of a country, as most robots are installed in the automotive,

electrics and electronics industries. The degree of robotisation of the EU-CEE countries is still relatively low in international comparison. However, Slovakia and Slovenia almost caught up to the Austrian level, driven particularly by developments in the automotive industry.

Figure 3.6 / Inward FDI stocks in manufacturing per employee, average annual growth rates in % (EUR-based), 2010-2021



Source: wiiw FDI database, own calculations.

In the majority of the EU-CEE countries, the stock of inward foreign direct investment (FDI) in manufacturing per employee increased by more than 2% annually in the period 2010-2021 (Figure 3.6). The COVID-19 pandemic did not bring about any major changes in the earlier trend, although in those countries where growth rates had been quite low initially, i.e. Croatia and Poland, some catching-up has taken place recently. However, what cannot be found is a relationship between labour shortages and additional FDI inflows. Although the countries with the most pressing labour shortages – Czechia, Hungary and Slovenia – showed relatively high inflows of FDI, the same was also true of Bulgaria and Romania where labour shortages were less prevalent. FDI inflows to the latter two countries primarily reflected their high catch-up potential.

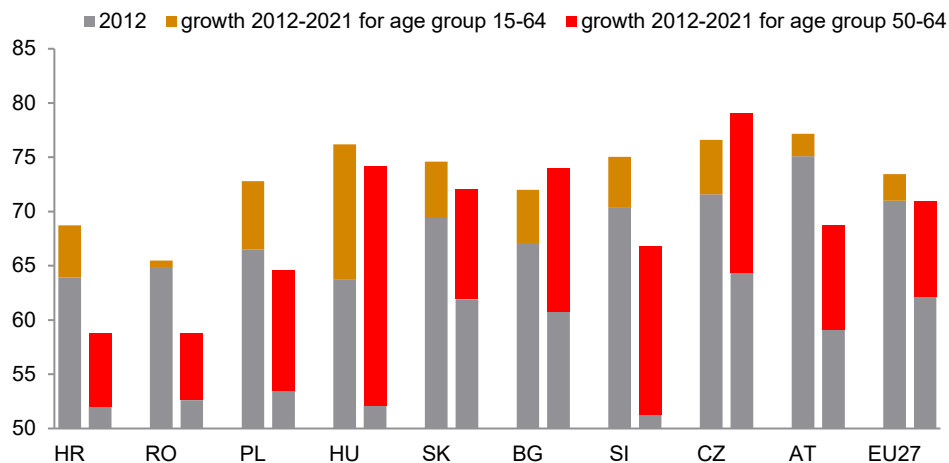
3.2. ATTRACTING LABOUR INTO EMPLOYMENT

As presented in Chapter 1 (Figure 1.2), the working-age population in the EU-CEE countries has declined since 2002. In order to enable employment growth, which took place in all countries in question (Figure 3.A.1), employers had to attract further groups of the population to remain in employment or enter the labour market.

As seen in Figure 3.7, in most EU-CEE countries activity rates rose substantially in the period 2012-2021 – more than on average in the EU, with Hungary recording the highest increases. In four countries of the region – Czechia, Hungary, Slovenia and Slovakia – the participation rate in the age group 15-64 now exceeds the EU average of 73%; in Czechia it is almost as high as in Austria (77%). The labour market participation of the elderly population (50-64 age group) has increased in EU-CEE even more: by 12 pp on average, to 69%.

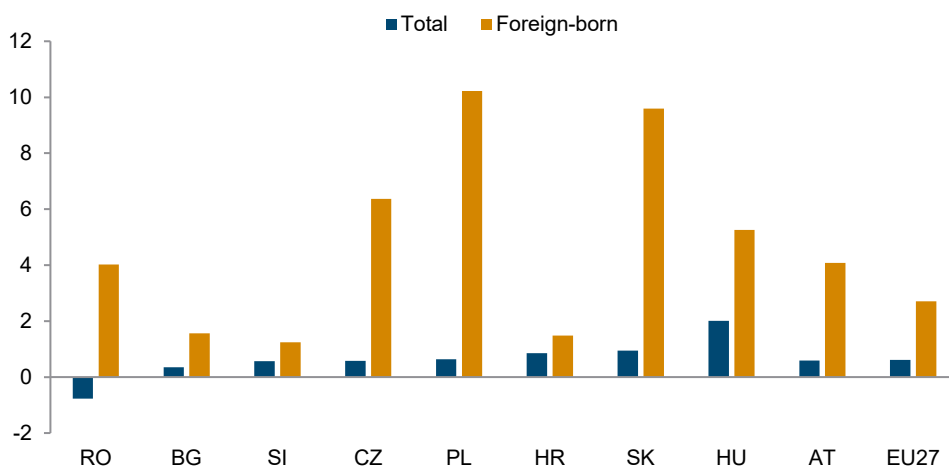
The COVID-19 pandemic has affected these trends only to a limited degree. Thus, activity rates in Croatia, Poland, Hungary and Slovakia have increased further, while remaining constant in Czechia and Slovenia. Only in Bulgaria and Romania could one observe a small decline in activity rates since 2019, induced by return migration.

Figure 3.7 / Activity rates of the age groups 15-64 and 50-64, in %, 2012 and 2021



Note: Activity rates are calculated as employed + unemployed divided by the total population in the same age group (15-64 or 50-64). The change in activity rates between 2012 and 2021 is depicted by the orange bars (15-64) and red bars (50-64). Sources: Eurostat database; own calculations.

Figure 3.8 / Growth in total employment and employed born in foreign countries, average annual growth rate, in %, 2012-2021



Sources: Eurostat database, own calculations.

Another possibility for employers to increase employment in times of labour shortages is to lobby for immigration and attract foreign workers. Since 2012, labour migration has increased not only from EU-CEE to the EU15 but also towards EU-CEE. Figure 3.8 shows that in all EU-CEE countries, employment of the foreign-born population has increased more strongly than total employment, with labour shortages

prompting a selective relaxation of immigration policies, particularly for citizens of Ukraine and the Western Balkan countries.

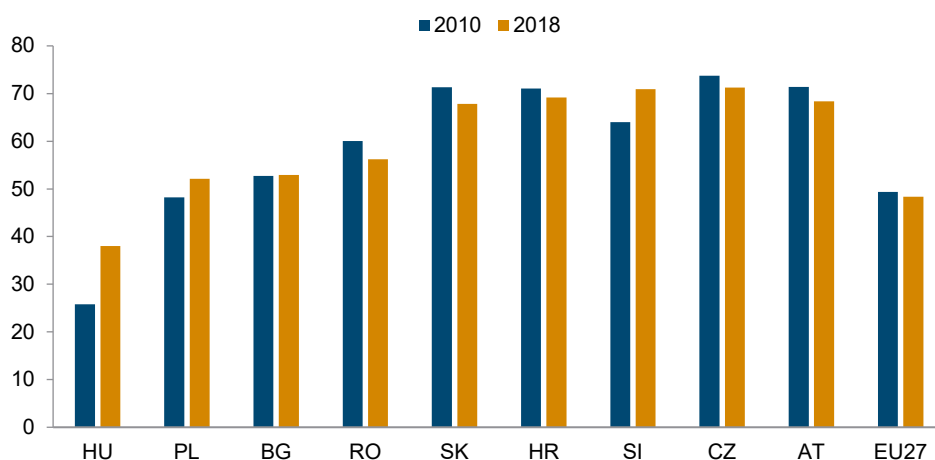
However, by 2019 the share of immigrants in total employment was still well below 5% of total employment in all EU-CEE countries, except for Croatia and Slovenia (where it stood at about 10%), compared to 21% in Austria and 13% on average in the EU. Increased return migration in the wake of the COVID-19 pandemic resulted in lower growth in the number of employed born in foreign countries both in EU-CEE and in the EU as a whole.

3.3. VOCATIONAL EDUCATION AND CONTINUOUS VOCATIONAL TRAINING ACTIVITIES

In order to foster productivity growth, it is not only necessary to invest in tangibles and intangibles but to have a workforce with the necessary skills. OECD (2019) highlights that vocational education and training offer ways of responding to labour-market needs and developing the skills of young people and adults, increasing the employability of the workforce and raising their productivity. In times of labour shortages, in particular, this can be a useful strategy to increase the supply of skilled labour and raise employment rates.

Figure 3.9 shows the development of enrolment in vocational education programmes in comparison to total secondary education in the past decade. Many EU-CEE countries feature much higher shares of vocational programmes in their education systems in comparison to the average of the EU, where only about 50% of pupils are enrolled in vocational programmes. In Slovakia, Slovenia and Czechia, the situation is comparable to Austria, where about 70% of the pupils enrol vocational programmes in upper secondary education. Within the EU, only Finland shows higher rates of vocational education than Czechia. In Hungary and Poland, which had featured rather low shares of vocational programmes, these increased to 38% and 52%, respectively. Also in Slovenia, the rate increased somewhat, to 71%.

Figure 3.9 / Share of pupils enrolled in vocational programmes in total upper secondary education, in %, 2010, 2018



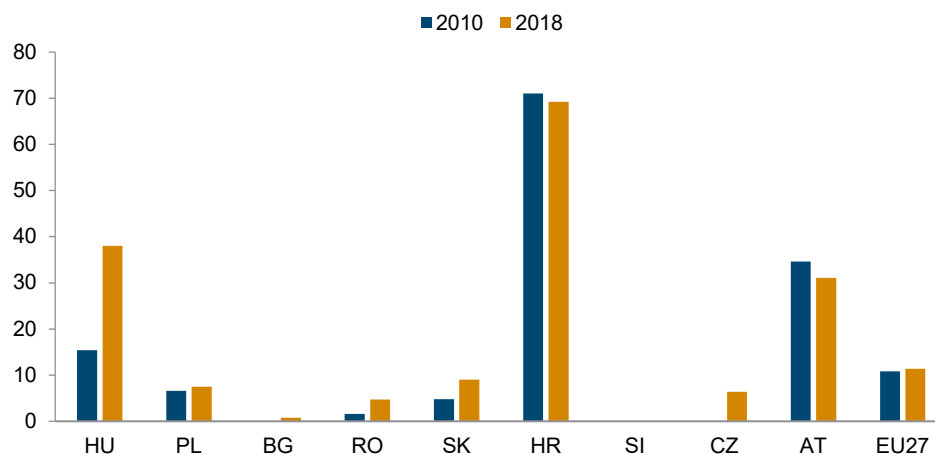
Note: RO, HR, CZ, EU27: 2013 instead of 2010 data.

Sources: Eurostat database, own calculations.

A further useful way to develop skills that are necessary and valued at the workplace is to offer dual education programmes. Work-based learning in the form of apprenticeships can be particularly effective in developing skills among those who would show higher drop-out rates in school-based education programmes (OECD, 2019). Moreover, the development of apprenticeship programmes allows involvement by social partners to define the necessary skills for the economy (Cedefop, 2018).

However, among the EU-CEE countries, only in Croatia does the apprenticeship system have a long tradition comparable to that in Austria. Nevertheless, in Croatia further steps have been taken in the past five years in order to advance apprenticeships and encourage employers to engage in apprenticeship schemes (Cedefop, 2020f). In most other EU-CEE countries, apprenticeships play only a minor role in vocational education (see Figure 3.10). However, in some countries the need for skilled labour may result in a stronger promotion of apprenticeships in the future. In the recent period, particularly in Hungary, apprenticeships have been fostered. In general, the EU member states, social partners and other stakeholders, work within the European Alliance for Apprenticeships (founded in 2013) together with other European countries in order to promote work-based dual learning schemes. Most EU-CEE countries have committed themselves in recent years to raise the number of apprenticeship places. Nevertheless, apprenticeship systems are nowadays designed very differently in the EU-CEE countries, as described below (Cedefop, 2019, 2020a).

Figure 3.10 / Apprentices in total pupils of upper secondary education, in %, 2010, 2018



Source: Eurostat database, own calculations.

In Hungary, dual vocational education also had a long history but the economic collapse in the transition period resulted in a setback. Since the 2000s, the number of apprentices has been rising again following several initiatives to carry out work-based training in companies (Cedefop, 2020a). In Poland, vocational education has primarily been organised in schools in the past decades, although apprenticeship systems have also existed for a long time. Despite an increase in apprenticeships in most recent years in Poland, Cedefop (2020b) expects that the enacted education reforms will result in a decrease in their numbers in the future.

In Bulgaria, after amendments in legislation in 2014 introducing dual education and training, partnerships between schools and companies have been established to start to offer vocational training. A gradual increase in apprenticeships is to be expected (Cedefop, 2020a). Romania had for a long time already had an apprenticeship system, which was organised at the workplace and under which employers had to provide the theoretical part of the education as well as the vocational training. In the school year 2017/18, the implementation began of a further dual vocational education system, which offers theoretical training in schools and practical vocational training in companies. This is likely to result in rising numbers of pupils enrolled in apprenticeship programmes (Cedefop, 2020a).

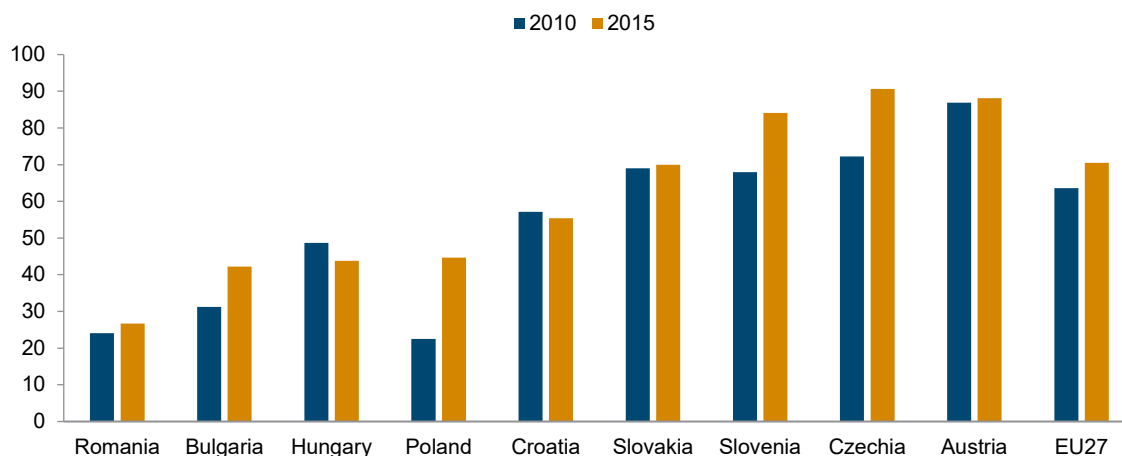
In Slovakia, no genuine apprenticeship system was in place before 2015. Under new vocational education legislation, the government introduced a dual education scheme, combining in-company training and school-based learning, where learners have a contract with the enterprise. This scheme exists alongside the traditional school-based vocational education programmes and a mixed vocational education programme with training modules in companies. Recently, the government has introduced financial incentives for companies to offer apprenticeships and expanded practical training in school-based programmes (Cedefop, 2020e).

In Czechia, an apprenticeship system has not been established as of 2020; vocational training in general takes place in schools. The closest thing to apprenticeships are vocational education programmes offered by schools. Although these provide a high share of practical education, these programmes cannot be considered real apprenticeships, as practical education is allowed to be organised either directly at school (such as in school workshops or laboratories) or in a real working environment (i.e. training in companies). However, those students being trained in companies are not in a formal contract with the employer. Instead, the employer concludes a contract directly with the school. Nevertheless, in recent years co-operation between vocational education schools and employers has been intensified, the length of workplace internships has been extended and a pilot programme has started in Moravia to increase employers' involvement in initial vocational education (Cedefop, 2020c).

In Slovenia, all stakeholders including social partners worked together on a new apprenticeship act, which reintroduced dual education schemes that complement school-based vocational education programmes. The pilot phase of those apprenticeships started in the school year 2017/2018 and is expected to result in a broadening of work-based education (Cedefop, 2020d).

An important strategy of enterprises to tackle labour and skill shortages is the upskilling of their existing workforce (Cedefop, 2019). An increase in productivity via investment in machinery and equipment and, particularly, intangible capital such as software, etc. requires investment in training to adapt the skills of the workforce to the newly deployed capital. In the period from 2010 to 2015, when job vacancy rates started to rise, the share of enterprises providing continuous vocational training activities increased particularly in Bulgaria, Czechia, Poland and Slovenia, while it broadly stagnated in the other EU-CEE countries (see Figure 3.11). A more detailed analysis on employees' participation in education and training by occupation can also be found in Chapter 5.1.3 below.

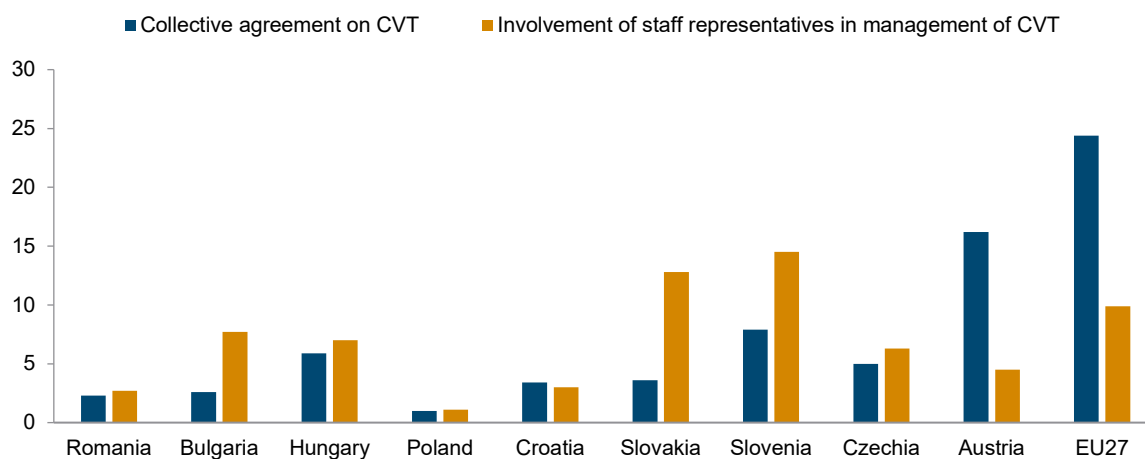
Figure 3.11 / Enterprises providing vocational training via courses or other types of training, in %, 2010, 2015



Sources: Eurostat database, own calculations.

