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

Czech Republic

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1 Introduction: the demographic and labour market situation in Czech Republic

Demographic trends: low fertility rates and population aging. One of the most significant demographic trends currently in the Czech Republic is population aging, caused by a very low fertility rate since the 1990s, and a positive trend of rising life expectancy. Although fertility has risen in recent decades, from 1.15 in year 2000 (one of the lowest in the world) to 1.57 children per woman in 2015 (almost at the EU-28 average of 1.58), it is still far from 2.1 children per women, considered the replacement level in developed countries[1] (EUROSTAT, 2017). The Czech population would, therefore, be shrinking in the current decades if not for net immigration to the country. The demographic projection of the Czech Statistical Office (CZSO) predicts a significant decline in the productive component of the population by 2020, with subsequent stagnation in the 2020s followed by a further steep decline.

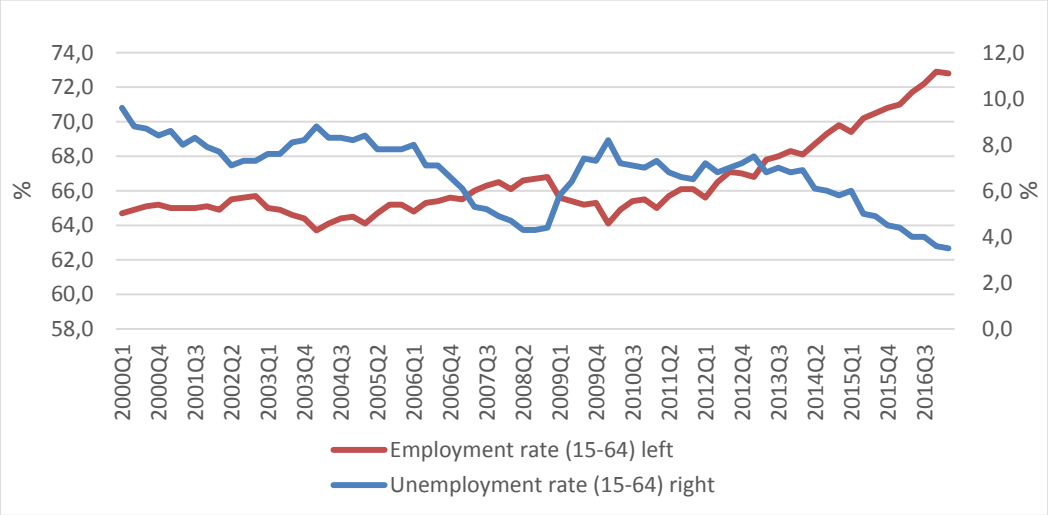
According to the prediction, people aged over 65 are expected to account for 32 % of the population by 2050 (35 % of all women and 30 % of all men), whereas in 2015 this age group only made up 18 % of the population (CZSO, 2016).[2] The World Bank predicts an increase in the age group of people over 65 in the Czech Republic to 3.01 million in 2050 (World Bank, 2017). The acceleration of population aging trends will arrive after 2035, when the strong cohorts born in the 1970s will gradually retire. These developments will pose a significant burden on public finances.

Labour market situation has improved significantly following the economic crisis. The unemployment rate has fallen continuously since 2009, reaching an average of 3.5 % in Q1 2017, historically the lowest measured unemployment rate (Figure 1). At the same time, the employment rate has risen steadily reaching 72.8 % (Figure 1). In international comparison, the overall unemployment rate in the CR in 2016 of 4 % was the lowest among the EU countries and a way below the average of EU28 at 8.5 %.

[1] In other words, the average number of live births per woman required to keep the population size constant in the absence of migration.

[2] The CZSO predicts (under the assumption of 3 trends of development) between 6.4 and 6.7 million people in the age group 15-64 in 2031, which is 0.3 to 0.6 million less than in 2015. Further, the CZSO expects a significant increase in the number of people aged over 65 from 1.9 million in 2015 to 2.4 to 2.6 million in 2031 (CZSO, 2016).

