European Centre of Expertise (ECE) in the field of labour law, employment and labour market policy

Labour Market Policy Thematic Review 2018: An in-depth analysis of the emigration of skilled labour

Slovakia

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1 Introduction: the demographic and labour market situation in Slovakia

Slovakia's population is expected to age the fastest among EU countries in the coming decades. The country currently has one of the youngest populations in the EU with a median age of 39.0 years (42.4 years in the EU-28). However, demographic projections suggest that Slovakia will become one of the fastest ageing EU societies in the coming decades. Given assumed stability in a low fertility rate, large increases in life expectancy and low immigration, the country is expected to face significant demographic changes associated mainly with ageing. According to Eurostat population projections, the old-age dependency ratio (population 65 and over to population 15-64) is expected to grow from 19.7 in 2015 to 39.1 in 2040 and 59.4 in 2060 (i.e. the dependency ratio is expected to triple by 2060 while for the EU as a whole it is assumed to less than double). Consequently, the fiscal impact of ageing is expected to be substantial in Slovakia.

The risks associated with the demographic change and ageing could be further exacerbated by the outflow of young people abroad. Although official migration statistics and projections suggest positive but insignificant, net migration flows (accounting for less than 0.3 % of the total population during 2004-2016), alternative sources (e.g. health insurance data) indicate that during the past 15 years, Slovakia's population has decreased by 300 000 people (approx. 5 % of the population) due to out-migration. More than half of those who left during the past five years were less than 30 years old (IFP, 2017).

The proportion of tertiary educated people in the workforce grew by 50 % between 2008 and 2016 (from 14.9 % to 22.4 %), while the share of people with medium education has remained practically unchanged (43.8 % in 2004, 44.3 % in 2016). During the same period, the proportion of highly skilled emigrant workers has doubled from 7 % to 14.4 % and that of medium skilled has declined from 46.8 % to 39.8 % of total emigrant labour.

The outflow of qualified workers is contributing to growing labour and skills shortages in many sectors of the economy. The long-depressed Slovak labour market has gradually revived from the recession and currently benefits from a cyclical recovery of the economy. The employment rate among 20-64 year-olds surpassed pre-crisis levels in 2016 (69.8 %). The unemployment rate attained historically low figures in the first half of 2017 (6.9 % in June and 6.7 % in July 2017), although long-term unemployment remains high (around half of all unemployed are out of work for more than one year).

The number of job vacancies reported to the Central Labour Office has nearly doubled during the past year (from 38 308 in July 2016 to 61 057 in July 2017). While labour out-migration has served as an important adjustment mechanism to cushion the adverse effects of the crisis on the local labour market, continued outflow of the workforce (not only the young and highly skilled) is assumed to contribute to the shrinking labour force and rising labour shortage in several sectors of the economy. There is return migration to some degree, but net out-migration has been clearly positive throughout the past decade. The rising shortage of qualified labour means that employers must draw from the large pool of unemployed, but due to lacking and inadequate skills, this puts increasing pressure on the import of workers from economically less performing EU and non-EU countries.

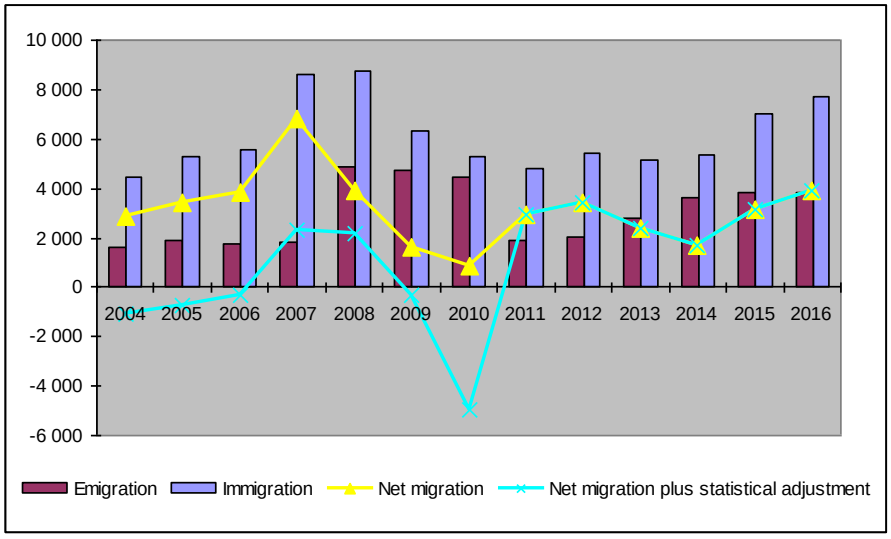
2 Emigration of skilled labour

Data on migration flows available from national and international databases are limited which needs to be considered when interpreting the data.

Slovakia is both a sending and receiving country for migrants, particularly for labour migrants. The total migrant stock for Slovakia was estimated at 342 000 people in 2015 (6.3 % of the total population), with Europe the destination for 93 % (UN, 2015). Official data on legal migration to and from Slovakia collected by the Statistical Office of the Slovak Republic (and used also by Eurostat) provide a rather narrow and underestimated picture of actual migration flows, particularly of outflows, since it captures only emigrants who report the intention to leave the country to relevant authorities and change their place of permanent residence.[1] Arrivals of foreigners are presumably better recorded by national authorities since they are associated with registration (EU/EEA nationals) and/or residence/work permit procedures (third country nationals) and cover temporary and permanent residence.

Figure 1 implies that overall there has been positive net migration in Slovakia since joining the EU in 2004. According to official data, Slovakia's population has increased by 14 403 people between 2008 and 2016 (1 600 persons on average every year) due to immigration from abroad.[2] However, national expert estimations of emigration, including unreported, suggest that a substantially higher number of people left the country during 2001-13, resulting in negative net migration throughout the surveyed period (Jurcova – Pilinska, 2014).[3]

Figure 1. Legal migration to and from Slovakia, 2004-16



[1] It is generally assumed that people tend to not report changes in residence due to a relatively high administrative burden involved. Moreover, the failure to report is not sanctioned.

[2] It should be noted that unlike Eurostat, the national Statistical Office uses unrevised data for the period prior to year 2011, when the last population and housing census was conducted. By the unrevised national data, net migration counted an increase of 30 583 persons during 2008-2016 (3 823 on average).

[3] Jurcova – Pilinska (2014) estimated that the actual number of emigrants leaving the country in 2001-2010 was on average by 5 500 per year higher compared to population change statistics. The national Statistical Office subsequently estimated that the numbers of emigrants in 2011-13 were higher by 5 900, 7 300 and 2 200 persons compared with the balance.