In some enterprises, continuous vocational training (CVT) is based on collective agreements, or staff representatives are involved in its management at the enterprise level. However, the coverage rates of collective agreements are rather low in most EU-CEE countries and also declined following the economic crisis 2009 (see Chapter 4). As a result (see Figure 3.12), in 2015 the share of enterprises where vocational training is offered based on collective agreements was at or below 5% in all EU-CEE countries, except for Hungary (6%) and Slovenia (8%). Nevertheless, in Austria vocational training arranged via collective agreements was only relevant for 16% of enterprises. The involvement of staff members in the management of vocational training is more widespread. In Slovenia and Slovakia, the share amounted to 15% and 13% respectively; in Bulgaria, Czechia and Hungary to above 5%; and in Croatia, Poland and Romania – but also Austria – below 5%.

Figure 3.12 / Enterprises providing continuing vocational training (CVT) via courses or other types of training, in %, 2015



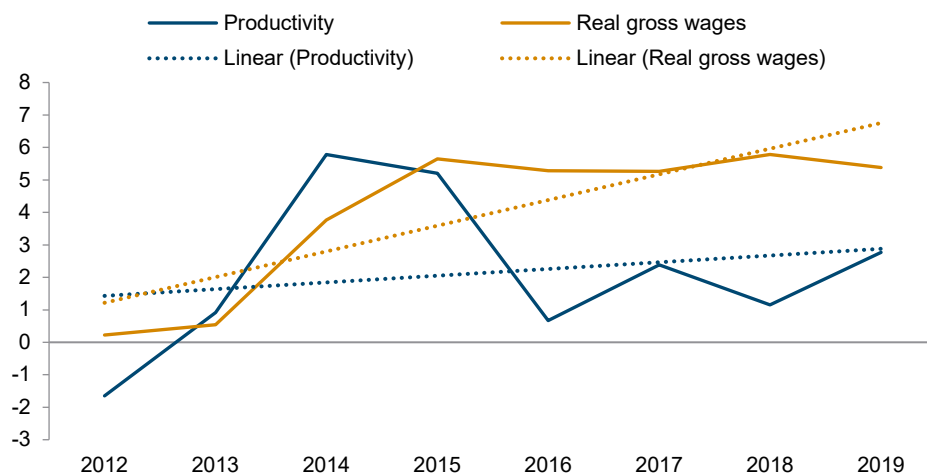
Sources: Eurostat database, own calculations.

3.4. WAGE DEVELOPMENTS IN TIMES OF LABOUR SHORTAGES

Mounting labour shortages in the EU-CEE countries have improved the bargaining power of employees, resulting in fast wage growth, which has outpaced that of labour productivity. This has resulted in an increase of the (adjusted) wage share in the EU-CEE countries, which was in previous decades rather low in comparison to the EU average, except for Slovenia (European Commission, 2019).

Figure 3.13 demonstrates that real wages increased not only faster than productivity in the period 2012-2019, but that the positive gap generally expanded over time. The gap was particularly large in Romania and Bulgaria, but also in Hungary. Only Slovakia and Croatia saw wages increase by somewhat less than the rise in productivity; in the latter country, wages even declined in real terms (Figure 3.14).

Figure 3.13 / Growth rates of labour productivity and real gross wages in manufacturing in EU-CEE, in %, 2012-2019

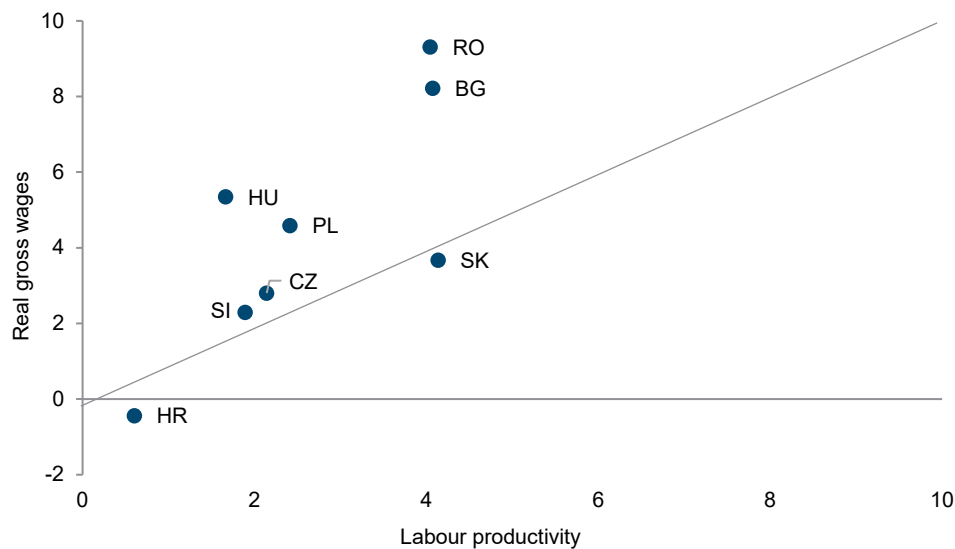


Note: Unweighted averages of growth rates of productivity and real gross wages.

Sources: wiiw annual database, own calculations.

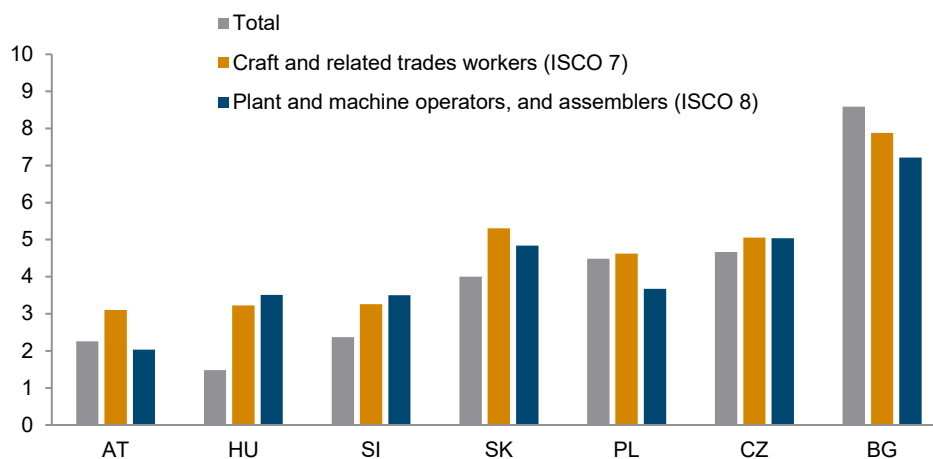
Under these circumstances, employers might benefit from collective agreements in order to prevent leapfrogging, i.e. wage competition between enterprises. The more co-ordinated the wage bargaining process, the higher the probability of achieving wage moderation. This is likely to be desirable for all social partners, particularly in export-oriented sectors in order to sustain the competitive position on the international market. However, as we already stated above (see also Chapter 4), the share of employees whose employment contracts are covered by collective agreements has declined in all EU-CEE countries, except for Slovenia. It is also questionable whether all employers have the same interest in that respect. For large and foreign-owned enterprises with higher productivity levels compared to the local businesses, wage agreements with employees in a situation of rising wages are likely to be more beneficial at the company level than at the sectoral level. A lower wage floor for small and medium-sized enterprises allows large, high-productivity enterprises to attract skilled workers from smaller companies more easily.

Figure 3.14 / Average annual growth rates of labour productivity and real gross wages in manufacturing in EU-CEE, in%, 2012-2019



Sources: wiiw annual database, own calculations.

Figure 3.15 / Annual growth rates of mean nominal earnings of employees by occupation at PPP (USD), in %, 2011-2018



Note: AT, SI: 2011-2017, HU: 2011-2015, PL: 2010-2016. Data by occupations not available for HR and RO. The data on earnings cannot be compared due to methodological differences with wage data in Figure 3.14.

Source: ILOSTAT database based on harmonised series of national earnings surveys; own calculations.

Higher productivity growth in industrial production compared to other sectors of the economy also allowed higher wage growth in manufacturing. In most EU-CEE countries we can thus also observe faster increases of earnings for skilled workers compared to the average of all occupations (see Figure 3.15). This is particularly the case for craft and related trades workers (ISCO 7) and plant and machine operators and assemblers (ISCO 8). Only in Bulgaria did both occupations fare worse than the average for all occupations, while in Poland and Austria ISCO 8 workers had to face relatively lower wage growth.

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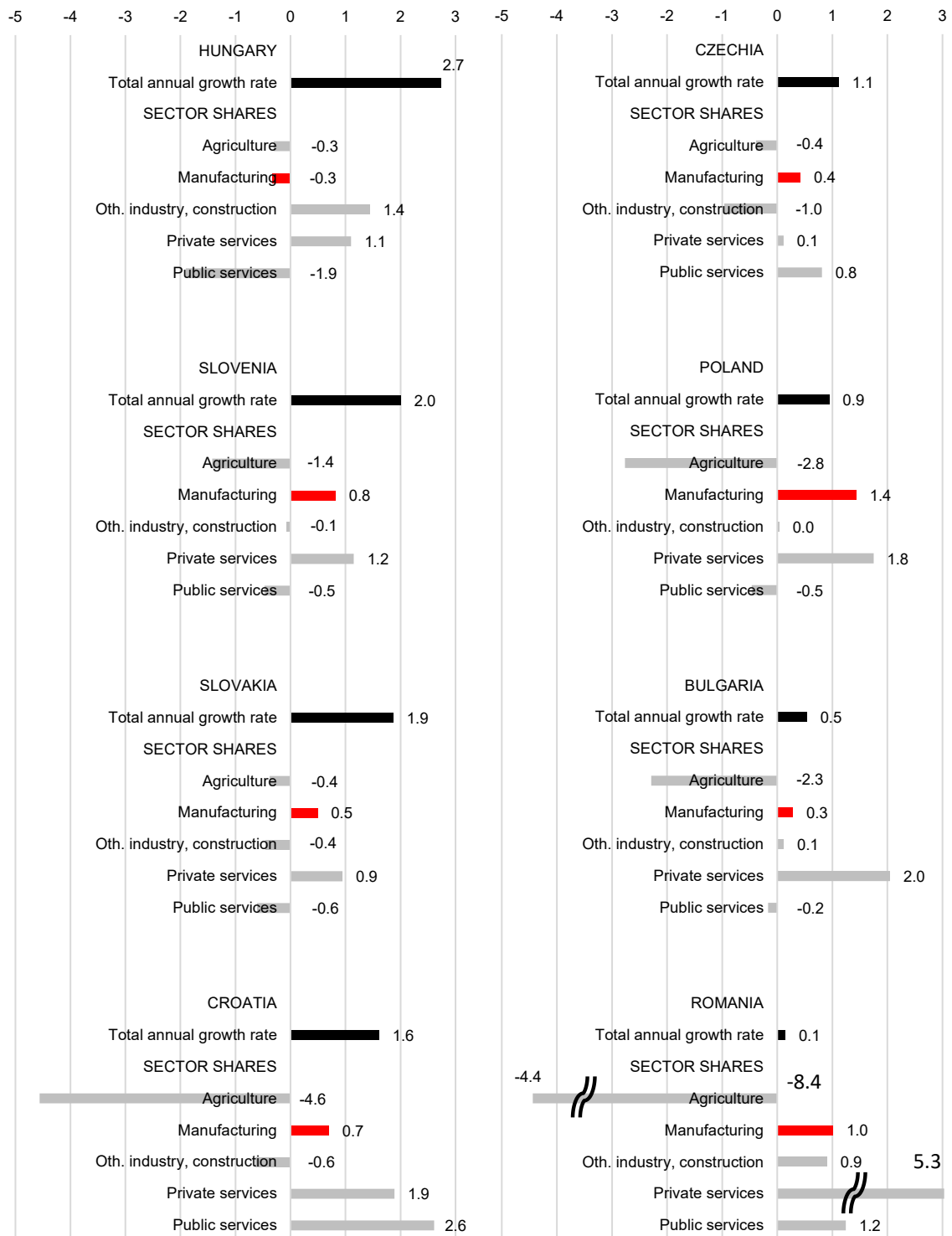
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ANNEX

Figure 3.A.1 / Total employment growth (in %) and shift in employment structure by broad sectors (in percentage points) in EU-CEE, 2013-2019



Note: Figure based on national accounts employment data.
Sources: Eurostat database, own calculations.

4. Trade unions

4.1. COLLECTIVE BARGAINING

Coverage of workers by collective agreements in the EU-CEE countries is generally lower than elsewhere in the EU, and decentralisation of collective bargaining accelerated after the global financial crisis of 2008/09 (European Commission, 2013, 2015; Center for Economic Development, 2017). Slovenia stands out as a country with relatively high coverage: more than two-thirds of workers are covered by collective agreements (see Table 4.1). However, the average coverage rate in the EU-CEE countries is low (32%) and only half of that in the EU14 (EU15, excluding Greece).

In contrast to Western European countries, where wage bargaining is conducted at sectoral level, wages in most EU-CEE countries are generally set at company level. Only in Slovenia are collective agreements negotiated at sectoral level, while in Slovakia, Croatia and Bulgaria there is a mixed system in which wages are set at sectoral level only in some sectors (Leitner, 2018).

Table 4.1 / Coverage by collective agreements

Share of employees whose employment contract is subject to valid collective agreement, in %

| | 2000 | 2008 | 2012 | 2016 |
|----------|------|------|------|------|
| Bulgaria | 56 | 40 | 28 | 23 |
| Croatia | 64 | 49 | 53 | 46 |
| Czechia | 35 | 26 | 34 | 30 |
| Hungary | 38 | 23 | 26 | 23 |
| Poland | 25 | 19 | 18 | 17 |
| Romania | 100 | 100 | 35 | 23 |
| Slovakia | 51 | 40 | 35 | 25 |
| Slovenia | 100 | 70 | 70 | 71 |
| Austria | 98 | 98 | 98 | 98 |

Note: In some countries, owing to lack of data availability for the years indicated, data for the nearest available year has been used.

Source: Visser (2019).

As shown in Table 4.2, the extension of collective agreements (*Allgemeinverbindlichkeitserklärung*) is used only in a 'limited' manner or 'rarely' in the EU-CEE countries. In the group of countries with a 'limited' use of extension (Bulgaria, Croatia, Czechia, Slovakia and Slovenia), extensions are limited to a small number of sectors, in particular to more labour-intensive and domestic-oriented sectors with a high number of small and medium-sized companies (for example, construction). In the other group of countries (Hungary, Poland and Romania), extensions are applied only rarely.

Table 4.2 / Use of extension of collective agreements in Europe

| | |
|--|---|
| Frequently: The majority of sectoral agreements are generally applicable | Belgium, Finland, France, Luxembourg, Netherlands, Spain. (Greece, Portugal and Romania until 2011) |
| Limited: Only a limited number of sectors have agreements that are generally applicable | Austria*, Bulgaria, Croatia, Czechia , Germany, Ireland, Norway, Slovakia , Switzerland. (Portugal since 2012 and Slovenia since 2010) |
| Rarely: Almost no agreements are generally applicable | Estonia, Hungary , Latvia, Lithuania, Poland . (Greece and Romania since 2012) |
| Functional equivalents: Most sectoral agreements are de facto generally applicable | Austria, Italy. (Slovenia until 2009) |
| No legal requirements for extension | Cyprus, Denmark, Italy**, Malta, Sweden, United Kingdom |

Notes: * Only in sectors and professions that are not members of the Austrian Economic Chamber. ** No legal provisions for extension, but indirect forms of extensions through established practice of labour court judgments (functional equivalent). Sources: Schulten et al. (2015).

4.2. THE OVERALL ROLE OF TRADE UNIONS

Trade unions have been losing importance both in the EU-CEE countries and in Western Europe. However, in EU-CEE the decline in union membership has been more pronounced than in other EU countries, and unions are generally weaker and highly fragmented (European Commission, 2013, 2015). In all EU-CEE countries, trade union density is below the degree of coverage of workers by collective agreements. As of 2016 trade union density was highest in Croatia (24%), Slovenia (20%), and Romania (19%). It was particularly low in Hungary (9%) and in Poland, Czechia and Slovakia (11-12%).

Trade union membership fell sharply during the 1990s and the 2000s. The global and financial crisis contributed further to the decline in union membership, although this occurred at a slower pace than in the previous decades. Over the past few years, the situation has stabilised in some countries, but not in others. On average, trade union density in EU-CEE decreased from 32% in 2000 to about 15% in 2016/17 (see Table 4.3). The decline was most pronounced in Romania, Slovenia and Slovakia (by more than 20 percentage points) while in Croatia, Czechia and Hungary it reached 15 percentage points.

The reasons for the decline in trade union membership in the EU-CEE countries are manifold:

- › unlike under the former communist regime, trade union membership is no longer compulsory;
- › the structure of employment in EU-CEE has shifted markedly towards services;
- › the number of state-owned enterprises, which used to have well-organised trade unions, has decreased;
- › atypical forms of employment that are not well organised have proliferated (particularly in Poland) and digitisation has seen new forms of employment emerge; and
- › labour legislation has been changed, with the resulting break-up of the trade union structure, especially in Romania and Slovenia (Leitner, 2018).¹³

¹³ In Romania, collective bargaining at the national level was prevalent in earlier years but was abolished in 2011.