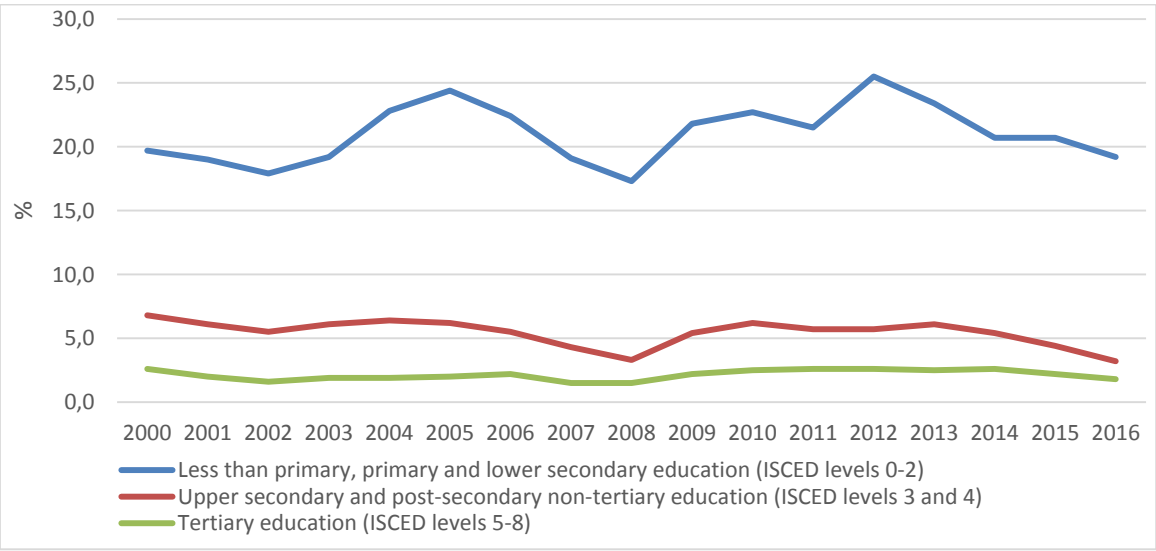
Figure 1. Employment and unemployment rate in the Czech Republic (15-64 years), %



Source: Eurostat

The long-term unemployment rate also reached historically extreme low levels, 1.7 % in 2016 (in comparison to 4 % of the EU28 average). With respect to differences in unemployment across skill levels, the unemployment rate is lowest for high skilled workers, whereas the labour market outcomes still remain significantly weaker for low-skilled workers, with unemployment disproportionally affecting those with primary and lower secondary education (Figure 2).

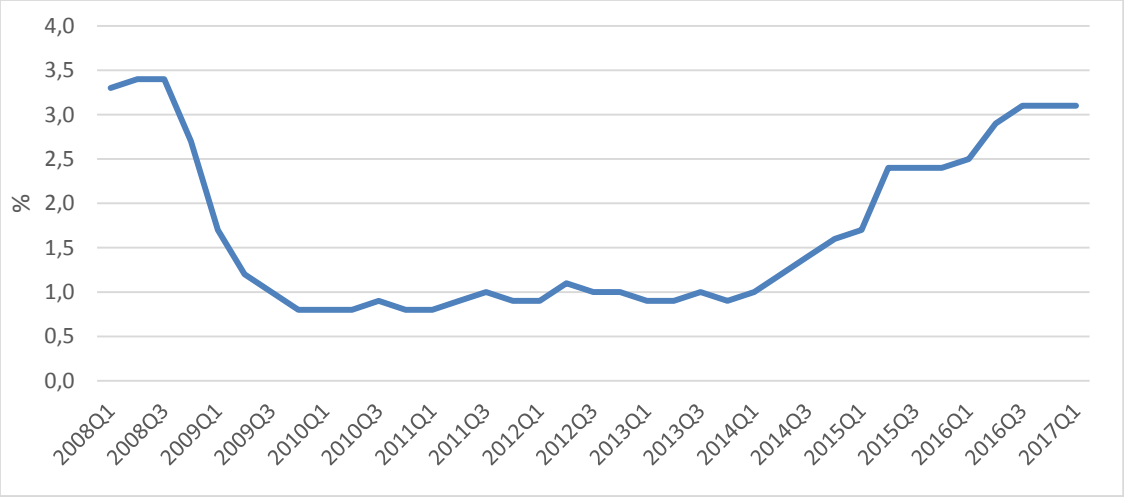
Figure 2. Unemployment rate in the Czech Republic by attained education level (25-64 years), %



Source: Eurostat

Labour shortages and growing wages. Amid very low unemployment and high employment rates, labour shortages have become apparent in the recent years. This is visible e.g. from the growing vacancy rate (Figure 3).