Source: Eurostat

One-in-four residential emigrants (23 %) aged 15+ who left the country between 2008 and 2016 completed higher education (corresponding to ISCED 5-6 and/or 5-8) and more than half (53 %) had medium education (ISCED 3-4). These data are somewhat above the corresponding ratios in the economically active population for the same period (19 % and 44 %, respectively). Work- and study-related motives were given as reasons for moving abroad in 13 % of departures only. Those aged 20-34 represented nearly half (42 %) of all emigrants, but an upward trend in the average age of emigrants is clearly visible over the past 10 years. Data on arrivals suggest that the proportion of returning Slovak citizens on legal immigration has tripled between 2008 and 2012 and represented 50 % on average of all arrivals in 2013-16. Medium and high educational attainment also prevailed among residential immigrants (41 % and 26 % of all immigrant adults, respectively).

While statistics on people leaving Slovakia and taking up residence in another country do not indicate a significant risk of brain drain, available data on migration for employment point to continuing sizeable outflow of labour from Slovakia, which involves certain risks of brain drain and brain waste. Data on short-term migration for work abroad collected by the Statistical Office of the Slovak Republic in the Labour Force Survey cover migrants who have worked abroad for less than one year and are still considered members of a household resident in Slovakia. In view of its limitations[4] and the relatively small sample size, the Labour Force Survey (LFS) should be considered a supplementary source of data on migration (Jurcova – Pilinska, 2014). However, the LFS represents one of the few currently available representative datasets that enables study of out-migration (Kahanec – Kurekova, 2014). Table 1 summarises data on short-term labour migration from Slovakia by all available dimensions.

Table 1. Short-term migration for work abroad (thousands), 2008-16

	2008	2009	2010	2011	2012	2013	2014	2015	2016
Employed total	2 433.8	2 365.8	2 317.5	2 315.3	2 329.0	2 329.3	2 363.0	2 424.0	2 492.1
of which									
employed abroad	**167.6**	**129.0**	**126.7**	**115.2**	**120.7**	**136.4**	**134.0**	**148.0**	**159.7**
Sex									
men	122.0	92.8	89.5	76.6	83.3	91.6	90.8	96.9	103.4
women	45.6	36.3	37.3	38.5	37.4	44.8	43.2	51.2	56.4
Age									
15-24 y	34.9	20.9	16.9	12.5	12.6	13.3	13.7	14.2	14.7
25-34 y	69.0	47.8	42.5	40.6	45.7	47.8	46.1	52.0	50.5
35-44 y	32.9	31.0	30.3	26.8	28.7	37.5	36.1	38.2	44.3

[4] According to Kahanec and Kurekova (2014), the LFS 'does not capture the migration of economically independent units, whether single- or multi-person households. However, individuals engaging in temporary or seasonal work abroad or commuters are considered household members, even if they work abroad for more than a year and are therefore included in the survey. An important implication is that the LFS better captures migrants who are family members and have attained circular or temporary patterns of mobility'.

45-54 y	24.2	22.6	29.0	26.2	26.5	27.2	25.0	29.5	34.1
55+ y	6.6	6.8	8.1	9.0	7.2	10.5	13.2	14.2	16.2
Education *									
Basic	7.3	4.2	4.8	3.4	(2.7)	(2.6)	3.3	(4.2)	5.3
Secondary without LE	70.0	57.4	57.1	47.7	50.8	54.5	60.0	64.4	67.9
Secondary with LE incl. post-secondary	78.5	59.6	56.2	53.2	57.2	64.2	55.3	58.8	63.5
Tertiary	11.8	7.8	8.5	10.8	10.0	15.2	15.5	20.6	23.0
NACE Rev.2									
A Agriculture	4.3	4.3	(2.3)	(1.9)	(1.8)	(2.1)	2.7	(2.7)	(4.1)
B-E Industry	53.3	34.3	33.7	32.4	30.5	29.0	28.8	35.9	32.4
F Construction	49.1	40.3	42.0	34.5	37.2	45.6	40.6	36.8	45.8
G Wholesale and retail	7.8	6.7	6.0	4.3	5.8	6.1	4.5	5.6	9.2
H Transport and storage	18.8	8.4	5.7	6.8	6.6	6.1	6.8	8.0	5.9
I Accommodation and food services	11.4	11.5	11.3	7.6	9.8	12.5	14.4	17.0	13.0
J Information and communication	5.1	(1.3)	(0.6)	(1.4)	(1.5)	(1.9)	2.1	(2.8)	(1.2)
M Professional activities	8.0	(2.2)	(2.1)	(0.8)	(1.0)	(1.6)	0.9	(1.6)	(2.0)
Q Health and social work	(2.7)	10.7	13.6	15.6	16.9	20.5	24.7	31.5	38.7
T Activities of households	5.4	4.7	4.5	6.2	5.4	5.3	3.9	(0.4)	(1.4)
Other	(1.7)	4.7	4.9	3.6	(4.4)	5.7	4.7	5.8	6.0
ISCO-08									
1 Managers	(2.7)	(2.1)	(2.0)	(2.5)	(1.8)	(2.6)	1.9	(2.5)	(2.8)
2 Professionals	5.2	3.6	(2.8)	4.2	(3.4)	5.2	5.5	6.8	6.4
3 Technicians and assoc. professionals	11.1	9.1	9.2	7.4	8.8	10.2	8.2	9.9	11.3
4 Clerical support w.	5.4	3.8	(2.7)	(2.6)	(4.0)	(4.4)	3.8	4.9	7.3
5 Service and sales	26.9	23.3	26.0	25.4	28.4	36.6	38.5	42.6	49.2
6 Skilled agric., forestry & fish. workers	(2.0)	(1.3)	(0.7)	(0.1)	(0.4)	(0.5)	1.3	(1.1)	(1.9)
7 Craft and related trades workers	48.4	40.7	38.8	36.4	38.6	44.9	43.3	45.3	48.4
8 Plant and machine operators	37.0	24.0	23.1	18.9	17.8	17.4	18.4	17.2	16.1

9 Elementary occupations	28.7	21.0	21.1	17.8	17.6	14.2	12.9	17.5	16.5
0 Armed forces	-	-	-	-	-	(2.6)	0.2	(0.2)	(0.1)
Destination country									
Czech Republic	70.1	49.9	52.4	43.6	44.9	43.5	38.0	38.8	39.5
UK	20.2	14.1	10.6	9.7	7.5	10.6	10.1	8.6	7.4
Hungary	18.9	14.5	11.6	9.8	7.3	6.1	4.9	5.9	6.6
Austria	17.6	19.9	23.9	25.6	29.3	37.9	39.3	42.1	51.0
Ireland	8.1	3.1	3.4	(1.8)	(1.0)	(1.8)	1.3	(1.5)	(1.2)
Germany	9.3	8.5	6.3	5.7	9.8	14.8	17.3	24.9	27.7
Italy	8.9	4.7	3.0	3.1	(4.0)	(4.3)	3.4	(2.5)	(3.6)
Netherlands	(2.9)	4.2	5.0	5.9	6.4	5.2	5.7	(3.3)	4.8
Other	11.6	10.2	10.6	9.9	10.6	12.4	14.0	20.5	18.2

Notes: * Basic education corresponds to ISCED 1-2, secondary vocational education without leaving exam (LE, maturita) corresponds to ISCED 3, (full) secondary general or secondary vocational education with leaving exam and post-secondary education corresponds to ISCED 3-4, tertiary education corresponds to ISCED 5-6/5-8. Data in brackets have lower reliability.