Table 4.3 / Level of unionisation

Share of trade union members in total employees, in %

| | 2000 ¹⁾ | 2008 | 2012 | 2016/17 ²⁾ |
|----------|--------------------|------|------|-----------------------|
| Bulgaria | 23 | 16 | 13 | 14 |
| Croatia | 40 | 30 | 28 | 24 |
| Czechia | 27 | 17 | 15 | 12 |
| Hungary | 24 | 14 | 12 | 9 |
| Poland | 20 | 14 | 12 | 12 |
| Romania | 45 | 32 | 22 | 19 |
| Slovakia | 32 | 17 | 14 | 11 |
| Slovenia | 44 | 27 | 24 | 20 |
| Austria | 37 | 30 | 28 | 27 |

Notes: 1) Data for 1999 for Croatia and 1998 for Romania. 2) Data for 2017 only available for Czechia and Austria.

Source: Visser (2019).

In addition to their low level of employee organisation, the EU-CEE countries also generally lack established employers' organisations. The employers' organisation density rates are below those in other EU countries (European Commission, 2013, 2015), although data on this are scarce. On average, employers' density in EU-CEE is estimated to be below 40% (Leitner, 2018). According to Eurofound, 14 in Slovakia the density of employers' organisations fluctuated between 30% and 35% in the 2000s and reached 38% in 2018. For Czechia, Eurofound15 quotes a figure of around 60% between 2012 and 2018. In Slovenia, where membership of employers' organisations was compulsory until 2007, Visser (2019) states that the share of employees working in companies that belong to an association had declined to 56% in 2013.16 The low level of organisation of employers makes it difficult for trade unions to find representative partners for collective agreements.

Despite the decline of trade union membership in EU-CEE, trade unions still can play a role (see also the case studies on recent strikes in Section 4.3, below). Madga (2017) concludes that unions still manage to generate positive outcomes for their members (i.e. higher wages, in particular among medium- and high-skilled workers) and were successful in protecting their members during the financial and economic crisis of 2008/09.

Regarding the situation of labour shortages, Kaminska and Kahancova (2011) investigate whether trade unions in the healthcare sector have grasped the opportunity to improve their situation by facilitating union organising and strengthening their bargaining position. Across the EU-CEE region, trade unions have responded differently to labour shortages triggered by outward migration in the healthcare sector. In Poland, they resorted to industrial action. In Slovakia, unions managed to obtain wage increases and to consolidate existing bargaining channels, while in Hungary they remained largely inactive.

14 <https://www.eurofound.europa.eu/country/slovakia#actors-and-institutions>15 <https://www.eurofound.europa.eu/country/czechia#actors-and-institutions>

16 The respective figure for Austria is 100% (1990-2017).

Examples of recent positive developments include:

- › In *Czechia*, social partners play a strong role in raising awareness about labour and skill shortages (European Commission, 2019).
- › In *Poland*, Ukrainian migrant workers created their own union in 2016, with the support of the OPZZ, one of the main Polish trade union confederations (Ostrowski, 2018).

The position of trade unions in EU-CEE did not change substantially during the COVID-19 pandemic, according to the above indicators of trade union density and the coverage rate by collective agreements. However, wherever more recent data is available, one could observe that the gradual long-term declining trend of both indicators has come to a halt (except in Romania). Moreover, the measures introduced during the pandemic in order to protect jobs have arguably strengthened transnational social partnership throughout the EU. Short-time work schemes were widely applied not only in West European countries with a deep-rooted tradition of social partnership but, via EU regulations, also became available (and were used) in EU-CEE countries.

4.3. CASE STUDIES ON RECENT STRIKES

Overall, strike activity in EU-CEE is generally low and less frequent than in other EU countries (European Commission, 2013, 2015). However, labour shortages have given workers and trade unions more bargaining power in wage negotiations, and the incidence of industrial action has increased in recent years. Two recent strikes in the car industry, a leading industry in EU-CEE, are explored in more detail below.

4.3.1. Volkswagen Bratislava, Slovakia

Volkswagen Bratislava is the largest company in Slovakia, with a turnover of EUR 10.38 billion and 15,189 employees in 2018 (Coface, 2019). Volkswagen was one of the first foreign investors to enter the region after the collapse of communism and in 1991 formed a joint venture with BAZ (Bratislavské automobilové závody) in Bratislava. Since then, PSA Peugeot Citroën, KIA and Jaguar Land Rover have established car plants in Slovakia, and car part suppliers have followed. The country is now the world's largest per capita producer of cars. The automotive industry accounts for 38% of manufacturing production, 16% of persons employed in manufacturing and 32% of total exports (2018 data).

The company-level trade union at Volkswagen Bratislava has long been part of the traditional trade union structure in Slovakia. It had been a member of OZ KOVO (sectoral trade union federation for metal workers), which is part of the dominant Slovak trade union confederation, KOZ SR (Konfederácia odborových zväzov Slovenskej republiky, Confederation of Trade Unions of the Slovak Republic). With around 8,000 members out of 11,000 workers at the plant in 2016, it was the biggest trade union organisation in Slovakia.¹⁷ However, owing to conflicts with OZ KOVO in 2016, a new independent trade union – Modern Trade Unions Volkswagen (MOV) – was founded in September 2016;¹⁸ the old

17 <https://spectator.sme.sk/c/20374794/new-trade-union-at-volkswagen.html> as of 3 November 2016.

18 <https://spectator.sme.sk/c/20354797/new-trade-union-organisation-founded-at-volkswagen-slovakia.html> as of 13 October 2016.

one was dissolved. Most members moved to the new trade union. Zoroslav Smolinský – the head of the old union – became its head, and the new union did not affiliate to any other trade union body.

In Volkswagen Bratislava, relations between the union and the management were considered to function well. There was a stable process of collective bargaining (collective agreements used to be signed for one or two years), trade union density was high (about 74%), and trade union representatives were members of several joint committees. No strikes had taken place in the previous 25 years, and although strike alerts were issued on several occasions (for example, in 2012 and 2014), an agreement was ultimately reached in each case (Voss et al., 2006, and Hinz and Morris, 2016).

The first strike in the history of VW Bratislava took place in 2017. After 11 rounds of failed talks, the strike began on 20 June (at 6 am) and lasted for six days. MOV demanded a 16% increase in salaries within two years,¹⁹ whereas the VW management offered only a 4% rise in the following three years.²⁰ Trade unionists sought to justify their demands by citing the good financial results of the plant and the high quality of the labour force. Also, wages were compared with those in Germany: Although in Bratislava workers earned an average EUR 1,800 a month, this was less than half of the average wage Volkswagen pays in Germany. The MOV leader said that such a huge disparity could no longer be justified,²¹ although the average wage at VW Bratislava was nearly double that in Slovakia as a whole (EUR 954 per month).

During the strike, production was almost completely halted. Of the 12,300 employees, about 8,500 took part in the strike. Finally, a compromise was reached, resulting in the longest wage contract (valid for 27 months) in the plant's history. Salaries were to be increased by 14.12% in three phases: by 4.7% from 1 June 2017 and 1 January 2018, and by 4.1% from 1 November 2018. In addition, employees were to receive a one-off bonus of EUR 500 in July and two extra days off (in 2018 and 2019, respectively).

Thus, the strike proved highly successful for VW Bratislava workers. In addition, it triggered a discussion about the differences in wages in multinational affiliates across the EU-CEE countries, and between them and Germany.

4.3.2. Audi Hungária, Hungary

Audi Hungária is the second-largest company in Hungary (behind the oil company MOL), with a turnover of EUR 7.38 billion and 13,393 employees in 2018 (Coface, 2019). Audi arrived in Hungary in 1993 and made a brownfield investment in the north-western city of Győr, close to the Slovak and Austrian borders. It produced engines at first, but started assembling cars a few years later. During the 1990s GM/Opel and Suzuki also invested in Hungary; in 2012 Mercedes started car production there, and in 2018 BMW announced plans for a new car factory. The Hungarian automotive industry accounts for 26% of manufacturing production, 13% of persons employed in manufacturing and 22% of total exports (data for 2018).

¹⁹ <https://spectator.sme.sk/c/20563184/last-minute-talks-to-avert-strike-at-volkswagen-slovakia-have-failed.html> as of 19 June 2017.

²⁰ <https://www.eurofound.europa.eu/publications/article/2017/slovakia-latest-working-life-developments-q2-2017> published on 17 July 2017.

²¹ <https://www.reuters.com/article/us-easteurope-economy-analysis-idUSKBN1AA1RE> as of 27 July 2017.

The plant-level Independent Trade Union (Audi Hungária Független Szakszervezet, AHFSZ) was founded in 1996, after conflicts with the existing plant-level trade union. This was a local branch of Vasas Trade Union, the biggest and oldest union in Hungary in the metal industry (Arendas, 2016). AHFSZ had 7,084 members in 2016. Given that the company had about 12,000 employees at the time, this meant a trade union density of around 60-65%. The relationship between the trade union and the management is described as highly changeable, but with a prevailing consensus-seeking attitude (Arendas, 2016).

Owing to the Audi Hungária plant's geographical location, brain drain of workers to Austria, Slovakia and Germany constituted a special problem for the company – accentuated by the western location in Slovakia (in Bratislava, Trnava and Nitra) of that country's automotive companies (Arendas, 2016). During the wage negotiations in 2016, an important argument of trade unions was that line workers in Slovakia earned more than their Hungarian counterparts. Successful wage negotiations in that year led to an increase in new members (Arendas, 2016).

In 2019 the first ever strike took place in Audi Hungária. On 24 January 2019 a week-long strike began. The trade union demanded an increase of wages by 18%, i.e. by not less than HUF 75,000 (EUR 230) per month (the average wage at Audi Hungária amounted at the time to EUR 1,300 per month).²² However, the management offered only a 7% wage rise for 2019. About 9,000 of the plant's 12,000 employees took part in the strike. Supply chains of the company group were severely disrupted by the halting of production (in 2017 the company manufactured 2 million engines, which were supplied to 32 Volkswagen plants). As a result, the parent company of Audi had to halt production at its Ingolstadt plant in Germany. Finally a deal was reached, whereby the union's demands of a 18% wage increase (and not less than HUF 75,000) were fully met. On top of that, workers were to receive non-wage benefits of up to HUF 400,000 (EUR 1,230) per year in both 2019 and 2020. In addition, the agreement also guaranteed all workers at least one full free weekend every month from 1 May 2019.²³

The strike at Audi Hungária saw workers at other companies in Hungary's automotive sector follow suit. Unsuccessful wage negotiations triggered action at a number of car industry suppliers, including Bosch, Denso, Continental, Hankook Tire, Wescast and SEG Automotive.²⁴ The strike at Hankook Tire lasted ten days before a deal was reached. In several other cases, the unions achieved a deal soon after going on strike. Only in the case of SEG Automotive was the strike not successful.²⁵

²² <https://spectator.sme.sk/c/22040184/volkswagen-bratislava-restricts-production-due-to-the-strike-in-hungary.html> as of 29 January 2019.

²³ https://bbj.hu/business/strike-ends-as-audi-management-union-reach-wage-deal_160804 as of 31 January 2019.

²⁴ <https://www.eurofound.europa.eu/publications/article/2019/hungary-latest-developments-in-working-life-q1-2019> as of 22 May 2019.

²⁵ Ibid.

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5. Labour force

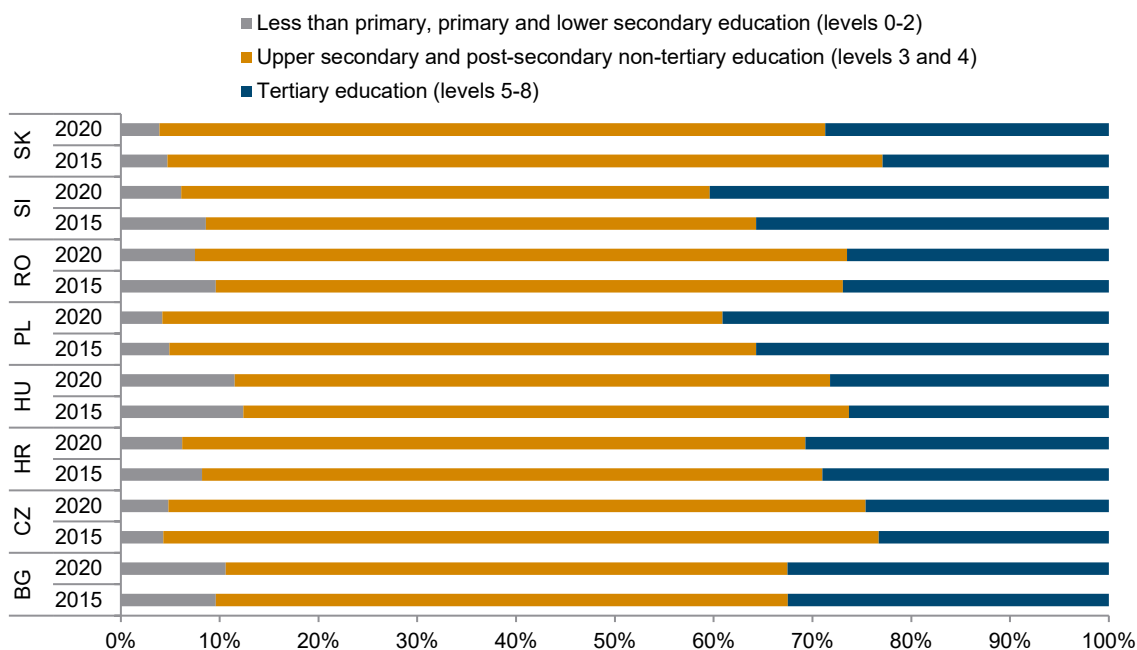
Over the last five years, labour market tightness in EU-CEE accentuated quite significantly. Demographic factors such as high outward migration and the shrinking of the working-age population are some of the causes. Moreover, the expansion of new technologies is raising the demand for high-skilled workers - not that easy to find given their high outward mobility. This section tries to shed light on how the skill structure of the working-age population and employees has evolved in the EU-CEE countries, which occupations are in greatest demand, how labour mobility and migration flows have been changing over the 2015-2021 period, what are the drivers of mobility, and how they will continue to affect migration in the region.

5.1. EDUCATION AND TRAINING

5.1.1. Educational and skill structure of the workforce

The workforce of the EU-CEE countries is relatively well educated. On average, only 7% of workers in the region have just a primary level of education. Slovakia and Poland have the lowest shares (3.9 % and 4.2%, respectively), Hungary and Bulgaria the highest (11.5% and 10.6%, respectively). Most workers in EU-CEE have a secondary level of education, at 62% on average. The rest – around 31% – have a tertiary level of education, being the highest in Poland and Slovenia, at 39% and 40% respectively, and the lowest in Czechia, at 25% (Figure 5.1).

The educational composition of EU-CEE workers has generally improved in recent years, with rising shares of workers with secondary and especially tertiary levels of education. On average in the region, the share of workers with tertiary education increased by 2 pp between 2015 and 2020. This increase has been especially pronounced in Slovakia: in 2020, 28.7% of Slovak employees had a tertiary education – up by 5.8 pp compared with 2015. In contrast, in Bulgaria and Romania the share of workers with a tertiary education declined slightly. This generated a structural shift towards a higher share of workers with a primary education in Bulgaria and a secondary education in Romania (Figure 5.1).

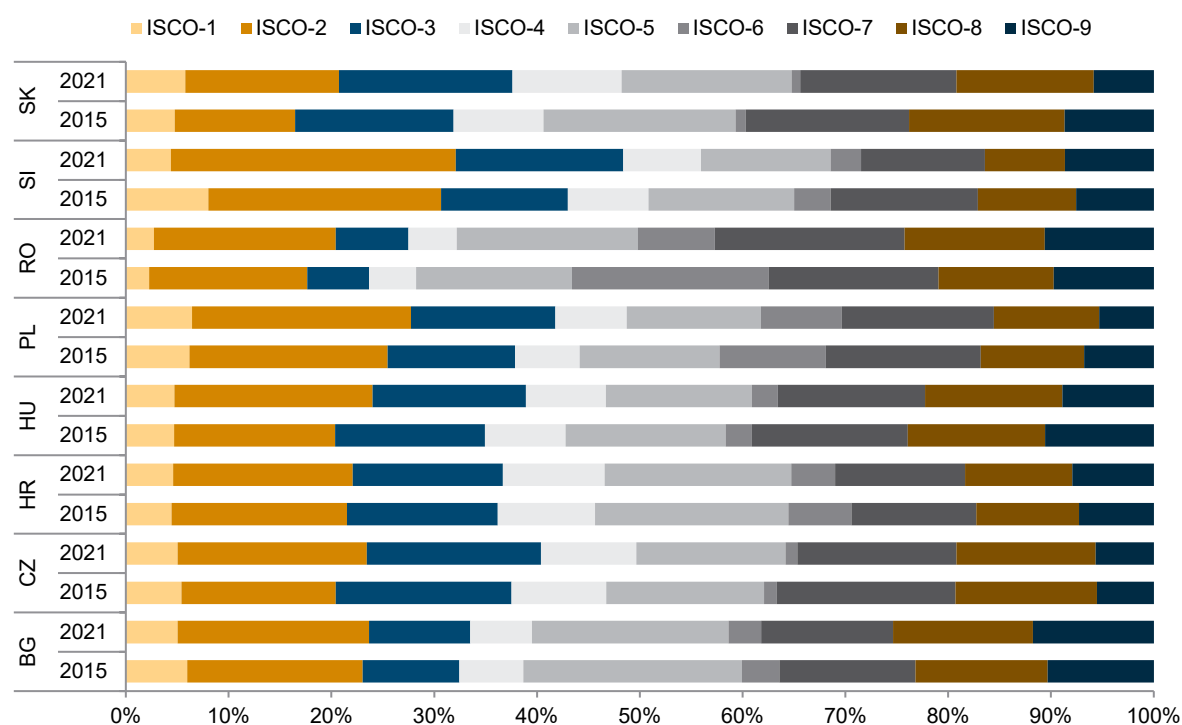
Figure 5.1 / Educational structure of employees, in %, 2015 and 2020

Source: Eurostat (Employees by educational attainment level) (%) [edat_ifs_9905].