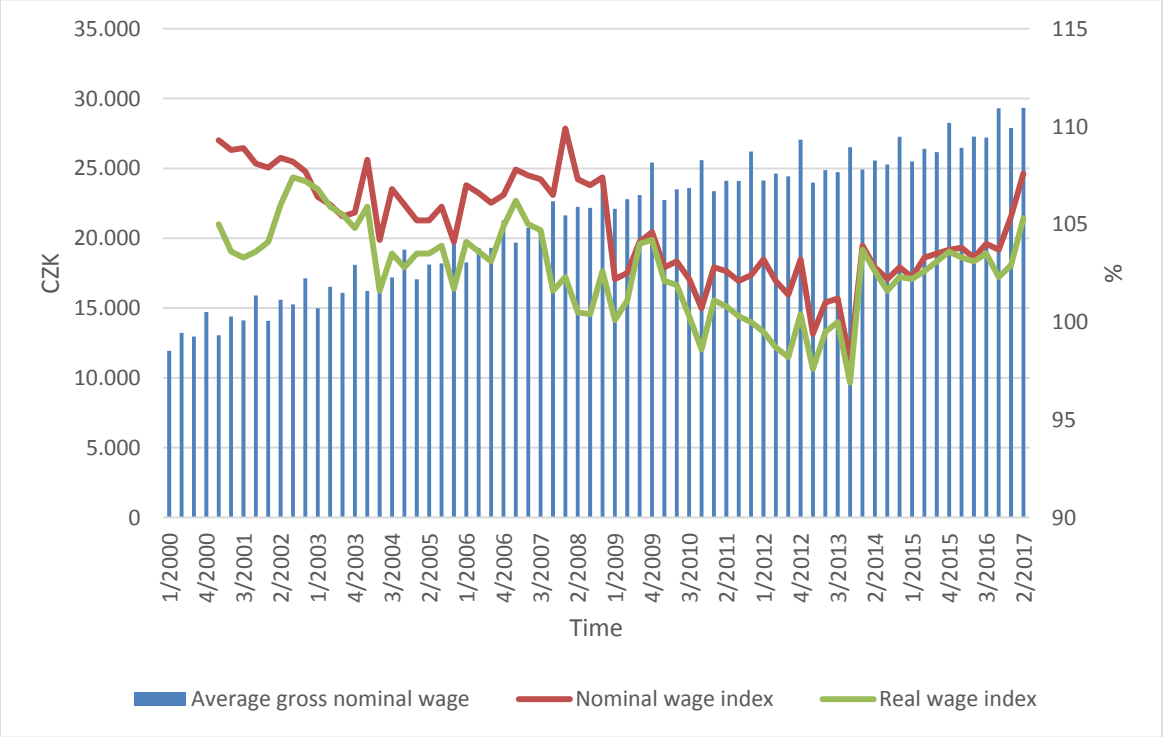
Figure 3. Vacancy rate in the Czech Republic, %



Source: Czech Statistical Office, All NACEs average.

The shortages particularly exist in industries and occupations that need high skilled workers. There are plenty of vacancies for the high skilled, but a lot fewer to occupy them: globally, there is an intensive struggle for talent. Partly because of this, wage levels began to accelerate after the initial period of relative stagnation. Nominal average wage has risen by 3.7 % in 2016 and by 7.6 % in Q2 2017 (Figure 4). Regarding expected trends in labour demand, the Czech Statistical Office projects the largest drop in jobs between 2015 and 2025 in manufacturing, a smaller job decrease in the primary and tertiary sector and an increase in health and social care, in art, sporting and entertainment activities and in education (Fond dalšího vzdělávání, 2015).