Source: LFS, Statistical Office of the Slovak Republic

Labour out-migration has risen quite sharply after Slovakia's EU accession. The number of migrant workers peaked in 2007 at 177 000 and then fell considerably between 2008 and 2011 on the back of the deepening labour market recession in the main receiving countries (Figure 2). Since then, the number of Slovaks working abroad has gradually increased to 160 000 people in 2016 (5.7 % of the economically active population).[5] But the figures are likely to be underestimated due to data limitations and the actual number of migrant workers is estimated to be substantially higher [up to between 250 000 and 300 000 (Kahanec – Mytna Kurekova, 2014; PAS, 2015) and/or 9-11 % of the labour force].

The changing characteristics of labour migration indicate a shift from youth and graduates' out-migration to a 'breadwinner' profile of emigrants (Kahanec – Mytna Kurekova, 2014)**.** While after EU accession young people (15-34 year-olds) have clearly prevailed among emigrant workers (65 % in 2006 and still 62 % in 2008), their relative share has gradually decreased during the past 10 years to 41 % in 2016. On the contrary, mid-aged and elderly workers (including those aged 55 and above) have risen substantially in numbers and relative shares, particularly after the most critical phase of the recession.

As far as the education profile of emigrants is concerned, a visible trend in recent years is a moderately decreasing share of medium skilled workers (ISCED 3-4) in favour of the high skilled (ISCED 5-8). The share of workers who

[5] Quarterly LFS data show a gradual decrease in the number of migrant workers since 2Q2016. In 2Q2017 the number of persons working abroad dropped to 149 900 (minus 15 200 and/or 9.2 % year-on-year). Data could indicate a longer-term decreasing trend, which is presumably associated with the rising labour shortage in the domestic labour market, rising wages and decreasing earnings differentials between home and main destination countries, resulting in both lower rate of outflows and higher rate of returns. Recent policy changes (Brexit) may also contribute to this trend.

completed tertiary education doubled between 2008 and 2016 (from 7.0 % to 14.2 % of all migrant workers), but still remains relatively low compared with the proportion of tertiary educational attainment in the non-migrant workforce (22.9 % in 2016, after 15.4 % in 2008). The share of lower-skilled emigrants (secondary education without leaving exam) and emigrants with only primary education has remained surprisingly stable during the past 10 years (at around 45 % of all emigrants). A comparison of the educational profile of long-term residential migrants and short-term labour migrants implies that the former are slightly better educated than the average economically active population while the educational attainment of the latter is below that of the average population.

The above shifts in the age and education structure of migrant workers are closely linked with the changing conditions and opportunities in the local labour market and destination countries. Although there is no straightforward correlation, LFS data imply that labour out-migration is more prevalent in less performing regions with higher unemployment rates, fewer job opportunities and less paid jobs (the most depressed Presov region leads in the numbers of workers employed abroad). Intra-country migration, usually from poorer regions to prosperous job-rich areas, continues to be low since it is hampered by several factors, notably a rigid housing market. Commuting flows show more dynamics and presumably act as a partial substitute for internal migration.[6] Internal and international labour migrations share some common features and determinants, but data from the LFS imply that the two migration flows are complements rather than substitutes in Slovakia. LFS statistics further point to a marked decrease in the outflow of young people to the UK and Ireland (i.e. countries that instantly opened their labour markets after the 2004 EU enlargement and attracted a high share of educated youth migrants) with the onset of the crisis because the demand for immigrant workers in these countries clearly deteriorated.

Other receiving countries, less affected by the recession, particularly Austria and Germany, have been able to absorb a growing number of immigrants from Slovakia. The shift has been partly affected also by the abolition of transitional restrictions on free worker movement to the two above countries (as of May 2011) and the earlier legalisation of social care provision for Slovak care workers in Austria. All these changes have been accompanied by a reallocation of migrant workers across occupations and sectors.

The increase of highly educated emigrants is not necessarily reflected in a growing take-up of high skilled jobs, which could indicate some brain waste. In fact, only a small increase in high skilled occupations (ISCO 1, 2, 3) taken by Slovak migrant workers can be seen over the past 10 years. Instead, labour migration is witnessing a shift from skilled manual professions (notably operators in the manufacturing industry) and elementary occupations to skilled non-manual jobs (above all services and sales workers, in the health and social care sector).

The above LFS-based assumptions are largely consistent with findings derived from health insurance data. According to a study by the Institute for Financial Policy (IFP, 2017), which analysed brain drain using data from the health insurance registry[7], Slovakia's population shrunk by approximately 300 000 people

[6] For more details see Vagac (2013).

[7] The central register of health insurance policyholders is administered by the Health Care Surveillance Authority. Health insurance is mandatory for all persons living in Slovakia, including foreigners (specific categories of inhabitants are covered by the

(almost 5 % of the population) during the past 15 years, creating an average net outflow of 20 000 people every year. The most marked decline occurred in the two years after EU accession, while 2009 was the only year when more people arrived than left. The situation has since then stabilised at a negative balance of around 15 000 people per year. However, since 2013, there has been a marked slowdown in the decrease, resulting from both declining outflows and increasing inflows into the register (minus 18 000 in 2013, minus 14 300 in 2014 and minus 5 600 in 2015). More than half of those leaving in 2010-15 were less than 30 years old.

Available evidence confirms that it is not only economic factors that drive worker out-migration. Unsurprisingly, wage differentials, better career prospects and more job opportunities in destination countries seem to play a crucial role in migration decisions and choices. However, 'soft' determinants such as well-functioning institutions, sense of safety and security, or more generally a higher quality of life in the host country are important aspects taken into consideration, particularly by those who work or study abroad and contemplate staying versus returning home (PAS, 2015). Mytna Kurekova (2014) finds that precise push factors beyond wage differentials remain understudied.[8] Kahanec – Mytna Kurekova (2014) studied migration determinants for young people and found that young unemployed, Roma youth, graduates from health and social work studies and youth from backward regions are more likely to migrate than their counterparts (i.e. employed young people, youth majority population, graduates in total, young people from Bratislava region, respectively).