A glimpse at Figure 5.2 suggests that overall, the occupational structure of the workforce in EU-CEE improved between 2015 and 2021. On average in the region, high-skilled occupational groups (ISCO²⁶ 1-3) expanded their share by 3 pp (from 35% to 38%), medium-skilled occupational groups (ISCO 4-6) contracted by 3 pp (to 27%), while low-skilled occupational groups (ISCO 7-9) preserved a similar share as in 2015. This structural shift towards more high-skilled workers reflects in part the rising demand for professionals, technicians, and associate professionals that is emerging with the recent transformation in the world of work and the automation of certain tasks. In addition, it reflects the adjustments of the labour market to the COVID-19 pandemic.

Across individual occupational groups, the strongest increase in the share of high-skilled workers – on average by almost 16% in 2015-2021 – was observed in the categories ‘professionals’ (ISCO-2) and ‘technicians and associate professionals’ (ISCO-3). This expansion was particularly remarkable in Slovenia (Figure 5.2). However, the share of ‘legislators, senior officials and managers’ (ISCO-1) often declined (e.g., in Bulgaria, Czechia and Slovenia). The category ‘skilled agricultural and fishery workers’ (ISCO-6) contracted in all EU-CEE countries, except for Hungary. The share of workers in the category ‘plant and machine operators and assemblers’ (ISCO-8) overall expanded by 3%, especially in Croatia, Hungary and Romania, although Slovakia and Slovenia experienced declines of 12% and 7%, respectively. While the manufacturing sector and the automotive industry in particular are important sources of employment in these countries, this sector has been hit hard by the COVID-19 crisis, and many workers have been laid off (Hanzl-Weiss, 2020).

²⁶ International Standard Classification of Occupation (ISCO), <https://ilostat.ilo.org/resources/concepts-and-definitions/classification-occupation/>

Figure 5.2 / The structure of employees by occupational group, in %, 2015 and 2021

Note: International ISCO-1: legislators, senior officials and managers; ISCO-2: professionals; ISCO-3: technicians and associate professionals; ISCO-4: clerks; ISCO-5: service workers and shop and market sales workers; ISCO-6: skilled agricultural and fishery workers; ISCO-7: craft and related trades workers; ISCO-8: plant and machine operators and assemblers; ISCO-9: elementary occupations. According to the International Labour Organisation (ILO), the occupational groups can be clustered in skill levels accordingly: ISCO-1-3 is defined with 'skill level 3-4' and represents high-skilled professional groups; 'skill level 2' includes ISCO-4-8 and represents medium-skilled professional groups; and 'skill level 1' comprises ISCO-9 (Source: https://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms_172572.pdf).

Source: Eurostat (Employees by occupation) (%) [lfsa_egais].

5.1.2. Shortages of high- and medium-skilled occupational groups

Labour market adjustment in EU-CEE was already on course before the outbreak of the COVID-19 pandemic. Labour/skill shortages were prevalent in several countries for a number of years and triggered adjustments in the workforce. The survey of companies in EU-CEE conducted in 2021 shows that medium-skill occupations – e.g., 'sales/marketing', 'operations/logistics', 'manufacturing' - continue to be on the top of the occupational shortages list. The same applies to high-skilled occupations such as 'IT/data' professionals (Table 5.1). Such bottlenecks suggest that the structural improvement of the workforce in EU-CEE over the past years has been insufficient in meeting the expanding demand for certain professional categories of workers.

Table 5.1 / Seven occupations where labour shortages are the most pronounced, Q3 2021

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|----|------------------------------|------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|
| BG | Operations/ logistics | Manufacturing/ production | Sales/Marketing | Administration/ Office support | IT/Data | HR (Human Resources) | Front office/ Customer facing |
| CZ | Operations/ logistics | Manufacturing/ production | IT/Data | Sales/Marketing | Administration/ Office support | Front office/ Customer facing | HR (Human Resources) |
| HR | Manufacturing/ production | Operations/ logistics | Sales/Marketing | IT/Data | HR (Human Resources) | Administration/ Office support | Front office/ Customer facing |
| HU | Manufacturing/ production | Operations/ logistics | Administration/ Office support | IT/Data | Sales/Marketing | Front office/ Customer facing | HR (Human Resources) |
| PL | Operations/ logistics | Manufacturing/ production | IT/Data | Front office/ Customer facing | Administration/ Office support | Sales/Marketing | HR (Human Resources) |
| RO | Manufacturing/ production | Operations/ logistics | Sales/Marketing | IT/Data | Front office/ Customer facing | HR (Human Resources) | Administration/ Office support |
| SK | Operations/ logistics | Manufacturing/ production | Sales/Marketing | IT/Data | Administration/ Office support | HR (Human Resources) | Front office/ Customer facing |
| SI | Operations/ logistics | Manufacturing/ production | Front office/ Customer facing | IT/Data | Sales/Marketing | HR (Human Resources) | Administration/ Office support |

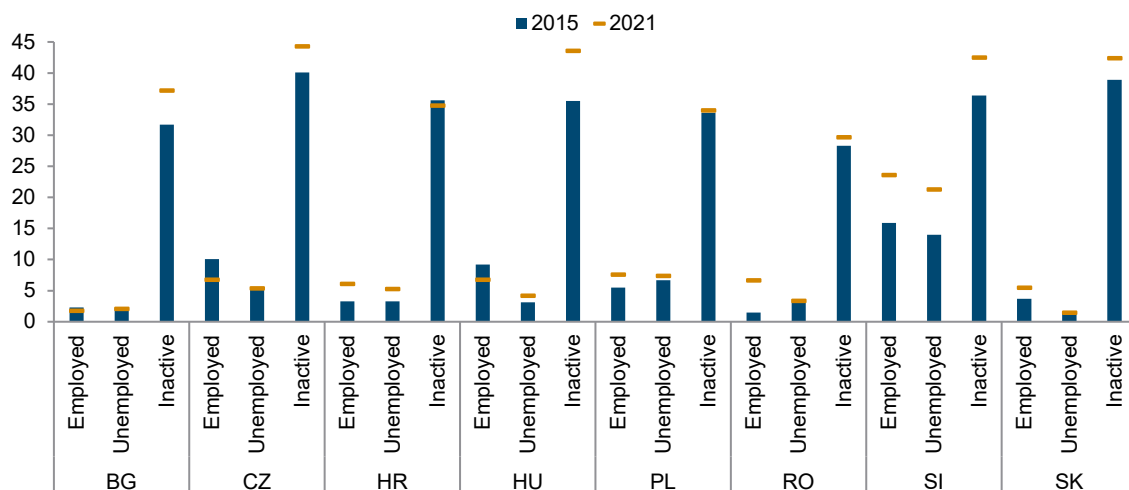
Source: ManpowerGroup Employment Outlook Survey Q3 2021, <https://go.manpowergroup.com/talent-shortage>

5.1.3. Employees' participation in education and training

Rising demand for high skilled workers requires further investment and engagement in education and training: equipping more workers with the proper skills as well as updating the skills of those who are already employed in line with recent labour market needs. In this respect, the response of the EU-CEE countries has been to untap other segments of the working-age population by bringing into the labour market and improving the skills of those who are inactive. In 2021 the participation of the inactive working-age population in education and training on average in the region stood at 39% - 4 pp higher than in 2015. At the same time, the share of those who are employed and participate in education and training rose by only 1.7 pp (to 8.1%) and of those who are unemployed and participate in education and training by 1.4 pp (to 6.3%) (Figure 5.3).

At the individual country level, important contrasts emerge in relation to engagement in formal education. Czechia has been particularly involved in providing education and training to the inactive (44% participation rate in 2021). In contrast, Romania has the lowest rate of inactive participation in education and training (30%, which is below the EU-CEE average of 39%). Dissimilarities in participation in education and training are also pronounced with respect to those employed. For example, Slovenia engages 24% of those employed in education and training, whereas Bulgaria only 2%. Furthermore - except for Poland, Croatia, Slovakia and Slovenia - the share of EU-CEE countries' workers participating in further education and training has declined (Figure 5.3).

Figure 5.3 / Participation rate in education and training by labour force status, in %, 2015 and 2021



Notes: Both formal and informal education and training during the last four weeks.

Source: Eurostat, [trng_lfs_11].

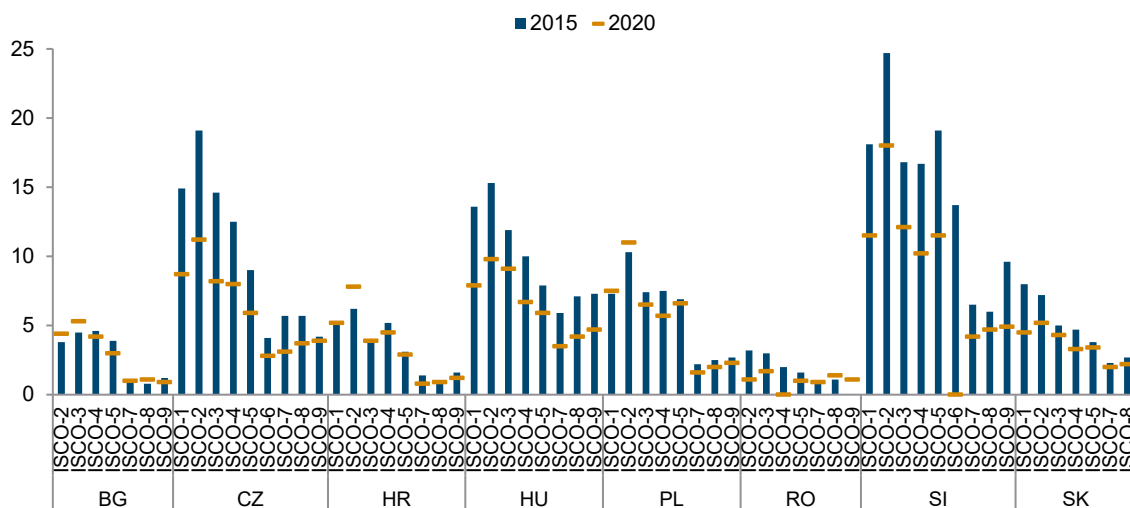
Disaggregating further by occupational group, we find that the categories of workers extensively engaged in further training and education belong to the occupational groups ISCO-1 to ISCO-3 – managers, technicians, professionals, and associate professionals – at 7.5% for ISCO-1, 8.6% for ISCO-2 and 6.4% for ISCO-3 in 2020 (Figure 5.4). At the individual country level, Slovenia has the highest participation rates among the ISCO-1 and ISCO-2 groups (12% and 18%, respectively), followed by Czechia (9% and 11%, respectively). Nevertheless, compared with 2015, participation in formal training and education has declined for many occupational groups and on average in EU-CEE. The explanation for this is the COVID-19 pandemic and the imposed mobility restrictions, which have restrained participation in formal training and education. The exceptions are Poland and Bulgaria, which have been engaging more workers in education and training for high skilled occupational groups, particularly among the ISCO-1 and ISCO-2 categories.

Overall, the above analysis demonstrates that the EU-CEE countries are facing shortages of both high- and low-skilled workers. In this context it is important to distinguish between *labour* and *skill* shortages. The former might be simply due to the lack of workers, whereas the latter might stem from higher demand for skilled workers. The latter type of shortage is an important factor for companies and their future investment plans. Accordingly, it appears that companies are mainly investing in improving the professional and technical skills of their staff, but the response has been different across the EU-CEE countries owing to a number of disruptions caused by COVID-19.

Another important aspect which deserves further attention is the impact of automation on employment, including preparation of the workforce with the adequate skills, and labour mobility. Automation and expansion of new technologies are expected to reduce demand for workers with certain skills. This is particularly true for those industries where low-skilled workers predominate (Graetz and Michaels, 2018). Certainly, this can also have implications for labour mobility: given that migrants tend to occupy low-skilled jobs, increasing automation might thus reduce the demand for migrant workers. From another

point of view, digitalisation facilitates the match employer-employee through online job platforms and remote work. Accordingly, more high-skilled workers, also from abroad, who work remotely as well as from their country of residence, might become frequent. This means that labour demand and skills shortages can be tackled by employing workers from abroad. Such labour market adjustments can reshape labour mobility to and from the EU-CEE countries.

Figure 5.4 / Participation rate in education and training by occupation, in %, 2015 and 2020



Notes: Data for Bulgaria refer to 2017-2018. No information on ISCO-1 and ISCO-6 for Bulgaria and Romania. No information on ISCO-6 for Croatia, Hungary, Poland and Slovakia. Both formal and informal education and training during the last four weeks.
 Source: Eurostat, [trng_lfs_04].

5.2. MIGRATION

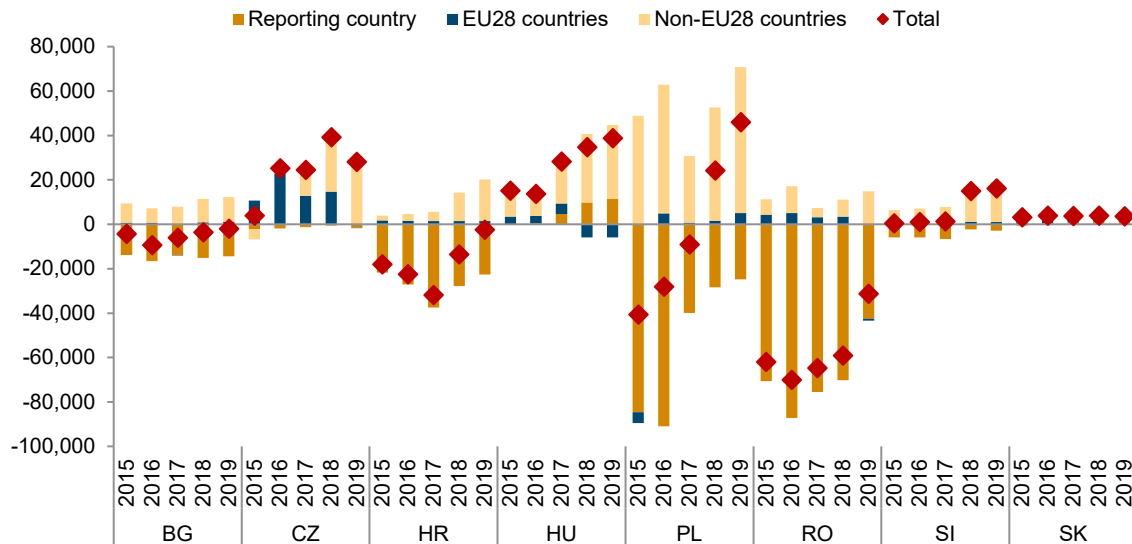
5.2.1. Recent mobility trends

Recent mobility patterns indicate that overall, net outward migration from EU-CEE has weakened over the past few years, with some countries increasingly becoming net receivers of migrants, especially from non-EU countries (Figure 5.5). The main non-EU countries that send migrants to EU-CEE are Ukraine and Asian countries, such as Vietnam, Mongolia, China, India and Iran (Mara, 2019). In Poland, immigration from Ukraine was gaining momentum even prior to the Ukraine war and to a large extent compensating for the outward migration of Polish citizens.

Looking simply at net migration flows, it emerges that Bulgaria experienced a negative annual net migration of 5,000 on average between 2014-2019. However, a breakdown of net flows by country of origin reveals that the inward mobility of migrants from non-EU countries has compensated for two-thirds of the outward mobility of Bulgarians during this period. We find similar patterns in Romania or Croatia. However, unlike in Bulgaria, immigrants to Romania – especially from non-EU countries – compensate for no more than 13% of the outward mobility of Romanians. While in the past Poland had migratory movements similar to the above three countries, this has reversed since 2018, when Poland registered a positive net migration flow – for the first time since EU enlargement in 2004. This was the outcome of a

strong drop in emigration of Polish citizens combined with a major increase in immigration from non-EU to Poland, which doubled in 2019 compared with 2017.

Figure 5.5 / Net migration by citizenship, total population, 2015-2019



Source: Eurostat, [migr_imm1ctz] [migr_emi1ctz].

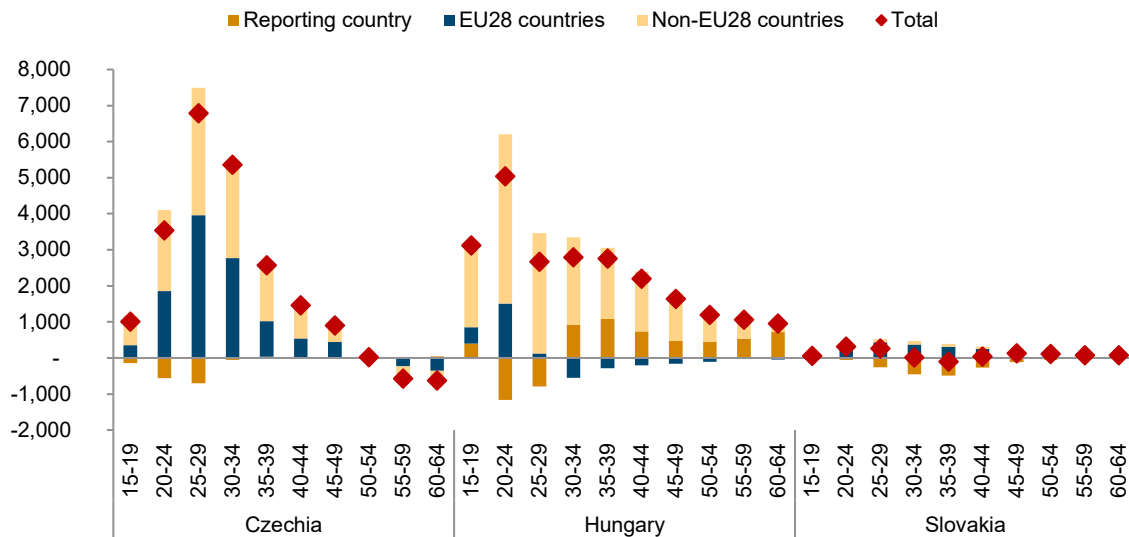
Other EU-CEE countries – Czechia, Hungary, Slovakia and Slovenia – have long become net receivers of migrants. In Slovakia and Hungary, particularly in 2017 and 2018, this was driven by high immigration from other countries combined with a positive net inward mobility of natives. By contrast, in Slovenia and Czechia, positive net migration stemmed from a combination of high inward mobility of other migrants combined with a low negative outflow of natives.