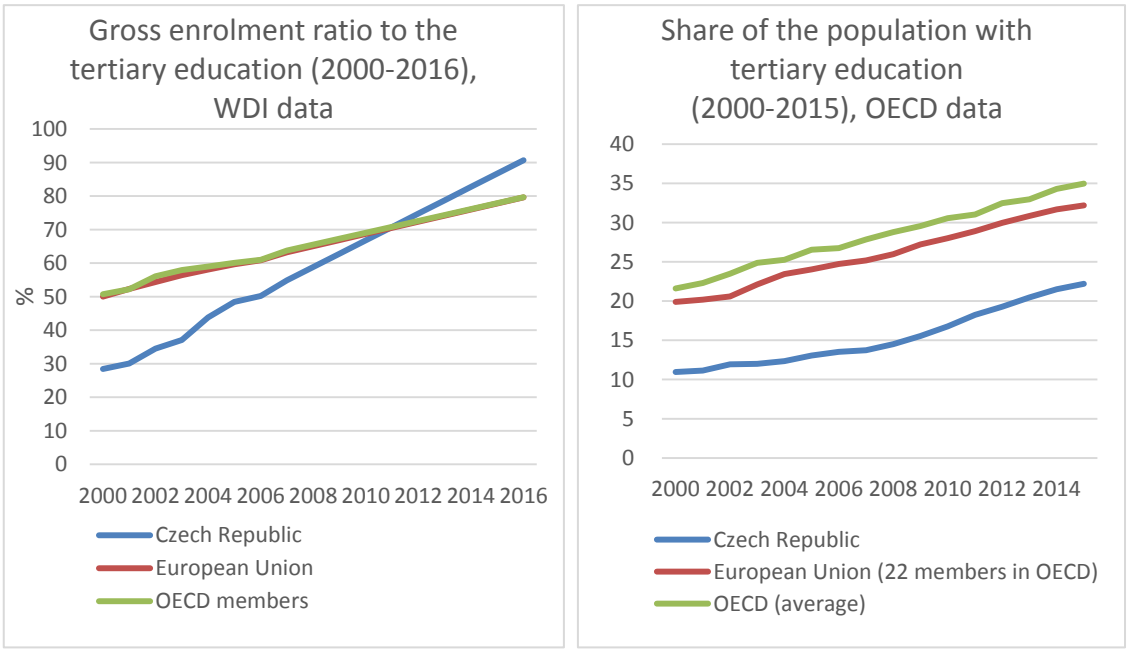
Figure 4. Development in average gross nominal wage per full-time equivalent employee, Czech Republic, quarterly data.



Source: Czech Statistical Office

Sources to cover labour shortages and alleviate the burden of population aging long-term: education, greater involvement of women and older workers, high-skilled immigration and return migration. A possible source to mitigate shortages of highly skilled labour is to improve the educational level of Czech workforce. But investment in education in the Czech Republic is still lower than the OECD average. The Czech Republic allocates around 3.84 % of GDP (2014) on education, while the corresponding figure for the OECD average is 4.8 %. The Czech Republic spends USD 7 493 (around EUR 6 365) per year (adjusted by PPP) per student or pupil (from basic to tertiary education), while the OECD average is USD 10 493 (EUR 8 915). Compared to other developed countries, the overall share of highly educated people in the Czech Republic is considerably lower (Figure 5, right side). In 2015, only 22 % of the adult population had a tertiary education against the EU and OECD average of 32 % and 35 %, respectively (Figure 5, based on OECD Education in Glance data).[3] However, recently the gross enrolment ratio to tertiary education significantly increased in the Czech Republic overtaking the EU and OECD averages since 2012 (Figure 5, left).

Figure 5. Tertiary gross enrolment ratio and a share of population with tertiary education, 2000-15.



Source: OECD Education in Glance and World Development Indicators.

[3] It is however important to mention that the position of Czech Republic is different if focusing solely on the share of the adult (25-64 year-olds) population with a master degree, which places the Czech Republic with its 16 % well above the EU and OECD averages (see OECD Education at a Glance, 2017). Furthermore, according to the OECD Programme for the International Assessment of Adult Competencies (PIAAC), the level of skills as measured by scores in literacy and numeracy among the Czech adult population with tertiary education is higher compared to other countries and above the OECD average (PIAAC). According to the OECD report, Education at a Glance 2014, "the Czech Republic ranks also first in the OECD for the share of the adult (25-64 year-olds) population with at least an upper secondary education: 92 % versus 75 % for the OECD average" (see https://www.oecd.org/edu/Czech%20Republic-EAG2014-Country-Note.pdf). This indicates that the Czech labour force is relatively skilled.