Similar results have been obtained in the aforementioned study by the Institute for Financial Policy (2017). The authors conclude that people who had been unemployed one year before departing abroad have a 2.3 percentage points higher probability to leave than their employed counterparts (the chances to leave decrease with extended unemployment spells). 24-29-year-olds are more inclined to emigrate than older populations. Those with tertiary education, particularly among the young, have a slightly higher propensity to emigrate than those with lower education; in older age categories (30-39), the effect of tertiary education does not display, but the probability to leave in this age cohort is strengthened by the unemployment status of tertiary educated people (IFP, 2017).

There are no consistent data on return migration, making it difficult to draw clear-cut conclusions on the magnitude of actual brain drain. As a result of data limitations, it is not possible to thoroughly investigate migration flows as to how far they are permanent, temporary, seasonal or circular and how migrant workers fare in

state, including students in higher education abroad). Unlike when changing the permanent address, which is the information source for migration statistics, people are financially motivated to de-register and re-register when leaving for and/or returning from longer-lasting work or studies abroad. Nevertheless, data are presumably underestimated and should be treated with caution as there are certain limitations (e.g., included are persons working abroad who continue to be voluntarily insured in Slovakia, persons working in Slovakia but insured abroad are not included, uncertainty about de-registration of children when emigrating with parents – for more details see IFP, 2017).

[8] Mytna Kurekova argues that both individual and regional level factors matter in affecting the propensity (of young people) to migrate. Earnings have a positive and enabling effect on migration rather than a solely 'pushing' effect as argued by the neoclassical theory (Mytna Kurekova, 2014).

the home labour market if they returned.[9] It is likely that the economic crisis has accelerated return migration due to deterioration in many receiving economies (particularly Ireland and the UK, but also Italy) and also induced a redirection of worker migration to destinations less affected by the crisis (Austria, Germany). Zaiceva and Zimmermann (2014) find using 2008-10 data from the European Social Survey, Eurobarometer and EU LFS that Slovakia had one of the largest proportions of returning migrants among the EU-10 countries in that time. They further document that skilled individuals were overrepresented among returnees to Slovakia from the EU-15 (shares of highly educated among returnees were larger than among both stayers and migrants), suggesting a potential positive selection in terms of skills and potential brain gain and/or gainful brain circulation. But, as the authors argue, such results may also arise because overqualified people employed in jobs below their qualifications return disproportionally more. The already-mentioned study by IFP (2017) estimated that half of those who left between 2000 and 2013 returned by 2015, while almost a quarter of them returned within two years. The percentage of returnees has changed over time, with the highest rates of return between 2006-2008. In contrast, the share of long-term expatriates (i.e. those who did not return until 2015) has exceeded 50 % since 2009.

The increasing lack of skilled workers is an opportunity to integrate long-term unemployed and employ skilled foreigners. Several branches of the economy report a critical shortage of skilled labour. There are currently more than 60 000 vacancies (and this counts only those reported by employers to labour offices), which employers increasingly try to fill with jobseekers. However, half of the registered unemployed (approx. 100 000) are jobless for more than a year and one-in-four is without a job for more than four years, signalling significant employability problems. ALMPs have been reinforced, particularly reskilling programmes, but these can hardly generate desired results quickly. Employers are thus increasingly trying to attract foreign workers. The number of foreigners working in Slovakia has grown by almost 40 % year-on-year to 43 200 workers in July 2017 (around 1.7 % of total employment), of which 39 % were third country nationals.[10] The government acknowledges that import of foreign workers is likely unavoidable, but emphasises the priority to satisfy the rising labour demand with domestic labour. State-run projects aiming to encourage high-skilled Slovak experts living abroad to come home and take jobs in the public sector are small in scale and thus far have produced insignificant results (see chapter 5).

Many young people start their migration path with studies at foreign universities or leave Slovakia after graduating at home. Of the total number of full-time students who completed their university degree between 2010 and 2014, approximately 13 % left the country after finishing studies (IFP, 2017). According to OECD statistics, Slovakia has become one of the main exporters of university students abroad (14.2 % of national tertiary students were enrolled at foreign universities in 2014, OECD Education at a Glance 2016). A survey entitled Brain Drain 2014 undertaken by the Sociological Institute of the Slovak Academy of Sciences (Bahna, 2015) suggests that 43 % of graduates who studied abroad return to Slovakia after two or more years of completing studies. The same survey shows that most of those who decide to stay abroad may be regarded as the most talented in terms of human

[9] Quarterly LFS data do not signal seasonal patterns in labour emigration. There is partial evidence about the prevalence of daily (to bordering Austria, Hungary), weekly (Czech Republic) and fortnightly commuting (Austria).
[10] Source: Central Office of Labour, Social Affairs and Family

capital (study outcomes, educational background of parents). On the other hand, as the authors suppose, that top-educated young people stay abroad opens mobility channels for children with a 'lower level' of human capital. Another survey conducted in 2015 by the Business Alliance of Slovakia, entitled Talents for Slovakia, finds that less than a quarter (23 %) of Slovaks studying abroad plan to live in Slovakia. Quality of education and the ensuing better prospects in the labour market is what most attracts young Slovaks to study abroad. 'Higher salaries' and 'order and prosperity' in Slovakia would motivate the highest number of students to return home (PAS, 2015).

3 Emigration of skilled labour and its impact on domestic economies beyond the labour market

Literature suggests vast potential economic and social impacts of skilled labour outflow on sending countries (for example, OECD, 2007; Atoyan et al, 2016)**.** There appears to be insufficient information on brain drain from Slovakia, its scale, occupational and sectoral composition to determine its impact on the country's economy, labour market and social system. The following attempts to identify (some of) the main consequences and implications of (skilled) labour emigration on the domestic economy beyond the labour market.

In Slovakia, the correlation between labour migration and economic growth appears positive (Figure 2). However, Fic et al. (2016) estimated that population outflows from Slovakia resulted in a long-run decline in the country's GDP by almost 2 % during 2002-2009. A model applied by the IMF calculated that cumulative real GDP growth in Slovakia would have been 3.5 percentage points higher without skilled emigration[11] during 1995-2012, compared to an average 7 percentage points potential increase for all countries of Central, Eastern, and South-eastern Europe (Atoyan et al, 2016). It is probably fair to say, therefore, that skilled migration has had a fairly significant adverse impact on growth and convergence in Slovakia, which – given the consistent migration patterns – has presumably remained constant in recent years and is likely to continue at least in the near future as Slovakia is expected to remain a net sending country of migrants. Inflow of foreign labour and remittances from Slovaks working abroad may relieve the negative effects.