5.2.2. Recent mobility trends by age, qualification, and main activity

Disaggregating migration flows by different age cohorts, we find that net receiving countries of migrants – Czechia and Hungary – have been experiencing outward mobility especially among the age cohorts 20-24 and 25-29, but that the bulk of incoming migrants in these countries also fall into these two age groups (Figure 5.6). In the case of Slovakia, the largest number of Slovaks leaving the country belongs to the age cohorts 30-34 and 35-39, while most of the migrants moving into Slovakia are in the age cohorts 20-24, 25-29 and 30-34.²⁷

²⁷ Disaggregated data by age group are not available for Romania and Slovenia.

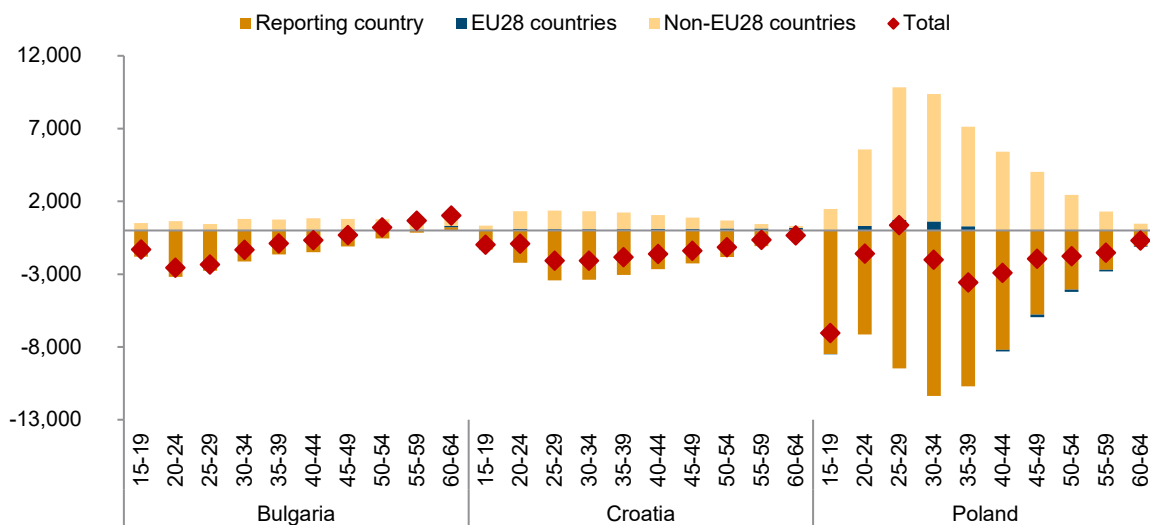
Figure 5.6 / Countries with positive net migration, by age and main group of citizenship, annual averages, 2015-2019



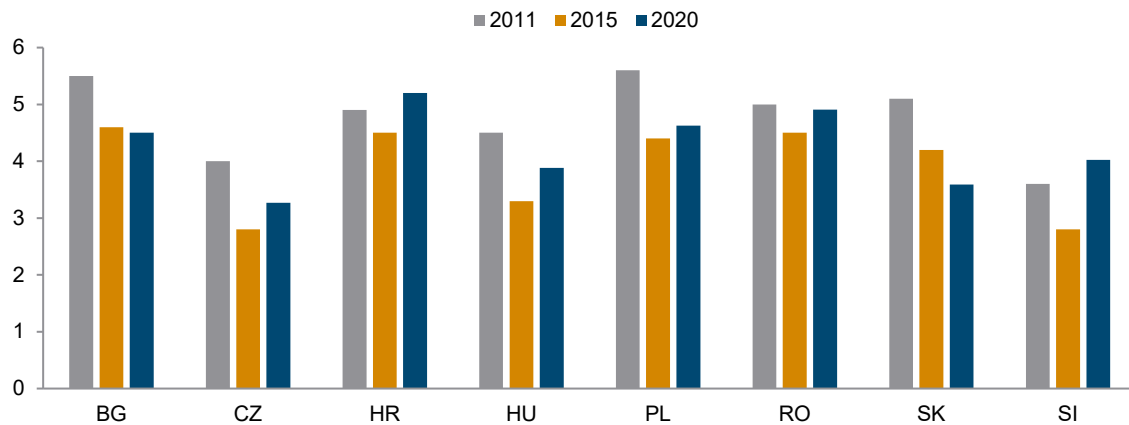
Source: Eurostat.

Also for the countries where net mobility has been negative, outward mobility has been especially prevalent among younger age cohorts (Figure 5.7). In Bulgaria, emigration of natives is most common among 20-24 and 25-29 cohorts, in Croatia in the age groups 25-29 and 30-34, and in Poland in the 30-34 and 35-39 cohorts.

Figure 5.7 / Countries with negative net migration, by age and main group of citizenship, annual averages, 2015-2019



Source: Eurostat.

Figure 5.8 / Human flight and brain drain from EU-CEE, 2011-2020

Notes: Human flight and brain drain index, 0 (low) - 10 (high). The global average (based on 176 countries) in 2019 was 5.55. The human flight and brain drain index considers the economic impact of human displacement (for economic or political reasons) and the consequences this may have on a country's development. On the one hand, this may involve the voluntary emigration of the middle class – particularly economically productive segments of the population, such as entrepreneurs, or skilled workers such as physicians – due to economic deterioration in their home country and the hope of better opportunities farther afield. On the other hand, it may involve the forced displacement of professionals or intellectuals who are fleeing their country due to actual or feared persecution or repression. The indicator specifically measures the economic impact that displacement may wreak on an economy through the loss of productive, skilled professional labour.²⁸ Source: Fund for Peace (2020).

Data on the educational structure of recent emigrants is not available, while the recent trends in brain drain from EU-CEE have been mixed. In Bulgaria and Slovakia brain drain has been subsiding over the last decade (Figure 5.8), suggesting that the flight of human capital from these countries might have affected high-skilled workers less than the low-skilled. However, in all other countries, after an initial decline between 2011 and 2015, brain drain has again been on the rise. While in Hungary, Poland, Romania and Czechia brain drain indices in 2020 were still below 2011 levels, in Croatia and Slovenia those levels have been surpassed.

Information about the groups of professionals that are most affected by outward mobility from EU-CEE is not available either. However, intra-EU mobility data suggest that the sectors with the most pronounced mobility among EU countries are manufacturing, wholesale and retail trade, construction, accommodation and food service, and health and social work (European Commission, 2020, p. 65). Also, the mobility of IT professionals has been expanding in line with the expansion of the IT sector. Part of intra-EU mobility is cross-border mobility, which appears to have involved several EU-CEE countries. Between 2017 and 2019 cross-border mobility rose particularly in Bulgaria (by 66%), Slovenia (31%) and Croatia (12%), but declined in Czechia (European Commission, 2020, p. 78). Regarding cross-border workers from Poland, as of 2018 their number stood at 125,000, 32% of whom were men working in the construction sector in Germany.²⁹ Another important group of cross-border workers are Slovaks who work in Austria; their numbers were estimated at 48,000 in 2018, more than 46% of whom were women working in the healthcare sector.

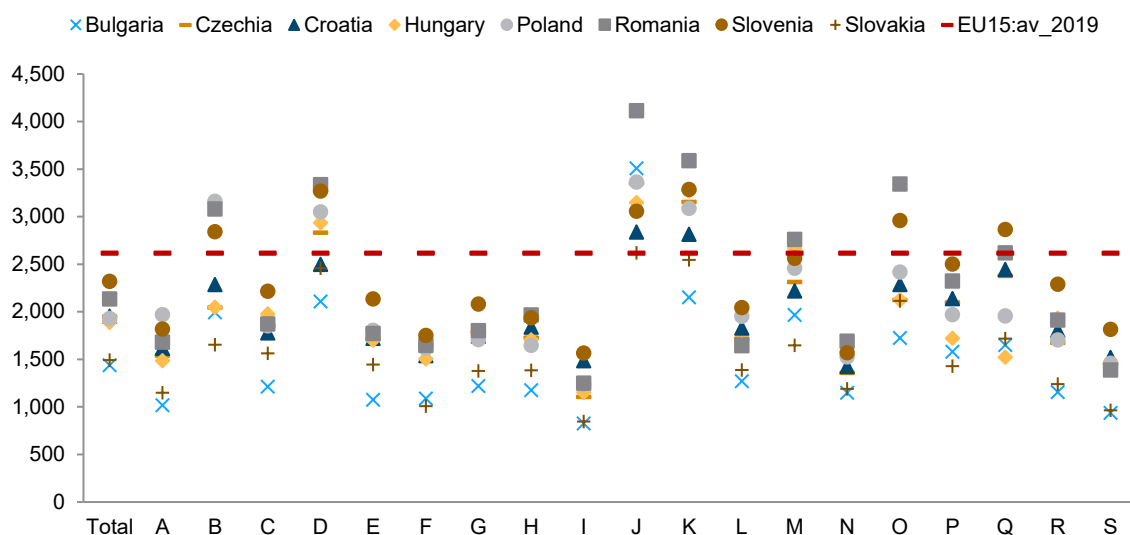
²⁸ More details about the methodology are provided here: <https://fragilestatesindex.org/wp-content/uploads/2017/05/FSI-Methodology.pdf>

²⁹ Eurostat (2019), <https://ec.europa.eu/eurostat/cache/digipub/eumove/bloc-2c.html?lang=en>

5.2.3. Driving factors of mobility

Push and pull factors of mobility are predominantly related to better employment and earnings opportunities abroad. Recent dynamics in EU-CEE with respect to unemployment (a strong decline over the last five years) and earnings indicate that drivers of outward mobility from the region have become less strong than in the past. Indeed, the income gap between the EU-CEE countries and the EU15 (Western Europe) has been narrowing (Figures 5.9 and 5.10), while – as discussed above – workers in EU-CEE have become increasingly engaged in high-skilled jobs. As a result, it should not come as a surprise that outward migration from EU-CEE has weakened. Instead, countries in the region have become an attractive destination for non-EU migrants because of their relatively favourable economic conditions, especially before the COVID-19 pandemic.

Figure 5.9 / Average monthly wages by sector, at PPP (EUR), 2021



Notes: NACE Rev. 2: A (agriculture, forestry and fishing); B (mining and quarrying); C (manufacturing); D (electricity, gas, steam, air conditioning supply); E (water supply, sewerage, waste management, remediation); F (construction); G (wholesale, retail trade, repair of motor vehicles etc.); H (transportation and storage); I (accommodation and food service activities); J (information and communication); K (financial and insurance activities); L (real estate activities); M (professional, scientific and technical activities); N (administrative and support service activities); O (public administration, defence, security); P (education); Q (human health and social work activities); R (arts, entertainment and recreation); S (other service activities). For Poland the latest year available is 2020.

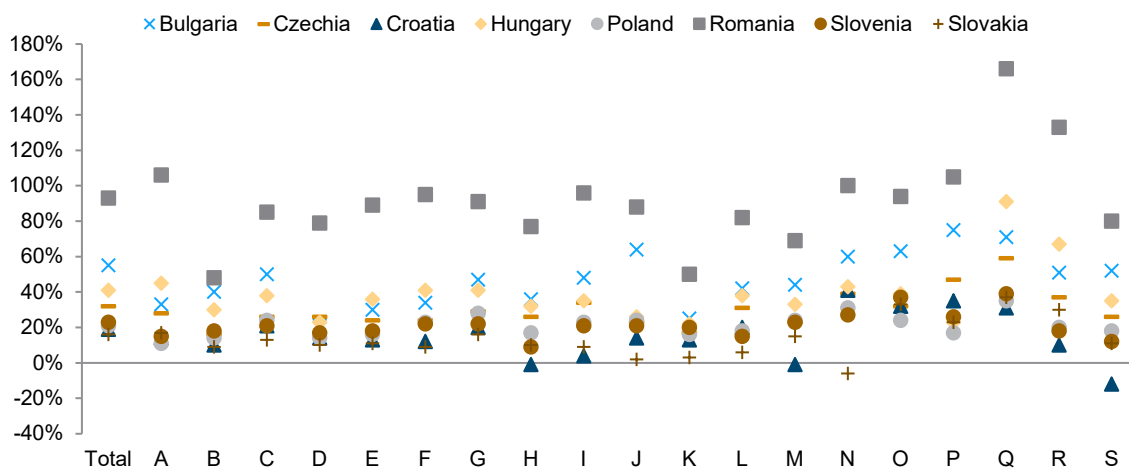
Source: wiiw Annual Database incorporation national statistics.

However, even at purchasing power parities the level of earnings in EU-CEE in many sectors stands below the EU15. Therefore, further wage rises might help to retain or attract workers in specific sectors. For example Romania, which has one of the highest outward mobilities in the region (Figure 5.5), is also the country with the highest wage growth across all sectors.

Still, for specific occupational groups outward mobility may persist going forward. For example, although the wages of IT professionals are among the highest in EU-CEE, the rising demand for them and the high level of earnings in the IT sector in the EU15 might still pull many workers in this sector to move abroad or work for foreign companies via online job platforms.

Another case in point is the mobility of health professionals. Emigration from EU-CEE for this category of workers has been rising significantly, and the wage gap to the EU15 has been an important driver (Mara, 2020, pp. 11-12). Between 2010 and 2018, EU-CEE sent more than 33,000 doctors and 27,000 nurses abroad, with Romania and Poland having been the most affected. This is also reflected in the rising shortages of healthcare workers in these countries: job vacancies in this sector are among the top ten hardest positions to fill (McGrath, 2021). Accordingly, several EU-CEE countries have responded by raising wages in the healthcare sector to deter outward migration. For example, Romania more than doubled wages in the healthcare sector between 2015 and 2021, while Hungary, Czechia and Bulgaria – which have experienced the departure of healthcare workers towards Austria, Germany, the UK and Norway – raised their wages by 91%, 59% and 71%, respectively.

Figure 5.10 / Change in average monthly wage by sector, at PPP (EUR) in %, 2015-2021



Notes: NACE Rev. 2: A (agriculture, forestry and fishing); B (mining and quarrying); C (manufacturing); D (electricity, gas, steam, air conditioning supply); E (water supply, sewerage, waste management, remediation); F (construction); G (wholesale, retail trade, repair of motor vehicles etc.); H (transportation and storage); I (accommodation and food service activities); J (information and communication); K (financial and insurance activities); L (real estate activities); M (professional, scientific and technical activities); N (administrative and support service activities); O (public administration, defence, security); P (education); Q (human health and social work activities); R (arts, entertainment and recreation); S (other service activities). For Poland 2015-2020.

Source: wiiw Annual Database incorporation national statistics.

To conclude, the gap in earnings levels between the EU-CEE countries and the EU15 has been closing, though it remains high in several sectors. Accordingly, EU-CEE might push for further rises in wages in order to retain their workers, as well as to attract immigrants from other countries.

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6. Comparisons with the 'golden age': Western Europe in 1950-1973

6.1. ECONOMIC FEATURES OF THE 'GOLDEN AGE'

Economic developments in West European countries in the decades following the second world war are generally referred to as the 'golden age of capitalism'. On average, GDP grew by 4.6% per year and GDP per capita by 3.8% per year during the period from 1950 to 1973. These are much higher rates of growth than those before or after this golden age (Table 6.1). In addition, the growth path was relatively smooth during these years: even in times of cyclical weakness, economic growth stayed in positive territory.

The golden age was also a period of marked labour market improvement. Employment was growing on average by 0.8% per year during the 1950s and by 0.5% per year during the 1960s (Eichengreen and Iversen, 1999). By the end of the 1960s, Western Europe had effectively reached a state of full employment: unemployment rates in countries such as Germany and France had fallen to around 1%. In order to meet labour demand, there was a massive need to recruit foreign workers, which accounted for some 10% of the labour force in these two countries (Singh, 2008). The bulk of imported labour originated from, for example, Yugoslavia and Turkey (to Austria and Germany), Maghreb countries (to France), and India and Pakistan (to the UK). There was also a massive reallocation of labour within countries: across regions – for example, from Mezzogiorno (southern Italy) to northern Italy – as well as across sectors, from agriculture to industry and, later, to services.

Table 6.1 / Growth characteristics of Western Europe in different phases, annual averages, in %, 1820-1996

| | Real GDP | Real GDP per capita | Fixed capital stock (non-residential) | Volume of exports |
|-----------|----------|---------------------|--|-------------------|
| 1820-1870 | 1.7 | 0.9 | n/a | 4.4 |
| 1870-1913 | 2.2 | 1.3 | 2.9 | 3.2 |
| 1913-1950 | 1.8 | 1.2 | 1.7 | 0.7 |
| 1950-1973 | 4.6 | 3.8 | 5.5 | 8.6 |
| 1973-1996 | 1.9 | 1.7 | 3.9 ¹⁾ | 4.5 |

Notes: annual average compound growth rates, arithmetic average over 12 West European economies: Austria, Belgium, Denmark, Finland, France, Germany, Italy, Netherlands, Norway, Sweden, Switzerland and the UK. 1) 1973-1989. Source: Singh (2008).

The supply-side foundation of the golden age phenomenon was high growth of investments. Fixed capital investments into productive assets grew at an average rate of 5.5% per year in 1950-1973 (Table 6.1), with the corresponding investment ratios reaching up to 17-18% of GDP by the end of the 1960s. High growth of capital stock was the main factor driving labour productivity: growth of 1 percentage point in capital stock per worker boosted labour productivity on average by 0.75% (Glyn et al., 1988). Through its impact on aggregate demand, the high growth of labour productivity and wages stimulated further investments and thus created a virtuous circle of rising investments and incomes.