It is important to mention that more than half of university graduates are women, who then remain out of the labour market with young children due to one of the longest systems of parental leave worldwide (Bičáková and Klišková, 2015; Pytliková, 2015; Filipová and Pytliková, 2017*)* together with limited availability of affordable childcare for children under 3 (Pertold-Gebická and Hušek, 2015; Kalíšková, Münich a Pertold 2016) and a tax credit system favouring women to stay at home (Šatava, 2016).[4] Along with the aging of the population, these trends are exacerbating the pressure on public finances. By increasing the availability of publicly financed childcare for small children and supporting flexible working, the state could encourage mothers with young children back into the labour market. Further, extending the pension age could also be a solution to alleviate population aging. A recent study found that 70 % to 80 % of old-age pensioners in the Czech Republic report that they have left the labour market and become economically inactive voluntarily. At the time of retirement, they did not suffer health problems nor had difficulty maintaining their jobs (Šatava, 2015). Finally, in addition to investment in education greater involvement of mothers and older workers in the Czech labour market, labour shortages and population aging could be alleviated by attracting highly qualified workers from abroad - both foreigners and returning Czech emigrants.

2 Emigration of skilled labour

Long-term trends in international migration in the Czech Republic. Following the collapse of communism in Czechoslovakia, the emigration of Czechs and Slovaks rose and has increased in parallel with the 2004 EU enlargement towards the East.

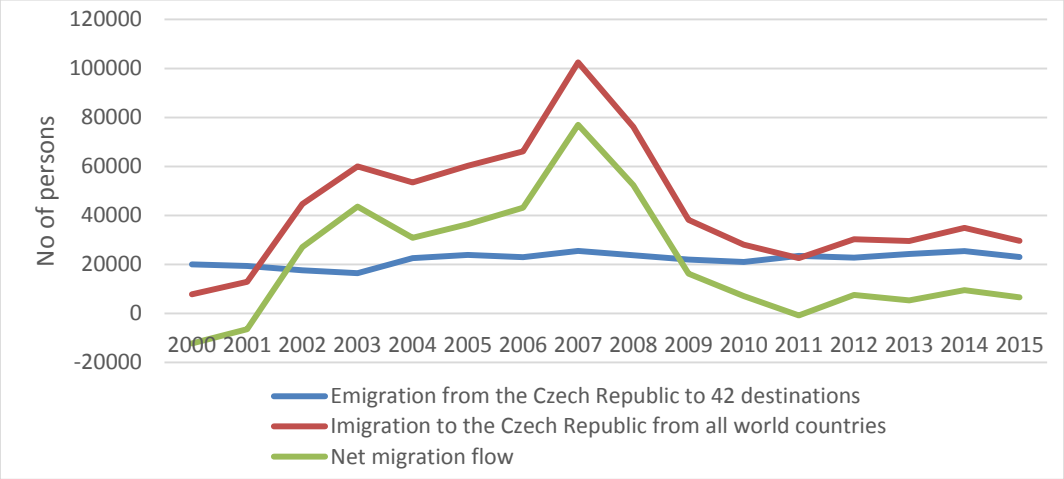
Between 1993 and 2015, around 390 000 Czech citizens emigrated, which is on average 18 000 annually.[5] Figure 6 illustrates the size of emigration, immigration and net immigration to the Czech Republic. The calculations are based on migration data from statistical offices of 42 developed countries (numbers of emigrants from the Czech Republic are calculated as a sum of Czechs immigrating to 42 destinations each year), and from the Czech Statistical Office (total numbers of immigrants arriving each year to Czech Republic). The net migration is calculated as the difference between immigration and emigration from the Czech Republic. According to the figure, emigration levels from Czech Republic have been relatively stable between 2000 and 2015, with a slight increase following the 2004 EU enlargement.

Immigration to Czech Republic, however, rose quite dramatically, during the years of economic boom, peaking in 2007 with 102 000 immigrants arriving in the country, followed by a sharp decline during the economic crisis to 22 000 in 2011. The large immigration inflows have been driven primarily by immigrants from Ukraine, with almost 40 000 Ukrainians arriving in Czech Republic in 2007. In 2015, about 35 000 foreigners (flow) arrived in the country. As illustrated in Figure 6, the Czech Republic changed from being a typically sending country into a receiving country, i.e. to a country with a net increase in population due to immigration.