Import of labour should lessen the negative impact of emigration on growth and revenues and partly offset the loss of skills, ideas and innovations – or simply loss of human capital – associated with the outflow of the most talented and educated people. However, the qualification and skills composition of labour immigrants largely responds to the structure of available job opportunities, generally associated with elementary and lower-skilled positions (see chapter 4).

Labour outflows are associated with reduced tax revenues due to less activity and consumption. Remittances, although difficult to quantify exactly, contribute to growth mainly by increasing household consumption and investments in the home country and revenues from consumption taxes. As noted in Atoyan et al (2016), remittances can also create less incentive for recipients to work (see chapter 4) meaning less labour tax revenues. According to World Bank estimates, migrant remittance inflows to Slovakia are one of the highest among EU countries. Overall, however, the net fiscal impact of emigration is assumed to be small (Atoyan et al, 2016), although significant costs are also associated with the departure of highly educated graduates whose tertiary studies have been publicly financed in the home country. According to the Institute for Financial Policy estimates, between 2010 and

[11] In this model, skilled referred to at least completed secondary education.

2013, the state lost annually EUR 44.8 million invested in university education (IFP, 2017), although the cost needs to be balanced against public transfers provided to the emigrant if he or she stayed home and also against the remittances received.

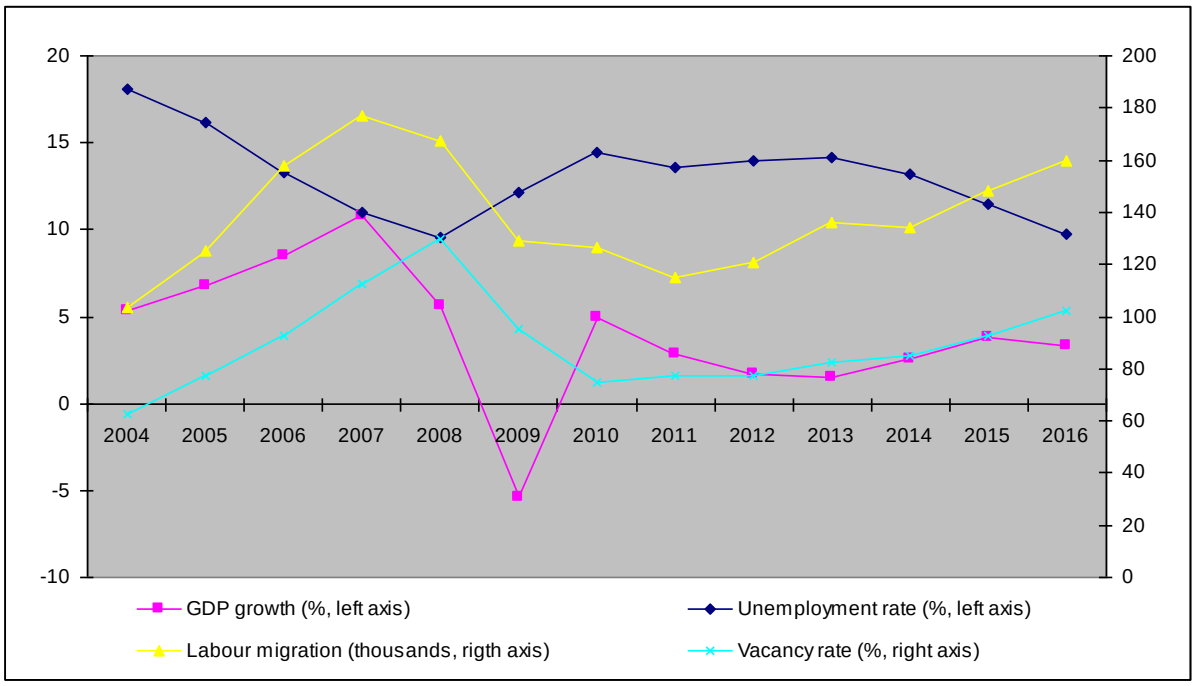
Thus far, net migration flows have not had a significant negative impact on social spending in Slovakia (Atoyan et al, 2016). But continued positive net out-migration of the working-age population could have significant implications for the future financing and implementation of social protection policies (pensions, health and long-term care), since demographic ageing is projected to accelerate substantially in Slovakia. This further emphasises the importance of focusing on immigration of (skilled) labour and return migration.

Brain drain is likely contributing to an exacerbation of regional inequalities. Slovakia has large regional disparities in economic performance, labour market and social conditions. Because educated and younger people from lagging regions are more likely to migrate for work abroad, skilled labour emigration may intensify regional disparities. Statistics show that regional disparities in the unemployment rate and poverty risk at NUTS 3 (regions) and NUTS (4) (districts) levels increased between 2008 and 2012 on the back of the economic crisis and have since stabilised and/or slightly decreased. Wage differential, though, remained practically unchanged and large, particularly between Bratislava and the rest of the country. This picture is partly distorted, however, by intra-country commuting flows.

4 Emigration of skilled labour and its impact on labour market conditions

Emigration is associated with far-reaching effects on the labour markets in source countries. Pryymachenko, Fregert, and Andersson (2013) explored the effects of emigration on source countries' labour markets and found that emigration from the Central and Eastern European members of the EU during 2000-2007 has contributed significantly to the decline in unemployment in these countries. They estimated that a 10 % increase in the emigration rate led to a decrease in the unemployment rate by at least 3.4 %. According to Kahanec – Kurekova Mytna (2014), 'the attenuating effect of out-migration on the unemployment rate overshadows the push effect of unemployment on migration'. Figure 2 confirms a strong negative correlation (-0.81) between labour outflows and the unemployment rate in Slovakia.