Productivity gains were clearly helped by catching up with the US level through the large-scale appropriation of US technologies, such as Fordism and scientific management (Glyn et al., 1988). Even so, such catching up could explain only half of the superior growth of productivity and GDP in Western Europe compared with the US (Eichengreen, 1996).

Glyn et al. (1988) argue that the golden age phenomenon arose from the coincidence of several favourable institutional and technological factors: co-operative wage setting (discussed below), technological advancement and regulation by the Bretton Woods institutions of international trade and capital flows. Therefore, it is argued, it was inherently unstable. It is little wonder that it was profoundly shaken by the first oil shock in 1973 and ultimately collapsed after the second oil shock in the late 1970s.

The mainstream account of the collapse of the golden age model includes, most notably, increased militancy of trade unions under the conditions of full employment (with strikes in France in 1968 being just one manifestation of this). It is argued that their wage demands exceeded productivity growth, resulting in both higher inflation and higher unemployment (see, for example, Eichengreen and Iversen, 1999). This narrative is not entirely convincing, as it does not adequately account for the reasons behind the slowdown in productivity growth: after all, technical progress continued unabated. Another, more plausible, explanation is that the perception of threat from the Soviet Union and the domestic radical left (especially in France and Italy, where communist parties were very strong in the post-war period) had greatly diminished by the early 1970s. This reduced the incentives for capital to make concessions to labour, which had been at the heart of the golden age model.

6.2. LABOUR MARKET INSTITUTIONS DURING THE 'GOLDEN AGE'

The golden age was characterised by a historically unprecedented level of co-operation between workers, employers and governments. This could be attributed in part to the above-mentioned concessions by capital to labour in the face of the Soviet threat. But it could be also seen as a continuation of the corporatist tradition dating back to Bismarck (Eichengreen, 2007). Institutionally, the model included four main elements.

Parallel growth of wages and labour productivity. This ensured that demand and supply went hand in hand, and that private consumption could be financed from wages rather than by taking credit. The importance of aggregate demand keeping pace with production was all the greater as production was mostly oriented towards the domestic market (Glyn et al., 1988).³⁰ Parallel growth of wages and productivity provided an equitable sharing of the fruits of economic progress between capital and labour, with the wage share of GDP being largely constant. This mechanism required a high degree of co-operation between employers and workers and was greatly facilitated by the representation of workers on the supervisory boards of corporations. As productivity was rising fast, so were wages: between 1963 and 1973, real wages grew on average by around 5% per year (Singh, 2008).

Centralisation of wage bargaining. Productivity-oriented wage setting required a high degree of co-ordination across sectors. Such centralisation was most pronounced in Scandinavian countries, where wages were set at the national level. In Germany and Austria, wages were set at industry and firm level, albeit with a high degree of co-ordination across sectors. Eichengreen and Iversen (1999), among

³⁰ International trade was expanding rapidly during the golden age but starting from a low base.

others, argue that co-ordination of wage bargaining was crucial in solving the 'collective action' problem. It encouraged individual unions to exercise wage restraint by convincing them that other trade unions would do likewise. At the same time, as wages were set at the national level, individual employers did not need to worry that the fruits of their investments would be appropriated by workers.

Active government policies. The expansion of the role of the state was an essential ingredient of the golden age phenomenon. In 1950 public spending in advanced countries was as low as 14% of GDP, but it increased by 15 percentage points over the following three decades. The increase was especially pronounced in Sweden, Denmark and the Netherlands, where it reached 25 percentage points of GDP (Eichengreen and Iversen, 1999). The expansion of the welfare state provided income security and thus incentives for workers to accept wage moderation. Notable examples of this are, for instance, Germany's pension reform in 1957 and the creation of the National Health Service in the UK. High government spending was largely financed from higher taxes, with little evidence of deficit spending in the period to 1973 (Singh, 2008).

In addition, many governments targeted full employment and used a variety of economic policy tools to attain this target. For instance, France pursued an active investment and industrial policy and nationalised large parts of its economy, aiming to create 'national champions' that could serve as growth locomotives. In Scandinavia, and to a lesser degree in Austria, full employment was helped by extensive provision of public services and wide-ranging public employment programmes. In other West European countries, growth was largely driven by the private sector, but the perception that the state would step in at any time if needed in order to support aggregate demand facilitated private-sector investment (Singh, 2008).

Bretton Woods system of fixed exchange rates and capital controls. The system of international order contributed to the above-mentioned virtuous circle of rising wages and investments. Productivity-oriented wage setting coupled with fixed exchange rates ensured broadly stable levels of price competitiveness, which enabled the avoidance of excessive trade imbalances. Balanced trade was also helped by the fact that cross-border capital flows were strictly regulated under the Bretton Woods system. As a result, there was little 'outsourcing' to cheaper locations and no 'race to the bottom' in terms of wages. Increasing globalisation of production, expansion of global value chains and the related 'race to the bottom' were unleashed only after the Bretton Woods system ultimately ceased to exist in 1973.

6.3. HAVE DEVELOPMENTS IN EU-CEE RESEMBLED THE 'GOLDEN AGE'?

At face value, economic developments in the EU-CEE countries in the second half of the 2010s have a lot in common with the golden age period in Western Europe (Table 6.2) – to the extent that developments over a five-year period can be compared with those spanning a quarter of a century. Both models have produced solid economic growth and generated a virtuous circle of investments and incomes. In this respect, both growth models differ markedly from the financialisation phase of the 1980s-2000s, when demand relied more on borrowing than on incomes.

Also, both economic models generated solid growth in employment. As domestic labour has been increasingly scarce, both have relied on imported labour (in the case of EU-CEE, coming mainly from Ukraine and the Western Balkans). However, most EU-CEE countries never quite reached the very low levels of unemployment that were characteristic of Western Europe during the golden age; Czechia was

a notable exception. By 2019 the unemployment rate in EU-CEE had declined to 4.2%, but the average rate for 2014-2019 stood at 7%, far above the 2.4% average for Western Europe during the golden age. Croatia and Slovakia, in particular, continued to register relatively high levels of unemployment, primarily owing to structural reasons.

Table 6.2 / 'Golden age' in Western Europe versus EU-CEE in 2014-2019

| | Western Europe 12 in 1950-1973 | EU-CEE in 2014-2019 |
|--|--|--|
| Average real GDP growth, % p.a. | 4.6 | 3.5 |
| Employment growth, % p.a. | 0.7 ¹⁾ | 1.4 |
| Average unemployment rate, % | 2.4 | 7.0 |
| Adjusted wage share ²⁾ , % of GDP | from 60.5% in 1960 to 61.0% in 1973 | from 49.9% in 2015 to 52.4% in 2019 |
| Wage setting | Productivity-oriented | Market mechanisms |
| Wage bargaining | Centralised | Decentralised (trade unions at firm level at best) |
| Labour immigration from | Eastern Europe, Turkey, Maghreb, Mezzogiorno | Ukraine, Western Balkans |
| GFCF, % of GDP | 24.8 ³⁾ | 21.4 ⁴⁾ |
| Reliance on foreign technologies | US technologies (Fordism, scientific management) | West European (especially German) technologies |
| International order | Bretton Woods system, including capital controls | Free capital flows within and outside the EU |

Notes: Western Europe 12: Austria, Belgium, Denmark, Finland, France, Germany, Italy, Netherlands, Norway, Sweden, Switzerland and the UK. 1) Average for 1950-1969. 2) Adjusted wage share defined as compensation per employee in relation to GDP at market prices per person employed, unweighted average of countries, Western Europe: excluding Switzerland. 3) Weighted average of Western Europe 12 countries, 1960-1973. 4) Excluding Croatia.

Sources: EU-CEE: wiiw; Western Europe: Singh (2008), Eichengreen and Iversen (1999); adjusted wage shares, GFCF: EU Ameco database; own elaboration.

Meanwhile, however, Table 6.2 demonstrates that the economic underpinnings of the two growth models have been quite different.

First, *investment growth* in EU-CEE has been much less impressive than in Western Europe during the golden age. In 2014-2019 gross fixed capital formation (GFCF) in EU-CEE averaged 21.4% of GDP, compared with 24.8% in Western Europe during the golden age period (see also Podkaminer, 2019). This is a non-negligible gap. In terms of productive investment, the gap is even bigger. In the EU-CEE countries, GFCF in machinery and equipment averaged only 9% of GDP in 2014-2019, whereas the big West European countries in the golden age period recorded much higher ratios. For instance, in France it increased from 14% of GDP in the 1950s to 17% in the 1960s; the corresponding figures for Germany are 17% and 18%, and for the UK 12% and 15% (Eichengreen, 2007). The relatively low levels of productive investments in EU-CEE cast doubts over the sustainability of their growth model in the longer run, even in the absence of the 'black swan' event of the coronavirus pandemic.

Second, *the relationship between wages and labour productivity* has been fundamentally different. During the golden age, because of the productivity-oriented wage setting, the adjusted wage share in the Western Europe picked up only slightly: from 60.5% of GDP in 1960 to 61.0% in 1973, i.e. by 0.5 percentage points over a time span of 13 years. In contrast, in EU-CEE it jumped by 2.5 percentage points of GDP within just four years: from 49.9% in 2015 to 52.4% in 2019.³¹ The strong wage growth in EU-CEE, outpacing that of labour productivity, would suggest consumption rising ahead of production,

³¹ As demonstrated by Astrov et al. (2019), the wage share in EU-CEE increased noticeably in the wake of the global financial crisis, dropped subsequently in the wake of labour market flexibilisation reforms, and only started to rise again in around 2015.

and increasing unit labour costs translating into inflationary pressures and competitiveness losses ('overheating'). However, these concerns appeared to be largely out of place. In general, in small open economies such as those in EU-CEE, domestic demand is less crucial than was the case during the golden age. Besides, most EU-CEE countries have so far enjoyed a generally solid external position (Romania being a major exception), suggesting that competitiveness losses have hardly been an issue. Their still very low wage share provides a sufficient buffer for further unit labour costs increases, which can be offset by profit squeezes without competitiveness losses (Astrov, 2019).

Third, the *degree of centralisation of wage bargaining* has been vastly different. Unlike during the golden age, labour markets in EU-CEE have been largely left to the free interplay of supply and demand, especially as a result of labour market reforms after the global financial crisis. In this context, fast wage growth in EU-CEE has been the consequence of demographic decline and outward migration, which strengthened the bargaining power of individual employees, rather than the power of trade unions. Wage setting in EU-CEE remains largely decentralised, with trade unions playing a role at the firm level, at most (Astrov et al., 2019).

Government policies in EU-CEE have been generally much more muted than in Western Europe during the golden age. The arrival in power of 'populist' governments, notably in Poland and Hungary, marked a departure from the austerity policies of their predecessors and resulted in a certain upgrade of the welfare systems, including re-nationalisations of their pension schemes (abolitions of the 'second pillar'). However, direct job creation has hardly been a government target *per se*: In most EU-CEE countries direct job creation has accounted for less than 0.5% of the labour force. Only in Hungary has it exceeded 5%, because the receipt of unemployment benefits has been linked to an obligation to participate in public employment programmes. The latter measure in Hungary can hardly be called 'labour-friendly', as it has had a dampening effect on the reservation wage and thus on overall wage dynamics (Astrov et al., 2019).

Finally, the EU-CEE economies have been developing in a *very different international setting* than was the case in the golden age period. Unlike West European countries in the 1950s and 1960s, the EU-CEE countries are exposed to international competition for production locations. In fact, they have benefited enormously from such competition – owing to their cheap and well-educated labour force as well as proximity to West European markets. But this may prove to be a double-edged sword: if foreign investors find new production locations that are even cheaper than EU-CEE or otherwise more attractive (such as, for instance, Turkey or Ukraine), the EU-CEE countries will ultimately lose out. Even the possibility of such an outcome will sooner or later put downward pressure on wage demands in the EU-CEE countries, constraining their growth prospects.

CONCLUSIONS

Although there are a number of similarities between the growth models of the EU-CEE countries in the second half of the 2010s and the golden age in Western Europe in 1950-1973, there are also important differences. The golden age required above all a high degree of co-ordination and co-operation between employers, trade unions and governments – which has hardly been the case in EU-CEE. Another, and possibly related, aspect of this has been the diverging investment performance: quite extraordinary during Western Europe's golden age and much less impressive in EU-CEE. Especially for this latter

reason, it appears unlikely that the growth path observed in the EU-CEE countries in the second half of the 2010s could have been sustained over a prolonged period of time – even in the absence of the ‘black swan’ event of the coronavirus pandemic.

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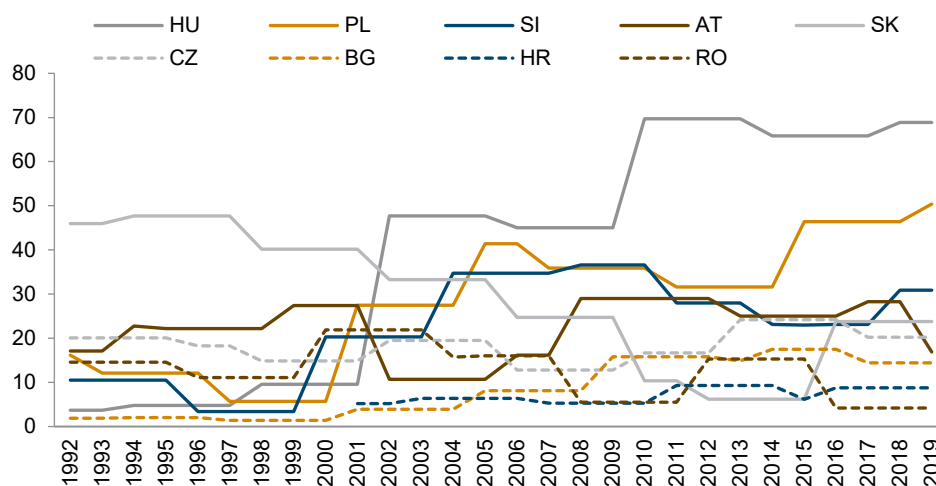
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7. How are the EU-CEE countries dealing politically with labour shortages?

7.1. BACKGROUND: WHAT IS THE BROAD POLITICAL CONTEXT IN THE EU-CEE COUNTRIES?

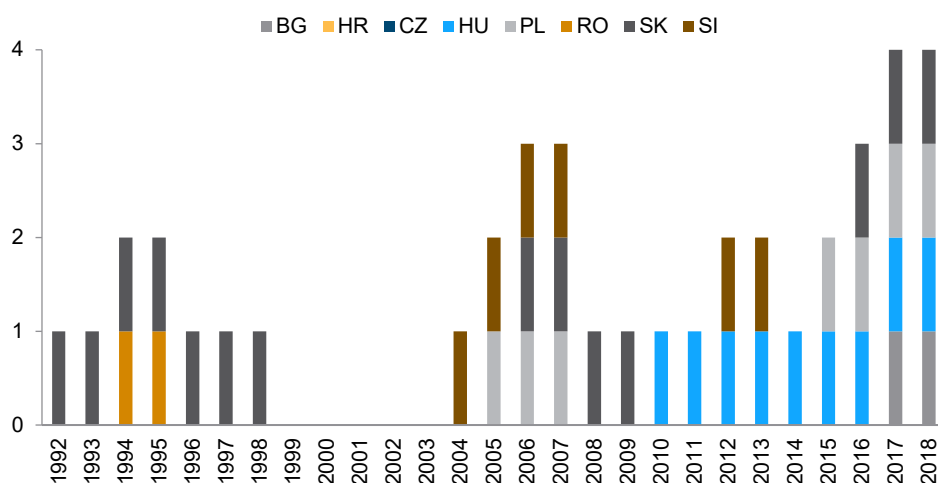
Over the past decade or so, increased attention has focused on the ‘anti-liberal backlash’ and ‘wave of populist xenophobia and reactionary nativism’ in Central and Eastern Europe (Krastev and Holmes 2019). This is most commonly associated with Hungary and Poland, especially following the accession to power of Fidesz in Hungary in 2010, and Law and Justice (PiS) in Poland in 2015. However, there is evidence of at least elements of these trends in many parts of the EU-CEE region. Since 2007, the last year before the global financial crisis, the populist vote share has increased in all EU-CEE countries except for Slovakia, Slovenia and Romania (Figure 7.1). In 2017-18, populists were in government in four of the eight EU-CEE countries, the highest number at any point since the fall of the Berlin Wall (Figure 7.2).

Figure 7.1 / Populist vote share in national parliamentary elections, in %



Source: TIMBRO.

Explanations for this are varied among political scientists and political economists. Krastev and Holmes (2019) highlight ‘resentment at liberal democracy’s canonical status and the politics of imitation (of the West)’. Runciman (2018) notes that for most of Central and Eastern Europe, liberal democracy is a very recent arrival and does not have deep roots. Given the loss of economic security and status experienced by many citizens in the transitional crisis in the 1990s, recent developments can therefore be interpreted as some kind of search for a more protective state (even if in practice this has not necessarily been delivered). Tooze (2018) sees the roots of Fidesz’s success in Hungary at least partly in the lack of support (and then extremely onerous IMF conditions) provided to the country in the depth of the 2008-2009 financial crisis by Western governments and institutions.

Figure 7.2 / Number of countries with populist parties in government

Source: TIMBRO.

Whatever the cause, the impact of the increased populist vote (and corresponding parties ruling some countries) on the fabric of public life in EU-CEE is already visible. In at least parts of the region, it has already had an impact on the quality of democracy, institutions, the media, corruption and other related areas. In the context of labour shortages, and the question of how governments in the region can react to them, these underlying institutional patterns are of central importance.