[4] This has also most likely impacts on low fertility rates in the Czech Republic, see e.g. Kalwij, (2010); Adsera, (2005).

[5] Numbers of emigrants are based on the extended dataset by Adsera and Pytlikova (2015). Given that there are some missing values of migration stock and flow data for some destinations, I use a single mean imputation to get a balanced panel of data, i.e. I use the average of the non-missing values for migration to a particular destination to impute the missing migration values.

Figure 6. Development of emigration, immigration and net migration surplus of the Czech Republic



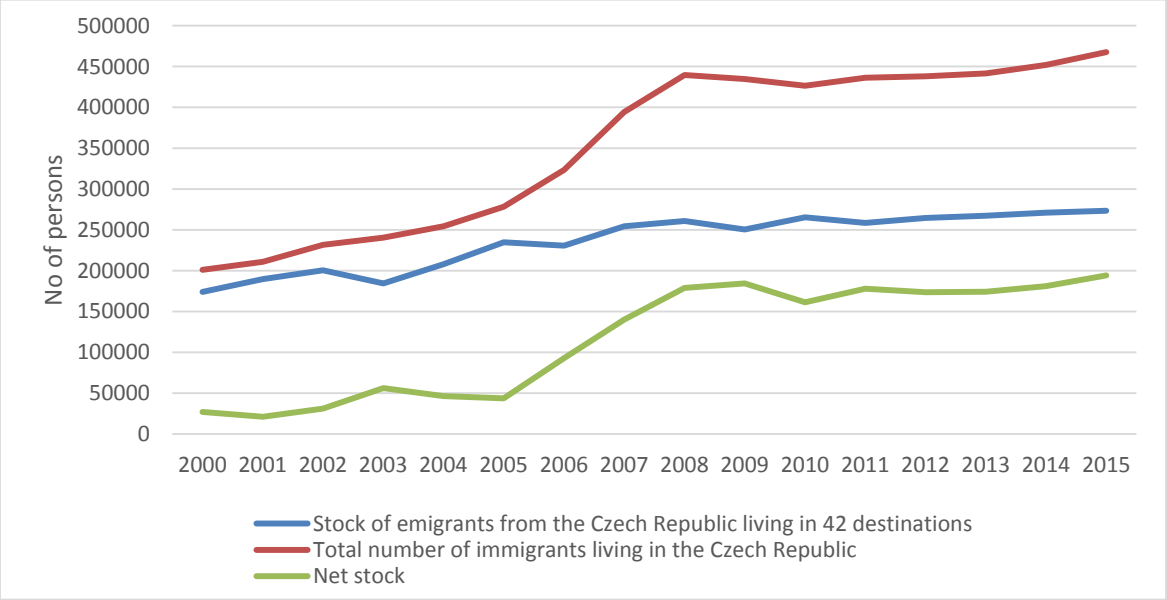
Source: Emigration based on the extended dataset by Adsera and Pytlikova (2015), immigration based on data from the Czech Statistical Office; Author's calculations.

The largest inflows to CEE countries come from neighbouring or culturally close nations such as Slovakia (6 682 in 2015), Ukraine (5 454), Russia (2 852), Romania (1334) and Germany (1 123), see CZSO (2016), although the diversity of origins of CEE immigrants continues to grow. We might expect immigration pressures to increase over time partly due to 1) improving socio-economic conditions in the Czech Republic and continuing low fertility rates/declining populations, 2) changing demographic, economic, environmental and political developments in sending countries, and 3) the continuing globalisation, technological progress and falling costs of transportation and communication.