Figure 2. Labour migration and economic indicators, 2004-16

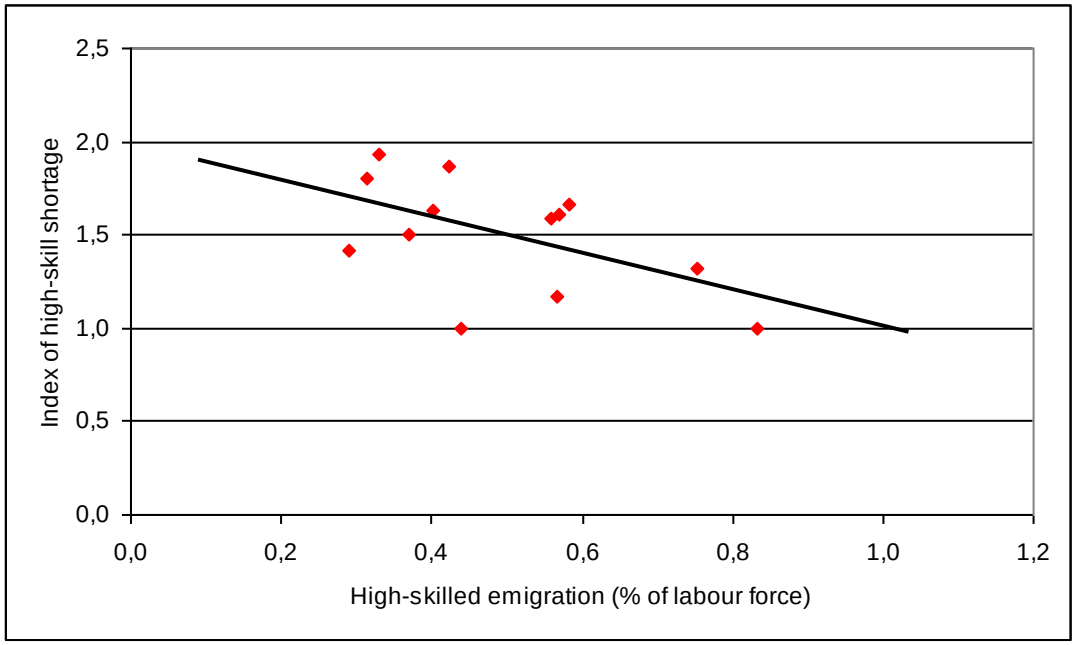


Source: Statistical Office of the SR; Eurostat, Kahanec – Mytna Kurekova (2014)

Besides contributing to a decline in unemployment, outflows of labour may also exacerbate labour shortages. The unwanted effects had the most impact during the pre-crisis boom and the recent cyclical improvement.[12] The IMF study (Atoyan et al, 2016) established a positive relationship between the emigration of workers with tertiary education and the shortage of such workers in Central, Eastern, and South-eastern Europe since 2000. But the impact of high-skilled emigration on skills shortage in Slovakia is not clear cut. LFS data on shares of high skilled workers in employment and high skilled people in the working-age population (positive difference between the two indicators is used in the IMF study to indicate high-skills shortage, while negative values indicate surplus) point to a persistent shortage of high skilled labour between 2004 and 2016. However, Figure 3 does not confirm a long-run positive association between skilled migration and the high-skill shortage.

[12] Unfilled vacancies are used in Figure 2 as a proxy for labour shortage.

Figure 3. Impact of emigration on shortage of high-skilled workers, 2004-16



Source: Statistical Office of the Slovak Republic; Atoyan et al (2016); own calculations

Note: Index represents the difference between the share of high-skilled workers in employment and the share of high-skilled people in the working-age population, where positive values indicate a shortage, and negative values, a surplus.

By adding to the labour shortage, labour out-migration could be increasing upward pressure on domestic wages. As proposed by Atoyan et al (2016), these effects are likely associated with low substitutability between skilled emigrants and natives in the sending countries and higher reservation wages[13] associated with remittances. The authors further assume that increasing opportunities to work abroad may in the short term strengthen workers' bargaining power. The applied model estimated that skilled emigration has contributed around 3 % to the average annual nominal wage growth (7.6 %) in Slovakia between 1995 and 2012. National statistics confirm a positive relationship between total labour outflows and wage dynamics, notably during the early crisis years 2008-12 and less significantly since 2013.[14] The recent mounting pressure on wages, however, may not be reflected in higher pay levels only but could have equally affected the quality of jobs and provision of non-wage benefits. Nevertheless, upward pressure on wages is expected to further increase as there are no signs of a lessening in the already tight labour market.

Skilled emigration does not seem to have impacted wage inequality in Slovakia. Literature finds that the effects of emigration on wage inequality in sending economies depend on the skill levels of those who leave and on the skill composition of the remaining labour force. Perugini – Pompei (2015) found no evidence of a correlation between emigration and overall income inequality between 2007 and 2011 for eight countries of Central and Eastern Europe. They observed a moderate reduction of wage dispersion in most of the surveyed countries, including Slovakia. In fact, Slovakia has one of the lowest levels of income inequality in the EU in the long

[13] Reservation wage refers to the lowest wage rate at which a worker would accept a particular job.
[14] A similar positive correlation could not be established for high-skilled emigration.

run. This is mainly due to a relatively low dispersion of wages and redistributive policies. The educational composition of emigrants is comparable or even lower than that of the remaining workforce, as suggested by LFS data. It is fair to assume that out-migration of skilled labour did not evidently impact on wage inequality. Remittances could potentially affect inequality in the sending country either way but there is no clear evidence of particular impact.

The inflow of labour from abroad responds to labour demand but does not fully compensate for the losses caused by emigration. As already noted, the inflow of foreign workers has intensified over the past year as many industries suffer from an acute lack of qualified labour that cannot be filled with the domestic non-migrant workforce. According to media reports, demand remains strong in the automotive industry, IT sector, transportation, construction and several business services. Car makers have already responded to the situation with the import of employees, mainly from Romania and Bulgaria. Construction companies increasingly hire workers from nearby third countries (Serbia, Ukraine). Statistics on unfilled job vacancies suggest ongoing high demand for lower-skilled and elementary occupations.[15] Data on foreigners working in Slovakia show that their average qualification level is below that of domestic non-migrant labour.[16] However, they are obviously willing to emigrate because of wage differentials unappealing to unemployed native residents.

High remittances correlate with lower employment and labour force participation in sending countries, according to growing research (e.g. Mansoor et al, 2006, Goerlich et al, 2007; Atoyan et al, 2016). In short, higher transfers by emigrant members to households in the sending countries are associated with a higher probability of the remaining household members' inactivity, which may reflect increases in the reservation wage resulting from higher non-wage income, more leisure consumption, higher enrolment in education, etc. Although evidence on the effects comes mostly from developing countries, it is also worth including some disincentive effects of remittances in the more advanced sending countries. The IMF study (Atoyan et al, 2016) concludes that a 1 percent of GDP increase in remittance inflows is associated with about 2 percentage points increase in the economy-wide inactivity rate in five Central European countries, including Slovakia. Remittance inflows actually doubled in Slovakia between 2004 and 2016 (from 1.2 % to 2.4 % of

[15] Out of the total stock of unfilled job vacancies reported in July 2017, 61 % required no more than lower secondary education (ISCED 0-2). Most of the vacancies (71 %) were offered in lower-skilled and unqualified occupations (ISCO 6-9). Source: Central Office of Labour, Social Affairs and Family

[16] Third country nationals holding a Blue Card and employed without a working permit make up around 25 % of foreign labour stock (as of July 2017). They have the lowest average educational attainment among foreign workers and are usually employed in temporary elementary and low-skilled jobs (dominated by citizens of Serbia). Third country nationals employed based on a work permit (15 % of total stock) display the highest relative share of tertiary educated individuals working in high-skilled occupations (mainly from Ukraine, Russia, Korea, USA). The skill composition of EU citizens employed in Slovakia (around 60 % of all immigrant workers) is more or less comparable with that of the domestic labour force, with workers from Romania, Bulgaria and Hungary being over-represented in low-skilled jobs and workers from Western European countries in high-skilled jobs. Immigrant workers from the Czech Republic and Poland share a similar qualification structure than the native labour force. Source: Central Office of Labour, Social Affairs and Family

GDP[17]) and are among the highest in the EU, suggesting that some disincentive effects of migrant remittances on economic activity cannot be ruled out (although we have not found direct evidence for this assumption in national research). On the other hand, it may be argued that remittances can help left-over households to overcome credit constraints and invest in education or start-ups and thus contribute to human capital formation.