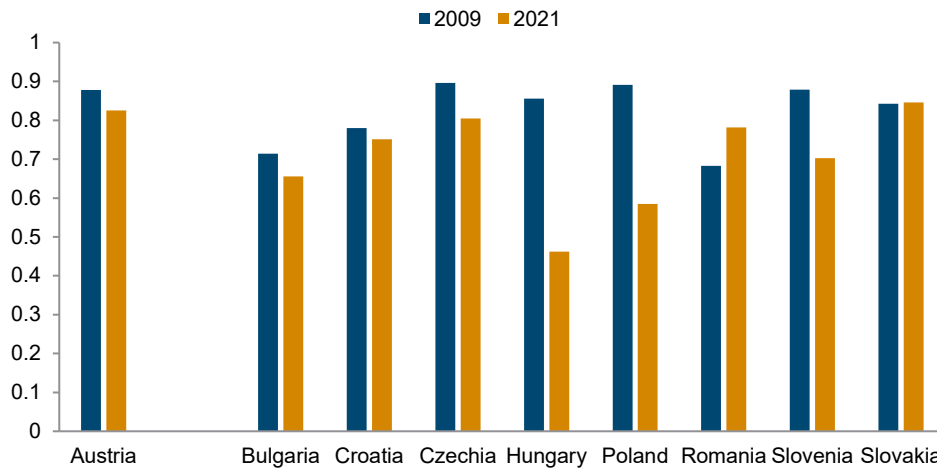
Quality of democracy

In its 2019 Democracy Index, the Economist Intelligence Unit (EIU) defined all EU-CEE countries as 'flawed democracies' (EIU, 2020). In its report the EIU highlighted that:

'eastern Europe's democratic malaise persists amid a weak political culture, difficulties in safeguarding the rule of law, endemic corruption, a rejection by some countries of 'liberal' democratic values, and a preference for 'strongmen' who bypass political institutions, all of which creates a weak foundation for democracy.'

The Varieties of Democracy Institute (V-Dem) at the University of Gothenburg went further than the EIU. In its most recent report, it classified one EU-CEE country – Hungary – as an 'electoral autocracy' and all the others as 'electoral democracies' (Boese et al., 2022). Most EU-CEE countries have registered declines in the electoral democracy score since 2009 (Figure 7.3), with the exceptions of Romania (where it has gone up) and Slovakia (where it has remained constant).³²

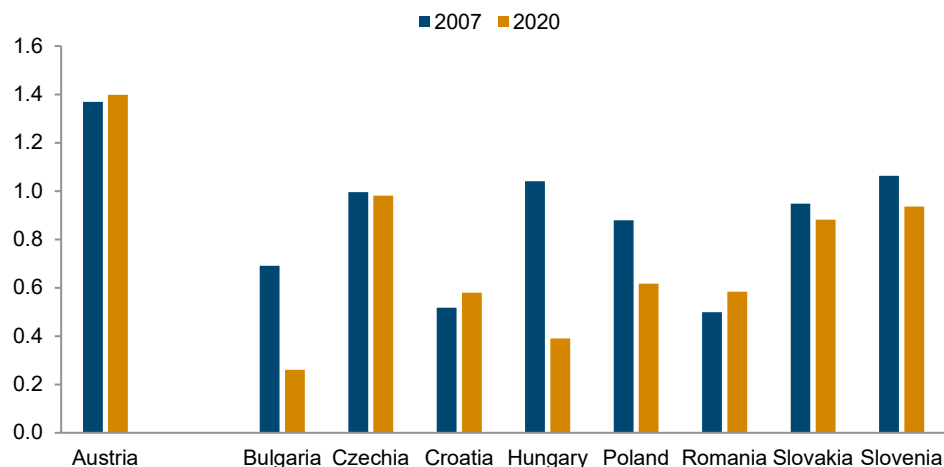
³² Interestingly, both Romania and Slovakia have registered recent (since 2019) slight rebounds in electoral democracy scores.

Figure 7.3 / V-Dem Electoral Democracy Score, min = 0, max = 1

Note: This score answers the following question: 'To what extent is the ideal of electoral democracy in its fullest sense achieved?'

Source: Varieties of Democracy (V-Dem) dataset 2022, <https://v-dem.net/data/the-v-dem-dataset/>

In its Worldwide Governance Indicators (WGI), the World Bank finds a decline in 'voice and accountability' in most EU-CEE countries covered here between 2007 and 2020 (Figure 7.4). The declines were particularly strong in Hungary and Bulgaria. However, in Croatia and Romania, where the respective score went up during this time.

Figure 7.4 / World Bank WGI voice and accountability score, min = -2.5, max = 2.5

Note: The score reflects perceptions of the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media.

Source: World Bank Worldwide Governance Indicators.

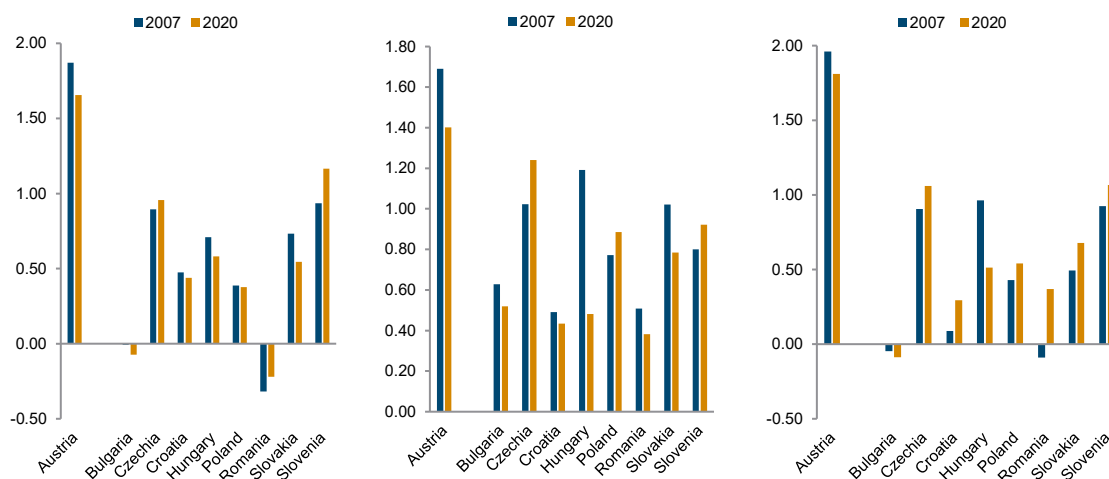
Institutions

As populists gain power and the quality of democracy and democratic accountability deteriorates, it becomes more likely that there will also be a visible impact on institutions. This can be in terms of their quality, independence or capacity. Three indicators produced by the World Bank as part of its WGI are relevant to consider here: government effectiveness, regulatory quality, and rule of law. Overall, they show that the negative impact on institutions is so far quite heterogeneous across EU-CEE countries. However, in all areas there is a clear and strong decline in Hungary and Bulgaria, and an improvement in Czechia and Slovenia (Figure 7.5). For all indicators, the outright level tends to be lower for the three later EU joiners: Croatia, Romania and Bulgaria.

Looking at the three relevant WGI indicators separately, we find the following:

- › Government effectiveness: In every country except Czechia, Romania and Slovenia, the World Bank observes a decline in government effectiveness between 2007 and 2020.
- › Regulatory quality: In every country except Czechia, Poland and Slovenia, regulatory quality declined between 2007 and 2020.
- › Rule of law: For all countries, rule of law has actually improved since 2007, except in Bulgaria and particularly Hungary, where it has fallen.

Figure 7.5 / World Bank WGI scores for government effectiveness (left), regulatory quality (middle) and rule of law (right), min = -2.5, max = 2.5



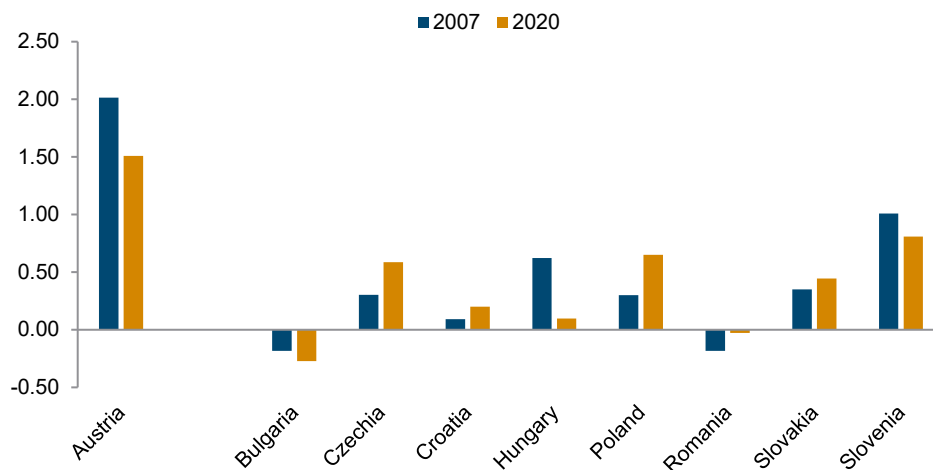
Note: The score for government effectiveness reflects perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies. The score for regulatory quality reflects perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development. The score for rule of law reflects perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence.

Source: World Bank Worldwide Governance Indicators.

Control of corruption

The WGI suggest a rather mixed picture for the EU-CEE countries covered here (Figure 7.6). For five countries there was a clear increase in the score for control of corruption between 2007 and 2020 (indicating a decline in corruption perceptions), while Bulgaria, Slovenia and particularly Hungary recorded declines in this index (suggesting that corruption increased during the period).

Figure 7.6 / World Bank WGI score for control of corruption, min = -2.5, max = 2.5



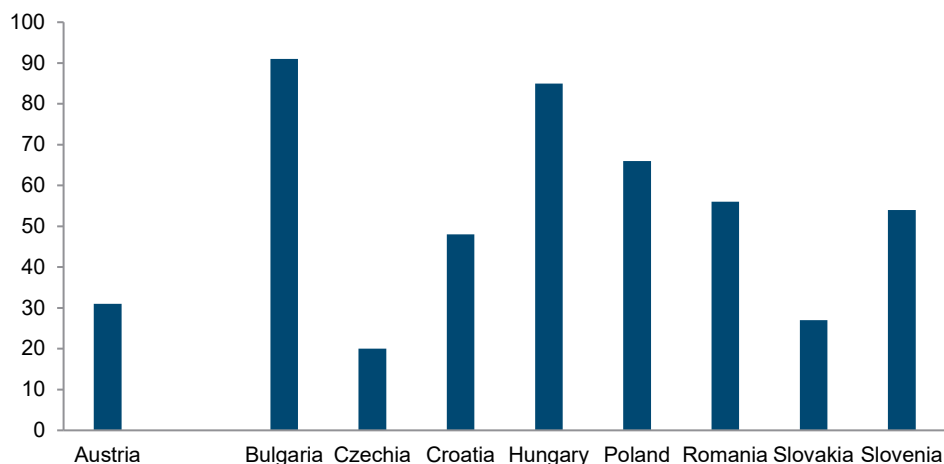
Note: The score reflects perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as 'capture' of the state by elites and private interests.

Source: World Bank Worldwide Governance Indicators.

Media freedom

According to the Reporters Without Borders 2022 World Press Freedom Index, there is a wide divergence in terms of media freedom among the EU-CEE countries (Figure 7.7). Czechia and Slovakia are ranked 20th and 27th in the world, respectively.³³ By contrast, Bulgaria is ranked 91st in the world, and Hungary 85th. This puts Hungary below countries such as Kyrgyzstan, Haiti, Guinea, Malawi and Peru. Meanwhile Bulgaria is ranked below Mongolia, Lesotho and the Maldives.

³³ It should be noted that Slovakia experienced the murder of Ján Kuciak, a journalist, in 2018. Mr Kuciak had been writing about organised crime in the country. Mass protests following the killing led to the resignation of the Prime Minister, his government, and the national police chief.

Figure 7.7 / Reporters Without Borders 2022 World Press Freedom Index, global ranking

Note: 'The degree of freedom available to journalists in 180 countries is determined by pooling the responses of experts to a questionnaire devised by RSF. This qualitative analysis is combined with quantitative data on abuses and acts of violence against journalists during the period evaluated. The criteria evaluated in the questionnaire are pluralism, media independence, media environment and self-censorship, legislative framework, transparency, and the quality of the infrastructure that supports the production of news and information.'

Source: Reporters Without Borders 2022 World Press Freedom Index.

Impact on relations with the EU

Growing anti-liberalism and the fallout of institutions and the rule of law in parts of EU-CEE over recent years have had a negative impact on some of these countries' relations with the EU. This includes the following:

- › In December 2017 the EU opened its Article 7 procedure against Poland, and the same action was initiated by the European Parliament against Hungary in September 2018, in both cases related to alleged rule of law breaches. However, so far this process has not produced significant results.³⁴
- › In February 2020, the Commission took action against several member states over money laundering, including Hungary, Romania, Slovakia and Slovenia.^{35 36}
- › In April 2020, the EU launched additional legal action against Poland related to new disciplinary rules for judges. The EU alleges that the new measures will undermine judicial independence.
- › In May 2020, the European Court of Human Rights (ECHR) ruled that the sacking of Romania's then anti-corruption chief in 2018 was unlawful. According to the ECHR, the decision 'defeated the very purpose of maintaining judicial independence'. Despite criticism from the EU, the Polish president also appointed a former political ally to head the country's supreme court.³⁷
- › In May 2020, the European Court of Justice (ECJ) ruled illegal Hungary's policy of holding migrants in 'transit zones' on its Southern border with Serbia.

³⁴ https://institutdelors.eu/en/publications/_trashed/

³⁵ https://ec.europa.eu/commission/presscorner/detail/en/inf_20_202

³⁶ <https://visegradinsight.eu/where-are-the-workers-labour-shortages/>

³⁷ <https://www.ft.com/content/da767495-2ca7-4436-ad7f-9edf32e8c086>

- › In June 2020, the ECJ rejected a Hungarian law that would have forced NGOs to register as foreign-funded entities.
- › In July 2020 the EU agreed its recovery fund in response to the COVID-19 pandemic, and that this will include mechanisms to stop funding in the case of rule-of-law breaches. This can be applied under qualified majority voting rather than unanimity, meaning that agreement between 55% of member states representing 65% of the EU population is enough to impose sanctions. Although Hungary and Poland strictly opposed to the proposal to include rule of law considerations in the COVID recovery fund, an attenuated version of the regulations were agreed upon in December 2020. However, there is uncertainty about how strictly this can be enforced in practice.³⁸
- › These issues were further intensified in September 2020, with the launch of a new rule of law report by the European Commission, the first of its kind.³⁹ The Commission plans to assess all 27 EU members on their rule of law performance, covering the judicial system, an anti-corruption framework, media pluralism and checks and balances. The report released on 13 July 2022 included strong criticisms of both Poland and Hungary.

At the time of writing, Poland's recovery plan has been approved by the Commission, meaning that Warsaw will be able to start drawing down its share of RRF funds. The war in Ukraine, and Poland's important role in the EU's response to it, seems to have created more willingness for compromise. By contrast, approval for Hungary's recovery plan remains pending. Given the various developments, it will be hard to imagine that this will not prompt further tensions between the EU institutions and some Western European governments on one side, and certain EU-CEE capitals on the other. Nevertheless, the most likely scenario is that, as in the past, a compromise will be found.

Pushback

In the context of all of the above, it is crucial to keep in mind that also within the EU-CEE countries there is some pushback against illiberalism at the government level. Two important examples bear this out.

First, at the level of local government, various actors are seeking to resist autocratic tendencies in some national governments. The best example of this is the cooperation between mayors of the capital cities of the Visegrád countries, who in December 2019 signed a 'Pact of Free Cities' and promised to work together to defend the interests of their pro-EU electorate.⁴⁰

The second is numerous protests by civil society groups visible across the EU-CEE countries over recent years, some of which have intensified as a result of perceived mishandling of the COVID-19 pandemic. In Slovenia, anti-government protests were held every Friday for several months in 2020, related to civil rights and environmental concerns.⁴¹ Major protests took place in Poland in August of the same year to defend gay rights. In Hungary in August 2020, thousands protested against what they saw as a political takeover of a university.⁴²

³⁸ <https://www.ft.com/content/83ba3c08-d73f-42c3-8d7d-b355746024af>

³⁹ <https://www.europarl.europa.eu/legislative-train/theme-a-new-push-for-european-democracy/file-2020-annual-rule-of-law-report>

⁴⁰ <https://www.ft.com/content/e9128e40-1d72-11ea-97df-cc63de1d73f4>

⁴¹ <https://www.reuters.com/article/us-slovenia-protest/slovenia-anti-government-protests-continue-as-country-calls-an-end-to-epidemic-idUSKBN22R38R>

⁴² <https://www.bbc.com/news/world-europe-54052182>

7.2. HOW DO LABOUR SHORTAGES PLAY OUT IN THE REGION'S POLITICS?

Labour shortages are an important part of the political debate in the EU-CEE countries, and this has increased in recent years. There are several ways that this plays out in the domestic political debate.

First, labour shortages are part of a wider debate in the EU-CEE countries focused on demographic decline and outward migration. These are not new developments in EU-CEE, but the negative consequences of this have become much more apparent in recent years. As outlined in the introduction to this study, natural population change and net migration are both already negative in several EU-CEE countries, and the working age population is projected to decline in all EU-CEE countries between now and 2040. A 2019 wiiw study found that, on then-current trends, many of the EU-CEE economies would reach a 'tipping point' where they essentially run out of workers in the early 2020s (Leitner and Stehrer 2019). These issues are widely discussed in the policy debate in the EU-CEE countries. Croatian Prime Minister Andrej Plenkovic describes depopulation across the region as an 'existential problem'. For Ivan Krastev, this is indeed the reason for the authoritarianism described above: 'rising illiberalism in central and eastern Europe [is]...an attempt to preserve the power of shrinking ethnocultural majorities in the face of population decline'.⁴³

Second, labour shortages are discussed in the context of countries' education and vocational training systems, and the extent to which the current set-up fully meets the needs of the labour market. In Slovakia, for example, labour shortages exist side-by-side with a still relatively high unemployment rate, implying a mismatch and pools of untapped labour (particularly in the east of the country). At least in some cases, therefore, labour shortages are not solely the production of low birth rates and high outward migration. The use of Active Labour Market Policies (see Chapter 2) has so far been limited in most EU-CEE countries in comparison to the rest of the EU.