Foreigners in the Czech Republic. Almost 468 000 foreigners lived in the Czech Republic in 2015, compared to 210 000 in 2000 (Figure 7). The number for 2015 corresponds to 4.4 % of the population. Most foreigners come from third non-EU countries (58 % of all foreigners, which corresponds to 2.55 % of population in the Czech Republic), whereas around 42 % of all foreigners (or 1.85 % of the population in the Czech Republic) originate from the EU28 countries. Compared to other developed countries, the percentage of foreigners in the Czech Republic is relatively low. Less than 5 % of foreigners in the population also live in Poland, Portugal, South Korea, Finland, Japan, Hungary and Slovakia, whereas in traditional immigration countries such as Australia, New Zealand, Switzerland and Canada, more than 20 % of the population is foreign-born.[6] The rest of developed OECD countries are placed somewhere between these two groups of countries regarding the share of foreigners in the population.

[6] Calculations based on the extended dataset by Adsera and Pytlikova (2015).

Figure 7. Development of stock of Czechs living abroad, stock of foreign population in the Czech Republic and net migration stock of the Czech Republic.



Source: Dataset by Adsera and Pytlikova (2015); Authors' calculations.

Population is still relatively homogenous in the Czech Republic. Despite growing immigration during recent decades, the population in the Czech Republic remains fairly homogenous. The most significant countries of origin of foreigners living in the Czech Republic in 2015 were: Ukraine (106 000), Slovakia (102 000), Vietnam (57 000), Russia (35 000), Germany (21 000), Poland (20 000), Bulgaria (11 000), Romania (9 000) and the US (7 000) (CZSO, 2016), meaning the largest immigrant groups in the Czech Republic come mainly from other Central and Eastern European countries, in particular from countries speaking Slavic languages.

The numbers by nationality show a similar trend. According to the latest census in 2011, about 4 % of the population of the Czech Republic was other than Czech, Moravian or Silesian nationalities. The highest non-Czech nationality was Slovak (147 000), followed by Ukrainian (53 000), Polish (39 000), Vietnamese (30 000), German (19 000), Russian (18 000), Hungarian (9 000), and Roma (5 000).

Between 2001 and 2011, there was an increase in the population of Ukrainians (from 0.2 to 0.5 % of the population of the Czech Republic), Vietnamese (from 0.2 % to 0.3 %) and Russian (from 0.1 % to 0.2 %). The highest number of inhabitants with foreign nationality live in Prague. A significant concentration of Vietnamese immigrants is also in Karlovy Vary and Usti nad Labem, whereas Ukrainians and Russians tend to settle in Prague or around Prague, in the region of Central Bohemia. Polish minority is mainly concentrated in the Moravian-Silesian region due to historical circumstances and changing territories over time. According to the census data, immigrants similar to other countries tend to settle in bigger cities. For example, more than half of Ukrainians (53.2 %) and Russians (59.3 %) and a third of the Vietnamese community (35.1 %) live in cities with more than 100 000 inhabitants (CZSO, 2014). Most foreigners are either employees or self-employed, and only the minority rely on social benefits (e.g. only around 1.2 % of all social benefits are received by third country nationals) (VUPSV, 2016).

Czechs living abroad: In 2015, around 273 000 Czech citizens lived abroad compared to 190 000 in 2000[7], see Figure 7. This corresponds to approx. 2.3 % of Czech population living abroad in 2015. Among the most popular destinations of Czech emigrants are neighbouring countries, Austria and Germany, and traditional migrant countries such as the US and Canada, see Table 1, which shows the top six destinations for Czech emigrants in 2000 and 2010. Austria has long been the traditional destination for Czechs, which is deeply rooted historically. Specifically, around 54 000 and 68 000 Czech emigrants lived in Austria in 2000 and 2010, respectively. Most arrived shortly after the Second World War (Lebhart, 2003). The top six favourite destinations of Czechs did not change much between 2000 and 2010, see Table 1. The major destinations for Czech emigrants also witnessed an increase in the number of Czechs between 2000 and 2010 (Table 1).

Table 1. Top six destinations of Czech emigrants, year 2000 and 2010.

Total Czech emigrants living abroad							
2000				**2010**			
Male		**Female**		**Male**		**Female**	
Germany	22 115	Austria	31 760	Austria	28 098	Austria	40 270
Austria	20 524	Germany	22 905	Germany	19 494	Germany	30 283
United States	16 955	United States	19 200	United States	16 976	United States	21 534
Canada	11 387	Canada	10 934	Finland	15 548	Canada	14 793
Finland	8 207	Switzerland	5 051	Canada	13 735	United Kingdom	6 968
Switzerland	3 646	United Kingdom	4 390	Greece	5 178	Switzerland	6 003

Source: IAB Brain Drain Dataset. Brücker H., Capuano, S. and Marfouk, A. (2013). Education, gender and international migration: insights from a panel-dataset 1980-2010, mimeo.