Outflows of skilled labour from Slovakia appear linked to some down-skilling. Existing research suggests down-skilling of well-educated migrants from CEE countries into jobs at lower skill levels, highlighted after these countries joined the EU in 2004 (Kahanec, 2013). National LFS data indicate that underutilisation of migrants' skills in jobs below their qualification level likely continues. While the share of highly educated migrant workers on total migrant stock substantially increased between 2008 and 2016, the proportion of high skilled positions occupied by migrants from Slovakia has not changed much. Kahanec (2013) finds that down-skilling may be a result of discrimination, language and institutional barriers, but also may be part of migration trajectory preferred by some migrants.[18]

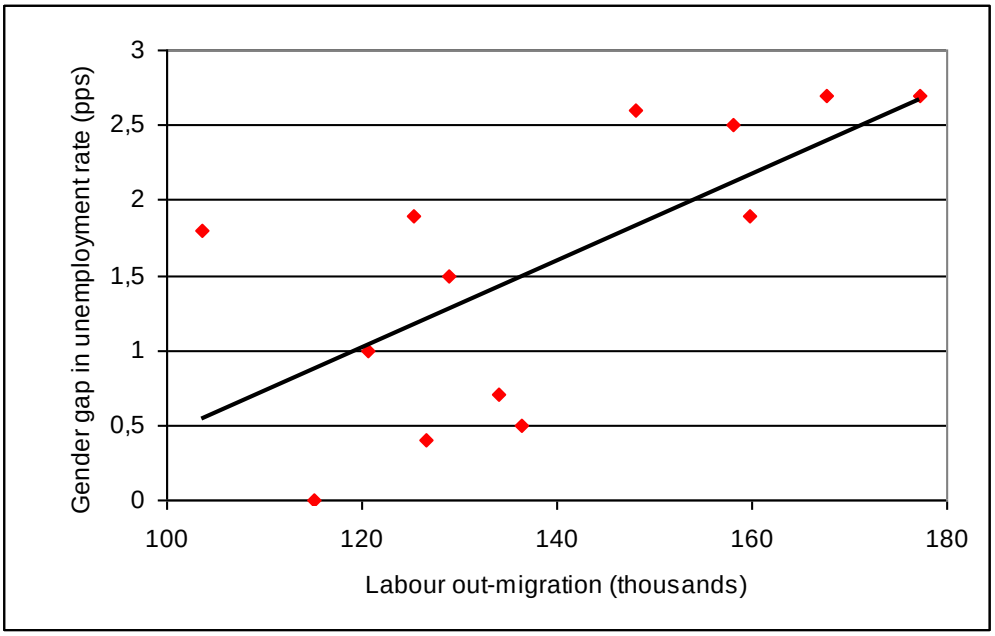
Down-skilling affects mainly high-skilled female migrants. Unlike non-labour (residential) emigration, where women comprise around 60 %, labour emigration is dominated by male workers who account for more than two-thirds of all labour outflows (68.4 % on average in 2008-16). In contrast, female migrants display a substantially superior educational attainment to their male counterparts (more than 70 % of female migrants have at least full secondary education and about 20 % of them have tertiary education, while the corresponding shares for men are less than 50 % and about 10 %, respectively). The gender disproportion is less pronounced when it comes to utilisation of skills – migrant women and men have a comparable share in high-skilled occupations (around 13-14 %), while women dominate in skilled non-manual jobs (above 70 %) and men in skilled manual jobs and low-skilled elementary professions (above 70 %). This leads to the conclusion that high-skilled women working abroad are much more affected by over-qualification and the corresponding underutilisation of skills than men.

Emigration from Slovakia may also contribute to an increase in the gender unemployment gap. The proportion of female workers on total emigration has increased over the past decade mainly due to sizeable outflows of Slovak women to female-dominated health and social care sectors in Austria and Germany since 2011 (from 27.2 % in 2008 to 35.3 % of all migrant workers in 2016), but still remains much lower than the equivalent ratio in the employed and economically active populations. Plotting 2008-2016 migration flows against the gender gap in unemployment rates (Figure 4) shows a relatively strong correlation (0.67 for all emigration, 0.64 for skilled emigration) between the two variables, although no simple causality can be established.

[17] Source: https://data.worldbank.org/indicator/BX.TRF.PWKR.DT.GD.ZS https://data.worldbank.org/data-catalog/migration-and-remittances

[18] Kahanec (2013) argues that "down-skilling may be a rational strategy for temporary migrants in some situations – for example, if they do not find investing in mastering host country's language worthwhile and rather take a less demanding job."

Figure 4. Emigration and the gender unemployment gap, 2004-16



Source: Statistical Office of the Slovak Republic; own calculations

5 Actions undertaken by Member States to address the outflows of skilled labour

Brain drain became a key concern in policy debates in the post-EU accession period, accompanied by a steep increase of labour outflows of mainly young and well-educated people abroad. The economic crisis saw out-migration plummet and the brain drain debate was overshadowed by problems associated with soaring long-term unemployment, recovery measures and structural reforms. The recent cyclically-driven improvements and an emerging labour shortage re-started the debate on skilled emigration and its implications for the home country. The intensified policy debate compelled the government, alongside stepping up active labour market policies to activate the long-term unemployed, to take specific measures to attract skilled migrants to return home.