Third, labour shortages naturally feed into the debate around inward migration in the EU-CEE countries. One of the ways to solve labour shortages - as seen for example in Austria - is to encourage inward migration in the areas where skills are required. Here, many EU-CEE countries have successfully encouraged quite large-scale migration from nearby countries, with Ukrainians in Poland being the most visible example (see Chapter 2). Several million Ukrainians have arrived in EU-CEE since the Russian invasion, although most are women, children and the elderly, so their impact on the labour market will not be significant. Moreover, many do not want to stay long term. With migration from nearby countries not enough to fill the gap in EU-CEE labour markets, demand from businesses to loosen restrictions on workers from outside Europe is set to increase over the coming years. This is an altogether more difficult political issue for the EU-CEE countries. Hungary is an example of a country where the government takes a hard line against certain types of immigration (non-Christian, non-European etc) but quietly allows it to happen in order to meet the needs of the economy.⁴⁴

The tensions that this creates in the EU-CEE countries were made clear in 2018 when Poland's then- vice-minister for development, Pawel Chorazy, said that Poland needs more immigrants. For this, Mr Chorazy was fired, with Prime Minister Mateusz Morawiecki saying he had 'gone too far'. In 2019, a draft of Poland's immigration strategy was leaked to the media, which included a chapter on what it said were risks associated with Islam. After this caused a backlash in Poland, the interior ministry described it as just 'an initial idea, up for internal discussion'.⁴⁵ Nevertheless, attitudes among the general population regarding

⁴³ <https://www.ft.com/content/c5d3e0ae-36eb-11ea-ac3c-f68c10993b04>

⁴⁴ <https://www.politico.eu/article/poland-two-faced-immigration-strategy-ukraine-migrants/>

⁴⁵ <https://www.ft.com/content/2dd225a8-a498-11e9-974c-ad1c6ab5efd1>

migration from outside Europe appear quite negative. In 2017 a Chatham House survey found that 71% of Poles and 64% of Hungarians agreed with the statement that 'all further migration from mainly Muslim countries should be stopped'.⁴⁶

The fourth way that labour shortages find their way into the policy debate in EU-CEE is via the link to automation. At least in theory, automation is the answer to labour shortages. As companies struggle to find workers, and competition for a shrinking labour pool drives up wages, the relative attractiveness of investing in labour-saving automation increases. This appears indeed to be what has happened in recent years, with automation rates (measured in terms of robots per worker) rising rapidly in the EU-CEE countries in the past decade (see Figure 3.5 in Chapter 3). However, the discussion within EU-CEE countries is often very different, with the debate framed in a way that suggests robots will steal workers' jobs and lead to mass unemployment. One recent study by the OECD found that a large number of jobs in Slovakia could be automated (OECD, 2018). However, these results were framed rather more negatively, as Slovakia being the OECD country *most at risk* of losing jobs to automation. Similar concerns about jobs being lost to automation have been expressed in Hungary.⁴⁷

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⁴⁶ <https://www.chathamhouse.org/expert/comment/what-do-europeans-think-about-muslim-immigration>

⁴⁷ <https://visegradinsight.eu/how-long-will-it-take-automation-could-decimate-the-hungarian-labour-market/>

Summary and conclusions

Labour shortages have emerged as a phenomenon in EU-CEE only relatively recently (approximately starting from 2014) and for the first time since the transition crisis at the beginning of the 1990s. They resulted from the combination of solid economic growth and shrinking labour supply arising from demographic decline and outward migration in many of those countries. The COVID-19 pandemic and the resulting blow to economic activity did not bring a major reversal of this trend. Although labour shortages in the region briefly subsided as a result, they are now back on the agenda in many countries of the region. Moreover, demographic developments may aggravate them in the future. On the positive side, labour shortages have resulted in a decline in unemployment and a catch-up of workers' incomes towards the EU average levels. On the negative side, more and more firms in the region have reported shortages of labour as a constraint on production, which may limit the growth potential of EU-CEE. Enterprises, the state, employees and trade unions responded to labour shortages in various ways.

In past years, national governments addressed labour shortages in different ways. Most importantly, all EU-CEE countries selectively liberalised their migration policies in order to attract third-country nationals as workers. Apart from increasing the number of issued work permits in general, all countries (except for Bulgaria and Romania) introduced occupation shortage lists. Foreign workers with the relevant qualifications were provided with simplified work permit procedures, which overrule the existing quota regimes as well as labour market testing procedures. Minimum wages have been increased markedly, with a view to curbing outward migration (apart from reducing income inequality and supporting domestic demand). The ratio of minimum wages to average monthly earnings has been lifted substantially to about 45% on average – ratios comparable to Western Europe.

Almost all EU-CEE countries have also been implementing digitisation programmes in order to reduce labour demand, and R&D expenditures have been increased. However, only in Slovenia and Czechia are these close to 2% of GDP, which is not far behind the EU average. In order to counteract population decline, Hungary and Poland have significantly increased family benefits since 2015. The Hungarian government has also pushed employees into more flexibility by increasing the maximum number of allowed overtime hours from 250 to 400 a year, enabling employers to use their workforce more intensively. However, active labour market policies, i.e. measures to retrain and activate the unemployed and inactive, are less developed in EU-CEE than in Western Europe.

In a functioning market economy, shortages should not be a problem. Quite the contrary, capital and labour should be used at full capacity and shifted towards the most efficient use. Because the EU-CEE countries started from lower levels of productivity, they had a lot of room for improvement by reallocating production factors (capital and labour) towards more efficient use. As a result, their catch-up process resulted in structural change proceeding faster than in the rest of the EU. Agriculture has continued to shed labour, especially in Romania, but also in Croatia, Bulgaria and Poland. At the same time, commercial services have grown strongly, although their share in total employment, at 40%, is still almost 10 percentage points below the EU average. Moreover, the share of manufacturing has generally increased as well, which is contrary to the rest of the EU. Within manufacturing, labour has shifted more towards those sectors that showed higher productivity growth.

Entrepreneurs obviously attain higher labour productivity levels via raising the capital-labour ratio. Therefore, it is little surprise that investment growth in EU-CEE has accelerated in the face of labour shortages, especially in manufacturing. The stock of foreign direct investment (FDI) per employee has increased as well. The degree of robotisation has risen strongly; Slovenia, Slovakia and Czechia have almost caught up with Austria in this respect. Within manufacturing, investments have grown more strongly in those subsectors with higher wage growth. This highlights that capital deepening has taken place faster where labour was in higher demand. Labour was not substituted with capital, but rather the complementary effect was prevailing, and structural change continued smoothly in a low-unemployment environment. There is no evidence of labour shortages in EU-CEE hampering economic growth or catch-up with the EU average or Germany in the most recent period.

Although the working-age population declined everywhere in the region over the past two decades, employment actually increased. Employers could hire not only the formerly unemployed, but also the formerly inactive. In particular, elderly persons remained longer in employment than had previously been the case. Thus, by 2021 the activity rate of the working-age population (15-64) in four EU-CEE countries – Czechia, Hungary, Slovenia and Slovakia – exceeded the EU average level of 73%, and in Czechia it nearly matched the Austrian level of around 77%. In addition, employers used the relaxed immigration policies to attract increasing numbers of third-country migrants, especially from Ukraine and non-EU Balkan countries, although increased return migration in the wake of the COVID-19 crisis has somewhat mitigated this trend.

A useful strategy to increase the supply of skilled labour and raise their productivity is to invest in vocational education and continuous vocational training (CVT) activities in firms. Most of the EU-CEE countries traditionally show a high share of pupils enrolled in vocational programmes in upper secondary education (about 70%), which is much above the average of the EU (50%). Hungary and Poland, the countries with the lowest shares, caught up in this respect in the past decade. In addition, most EU-CEE countries have increased their number of apprenticeship places and committed themselves to raise those further, while in Croatia, the majority of young people have already been trained in dual education programmes for a long time. The share of enterprises providing CVT has increased considerably in a number of the EU-CEE countries.

Owing to the rise in the bargaining power of labour, not only have real wages been rising ahead of labour productivity, but this positive gap has also expanded over time. Only in Slovakia and Croatia have wages increased more slowly than productivity. In many EU-CEE countries, the shortage of labour has also resulted in above-average rises in the earnings of skilled workers in demand in the industrial sectors (craft and related trades workers, operators and assemblers).

Yet the increase in the bargaining power of labour has so far not resulted in a strengthening of the social partnership model in EU-CEE. However, short-time work schemes implemented during the COVID-19 pandemic have arguably strengthened transnational social partnership throughout the EU. Also, there are some indications that the long-term trend of declining unionisation and the coverage by collective agreements might have come to a halt. Industrial action, which has remained low in past decades, emerged in some instances in order to support wage negotiations in multinational firms. In the car industry, for example, strikes at Volkswagen Slovakia and Audi Hungary were successful in enforcing wage increases (and this was also the case in a number of automotive industry suppliers), triggering discussions about the differences in wages between employees in affiliates of multinational firms in the EU-CEE countries and those employed in their headquarters.

The educational structure of the labour force improved in EU-CEE continuously in the past decade. The share of employees with tertiary education increased in all countries except for Bulgaria and Romania, while the share of workers with less than upper secondary education has traditionally been low. High-skilled occupational groups ('professionals' and 'technicians and associate professionals') expanded, too, at the expense of medium-skilled groups. However, the share of low-skilled jobs in the category 'elementary occupations' also increased in a few countries. The most pressing labour shortages are currently observed in sales/marketing, operations/logistics, manufacturing, and the IT sector. Training of employees is particularly widespread in Slovenia, Czechia and Hungary and in high-skilled occupations.

Recent mobility patterns show that outward migration from EU-CEE has weakened. Czechia, Hungary, Slovenia and Slovakia and, most recently, Poland have become net receivers of migrants, while in Bulgaria immigration from non-EU countries compensates in large measure for the natives who look for work outside their country. Only in Croatia and Romania does (net) emigration still persist. Factors that have slowed emigration from the region are the relatively favourable economic and labour market situation, the shrinkage of the working-age population and the decrease of the earnings gap with Western Europe. In information and communications, as well as the financial sector, average wages have already surpassed the EU15 average for the total economy – at least measured at purchasing power parities. However, the decline in 'brain drain' from EU-CEE, which was observed during the first half of the past decade, has in many countries reversed. In Croatia and Slovenia, it currently even exceeds 2011 levels.

The political context obviously plays an important role in how the governments of the EU-CEE countries are dealing with labour shortages. In the past decade, the vote share of populists increased considerably, and in four countries such parties were in government recently. In at least parts of the region, the quality of democracy, institutions and the media has come under pressure, with corruption perceived to be more prevalent. In particular, Hungary, Poland and Bulgaria are assessed as more authoritarian than a decade ago. Demographic decline and outward migration are major topics in the political discourse on labour shortages in the region. However, immigration as a solution is a difficult and often misused topic. Although Ukrainians and other European third-country migrants are deemed to be 'acceptable' workers nowadays, most governments in the EU-CEE region take a hard line against non-Christian, non-European immigrants. Meanwhile, the use of the term 'automation' – another potential way to deal with labour shortages – generates concerns about massive job losses in many countries. A further important topic is the adaptation of the countries' education and vocational training systems in order to provide the skills needed. Active labour market policies are used only selectively and so far, have not been extensively discussed.

Comparing the recent developments in EU-CEE with the so-called 'golden age' period in Western Europe (1950-1973), one can conclude that similarities between the two growth models (relatively high economic growth accompanied by low unemployment) are rather superficial. In particular, the institutional set-up has been very different. The leverage of the nation state in the EU-CEE countries is smaller. Social partnership exists only in a fragmented, slimmed-down version (Slovenia is an exception), and thus decentralised wage bargaining prevails. In addition, the EU-CEE countries are very open economies: free movement of goods, capital and labour within the EU reduces the scope for governments to protect enterprises and workers from international competition. Although salaries caught up with those in Western Europe, the wage shares in EU-CEE (52% on average in 2019) are much lower than in Western Europe in the 1960s (60%). Overall, we would not assess the socio-economic formation prevailing in EU-CEE over the past decade to be a stable growth model, not least because the investment ratios, particularly into machinery

and equipment, are considerably lower than in the 'golden age' of capitalism. However, the experience of Western Europe of that time is relevant for the EU-CEE region nowadays. It shows that labour shortages are not in themselves an obstacle to rapid structural change and income growth as long as aggregate demand is stabilised by productivity-oriented wage policies and an active, non-austerity-oriented government budgetary stance.

Policy conclusions

Our analysis shows that labour shortages are not per se a hindrance to economic growth. On the contrary, they can result in faster catch-up and restructuring. Provided that governments support the development with adequate policies, the outcome can be a smooth process of productivity and income growth. There are four basic options for dealing with labour shortages: higher immigration; higher birth and participation rates; capital deepening, including automation; and upskilling of the labour force via education and training.⁴⁸ All may provide part of the answer, but taking into account the economic, social and policy reality outlined above, raising labour productivity via investments in all sectors (including in automation in industry) and improving the capabilities of the existing workforce should be the main focus in EU-CEE. Higher participation rates may also be part of the solution, although the potential for this is higher in some countries than others. Immigration faces major political obstacles, particularly if the potential migrants do not come from neighbouring countries. The strategy to increase birth rates via financial incentives in some parts of EU-CEE will take decades to show results, if at all. We structure our proposals under four main points:

i) Foster structural change via capital deepening and upskilling of the workforce

The levels of labour productivity in the EU-CEE countries are in many sectors of the economy much lower than in the rest of the EU. As in former times in Western Europe, labour supply should result from labour shedding in agriculture and other low-productive parts of the economy. Fostering investment in those sectors (accompanied by a modernisation of public infrastructure) allows the release of workers for more productive, growing industries. In order to speed up structural change, the upskilling of the workforce requires greater public investment in (vocational) education and forward-looking continuous training measures – not only retraining after job loss. Workers should be provided with the skills needed in a high-productive welfare-oriented economy.

ii) Encourage automation via higher minimum wages

This is far from a straightforward issue. Introducing automation is generally much easier in manufacturing than in other sectors. Much also relies on firms' own decisions, limiting governments' own agency. However, there are things that governments can do to push this process along. Perhaps the most significant of these is a higher minimum wage (and particularly the targeting of a certain percentage of the national median wage), which would provide a powerful incentive to automate low-wage jobs (as has happened, for example, in Scandinavia). Over the last 30 years, the EU-CEE countries have generally pursued a strategy of keeping wages low to stay 'competitive'. Now, as labour shortages cause wages to rise, and robots become cheaper, a different way of thinking should be encouraged.⁴⁹ Although there are certain risks to such a policy, considering the high reliance of the EU-CEE countries on FDI, in reality these risks are probably overstated. FDI decisions are long-term in nature, and from the perspective of Western

⁴⁸ See also: Grieveson, R., S.M. Leitner and R. Stehrer (2019), 'EU Faces a Tough Demographic Reckoning', *wiiw Policy Note/Policy Report*, No. 30, Vienna, June.

⁴⁹ <https://visegradinsight.eu/how-long-will-it-take-automation-could-decimate-the-hungarian-labour-market/>

investors, the EU-CEE countries have plenty of advantages beyond just relatively cheap labour.⁵⁰ In the coming years, the region may even receive more FDI as a result of 'nearshoring'; the COVID -19 pandemic has exposed the fragility of intercontinental supply chains, which could lead some Western multinationals to bring back investment from Asia to EU-CEE.

iii) Deal with the transition costs

Lifting labour productivity via capital deepening including automation is a good way to deal with labour shortages if measured by results. However, between low-skilled workers being replaced by robots or other machines, and those workers finding new jobs in more productive (as well as less automatable) parts of the economy, a lot of time can elapse. This creates uncertainty and stress for those made redundant and creates the risk that they will end up as long-term unemployed. Three things are key in handling this issue. First, a proper system of retraining of unemployed workers, which takes into account the needs of a more digitalised and more automated economy. Second, the welfare system must be properly funded to deal with periods of unemployment that some workers will inevitably face. Third, the geographical aspects of this transition cannot be ignored. In the 1980s in Western Europe, the decline of industry as a source of jobs was met with an assumption that as factories, mines and shipyards closed, workers would move elsewhere to find work. As the economists Abhijit Banerjee and Esther Duflo⁵¹ have shown, this did not happen. During the current transition, policymakers must accept that most people will not move, and that support should be targeted to help workers in the regions where they live. Effective regional policy, including with the support of EU funds, must be a central part of the answer.

iv) Change tax policy to fund these transition costs

High-quality provision of welfare, education and retraining programmes requires substantial funding. The EU-CEE countries have, over the last 30 years, mostly pursued an economic model that has included low taxes, often including flat personal income taxes, and a relatively small state. This model will not generate the fiscal sources required to finance the transition costs outlined above.

The massive extra fiscal needs generated by the current crisis have put at least a temporary end to the small-state model of EU-CEE, with governments across the region deploying significant fiscal stimuli to counter the pandemic's economic and social fallout.⁵² Particularly in the current environment of ultra-low borrowing costs, this episode has highlighted how much more of a role expansionary fiscal policy can play in the region's economies. Over the medium term, this expanded role for the state can serve as a template for how to deal with transition costs in the economy of the 2020s. To finance this, governments should think about how best to raise revenues. One obvious option to consider is a more progressive income tax regime and removing the flat-rate taxes that continue to exist in many countries. This would generate extra fiscal resources for measures such as retraining programmes, without any negative impact on economic growth.⁵³

⁵⁰ Grieveson, R. (2018), 'Demographic decline does not necessarily condemn CESEE EU countries to a low growth future', Focus on European economic integration (OeNB), Q3, 2018, pp. 122-130.

⁵¹ Banerjee, A. V. and E. Duflo (2019). *Good Economics for Hard Times*, PublicAffairs.

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