On 8 July 2015, the government approved a 'Grant scheme supporting the return of experts from abroad', prepared by the Ministry of Education. The scheme aims to encourage highly-educated Slovak experts living abroad to work in the public sector in Slovakia. The smallish scheme is designed to encourage top talented people to use their skills, experience and ideas to improve the quality of public-sector services, research and development of tertiary education. The subsidies shall partly compensate for the costs associated with the return, such as lost opportunity costs, tuition fees or non-financial costs. There are two main target groups and two levels of the subsidy: (i) young experts aged up to 40 who graduated from prestigious foreign universities may receive a maximum of EUR 10 000; (ii) senior experts who have at least 10 years' experience in leading positions as highly qualified professionals may receive up to EUR 50 000. The one-off subsidies shall be transferred in two instalments, the first at signature of the employment contract and second after the first year of employment. Senior experts, who are employed in a public or state institution of higher education, ministerial research institution, or the Slovak Academy of Sciences, may apply for an additional institutional grant of up to EUR 150 000 for the development of an adequate workplace. A special commission, involving two

ministry officials and one NGO representative will decide the approval of stimuli. Budget allocation (EUR 3 million for three years) should be enough to provide stimuli to about 50 experts per year.

After two years in effect, subsidies have only been granted to nine returnees (five senior experts and four junior experts). The main reasons for the low participation, according to independent experts and some of the recipients, are poor salary conditions and career prospects (compared to working abroad in equivalent positions), problematic recognition of certificates and special qualifications, and the questionable attractiveness of public sector jobs. A 2015 survey by the Business Alliance of Slovakia (PAS, 2015) asked Slovaks studying and/or working abroad what would motivate them to return home. Only 11 % of respondents studying abroad and merely 5 % of respondents working abroad would return thanks to the government's financial stimuli (see also chapter 2).

Plans for a large-scale project on luring Slovak nationals working abroad, particularly those affected by Brexit, to return home were announced in early 2017. The until now undetailed project is being prepared by the state-run Slovak Investment and Trade Development Agency (SARIO), the Labour and Foreign Affairs Ministries, and private companies. According to media reports, there are high hopes that the project will attract thousands of returnees, mainly from the UK. A list of potential jobs has been prepared by SARIO with the help of businesses. Financial incentives are also being considered, e.g. to cover relocation or requalification costs.

Social partners believe the government should focus on reforming higher education and improving the business environment in Slovakia. This would save costs which could then be used to hire more people and offer higher wages and attract Slovaks home from abroad.[19] Companies struggling to find qualified labour are trying to tackle the problem through different channels, including by opening dual VET study programmes to train future staff and increasingly by importing workers from abroad. While employment of EU citizens is unhampered by legislation, regulation regarding employing third country nationals is incoherent and lacking transparent rules for employers applying for work permits. Exceptions are granted to large investors who may temporarily employ third country nationals without work permits.[20]

An example of a successful private initiative is the 'Slovak Professionals Abroad Programme', coordinated by non-governmental organisation LEAF.[21] The programme is designed to help Slovak professionals and university students living abroad to reconnect with Slovakia and encourage their homecoming via different activities, including job creation and intermediation, internship opportunities, scholarships, and volunteering opportunities. Within four years, the programme has helped more than 100 expatriates reconnect with Slovakia.

6 Conclusions

Analyses of brain drain from Slovakia are hindered by a clear lack of reliable and consistent data. We do not know how many people actually left the country,

[19] "Brain drain of Slovakia goes on", Slovak Spectator, 8 December 2015 https://spectator.sme.sk/c/20065888/brain-drain-of-slovakia-goes-on.html

[20] "Where is the shortage of qualified workers in Slovakia?" Pravda daily, 22 February 2017 https://profesia.pravda.sk/zamestnanie/clanok/420548-kde-chybaju-na-slovensku-kvalifikovani-zamestnanci/

[21] https://spap.leaf.sk/

how many stay or return, or whether they return and repeatedly migrate. We also need to acknowledge imperfections regarding data on education of migrants. Most of the assumptions made in this report are based on the national LFS, not exactly suited for studying migration flows. The conclusions in this report, therefore, should be treated with caution and considered indicative rather than conclusive.

According to estimates based on insurance data, total out-migration could have exceeded 10 % of the labour force in the past 15 years. The magnitude of skilled labour outflows from Slovakia appears to be relatively small, when compared with the labour force. Even when adjusted for underestimation, high-skilled emigrants for work make up less than 2 % of the economically active population. Moreover, the educational composition of labour outflows is less favourable than that of the non-migrant labour force (which slightly contradicts most findings in existing literature that both immigrants and emigrants in European countries are, on average, more educated relative to non-migrants).

Emigration is soon expected to slow down. Experts assume that countries in the CEE region have already reached the migration peak and will witness gradually increasing return migration (Colliers, 2017). National quarterly LFS data from 2Q2016 onwards signals a slowdown. The reasons behind the reversal trend might include ongoing convergence, closing wage differentials, tighter labour markets in the home countries, but also a stronger effect of 'emotional' or 'soft' factors.

Two trends in the skill composition of labour emigration have recently emerged – an increasing share of university-educated migrants on the total migrant stock and ongoing, strong representation of lower skilled workers (secondary without leaving exam at most) who account for almost half of all labour emigrants. The first trend is most likely connected to some down-skilling (particularly of highly educated women), as the rise in skilled emigration over the past ten years has not sufficiently reflected in the skill composition of jobs. The second finding indicates sustained demand in the main receiving countries for low-skilled positions that cannot be filled with own labour. A parallel can be drawn to Slovakia as a destination country for thousands of low qualified workers from the Balkans who are imported despite the presence of a large stock of almost equally skill-equipped unemployed Slovaks.

Correlations have shown that with more people on the migration trajectory, relative shortage of labour increases, unemployment falls and wages rise. These associations are less robust for high skilled emigration. It is worth considering three responses to tackle the growing shortage of qualified labour. First, it would help to draw as many long-term unemployed people as possible back into work. This would benefit the country's human capital formation and its public finances and would even justify increased spending on requalification programmes and in-work benefits. However, many of the long-term unemployed lack not only basic skills but also working habits and willingness to work, making them hardly employable. Second, companies can hire foreign workers. Administrative data suggest a relatively low educational attainment of labour immigrants, roughly comparable with that of the unemployed natives, suggesting that immigrants are not superior substitutes for the unemployed and only partially compensate the losses caused by emigration. Third, vacancies could be occupied by returning migrants, possibly the best alternative from a demographic point of view, but perhaps the least feasible.

The government has little power to stop the outflow of skilled labour. The government has also limited capacity to attract emigrants back home. Instead of providing non-systemic stimuli to lure migrants to return, with the help of social

partners, the government should try to improve the prospects for sustained economic growth that translates into faster convergence and higher salaries, through stepping up investments and implementing reforms in tertiary education so that fewer students choose to study abroad, removing persistent regulatory and administrative barriers to doing business and employment, improving the quality of health care, fighting corruption in the public sphere and improving the governance of institutions. These simple, yet challenging-to-implement recommendations are vital to ensure that the country keeps pace with the most advanced destination countries and becomes an attractive place to live or return to.

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