Major determinants of emigration from Czech Republic. The EU enlargement in 2004 and the EU transitional arrangements around access to labour markets (i.e. granting employment rights under the free movement of workers regime) applied differently across EU countries for citizens of the new 2004 EU entrants certainly influenced the direction and intensity of migration flows towards different destination countries (Palmer and Pytlikova, 2015; Kahanec, Pytlikova and Zimmermann, 2016[8]). Further factors such as widely spoken languages (such as English), geographic and cultural proximity, economic conditions, native's attitudes towards non-natives (Gorinas and Pytlikova, 2017) and migrant networks (Pedersen, Pytlikova and Smith, 2008) have also affected migration (Adsera and Pytlikova, 2015; Palmer and Pytlikova, 2015; Kahanec, Pytlikova and Zimmermann, 2016). This has generated

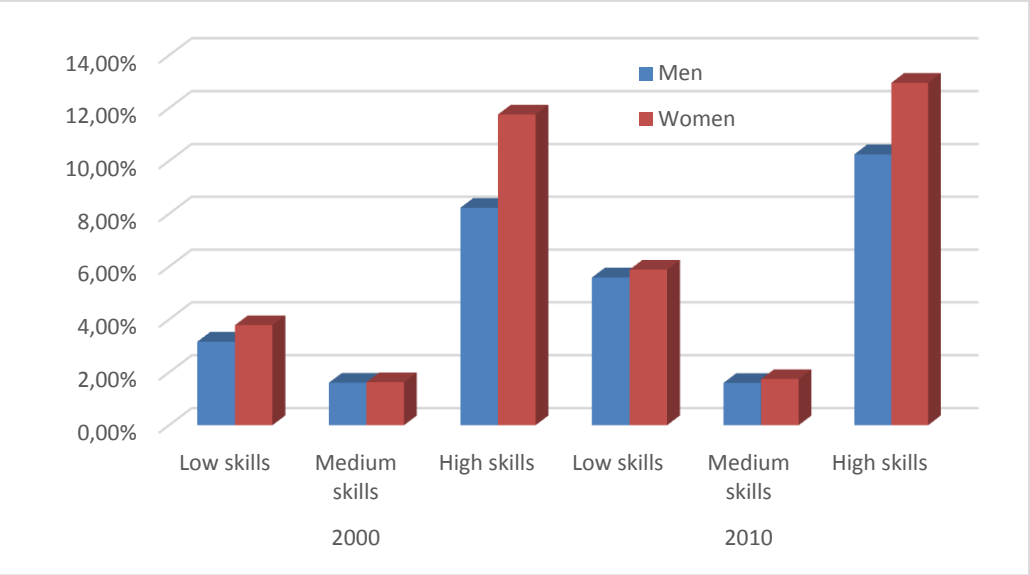
[7] These numbers are based on foreign population statistics of 42 developed countries, i.e. on the total sum of Czechs living in 42 developed countries. If migration data were available for all world countries, the number of flows and migrant stock from the Czech Republic would certainly be higher, although majority of Czechs go to developed countries, and thus are likely to be covered in the author's calculations.

[8] Kahanec, Pytlikova and Zimmermann (2014) show that the labour market opening for the CEE countries after the enlargement had a significant effect on migration. They argue that lifting restrictions on the free movement of labour caused on average 36 % increased emigration to destination countries.

differences in stocks of foreign population stemming from Central and Eastern European countries, including from the Czech Republic, across destinations. The available empirical evidence concludes that most Czech emigration has been economic, i.e. labour driven (Kahanec and Pytlikova, 2017). A large section is highly skilled, although many end up working in occupations below their qualifications, i.e. so-called 'occupational downgrading' (Kahanec, Pytlikova and Zimmerman, 2016). For future emigration from the Czech Republic, given that the economic situation is improving (similar to the entire macro region of Central and Eastern Europe) with higher growth rates than the rest of the 'old' EU15 countries and with historically low levels of unemployment, we might expect emigration towards the West to slow, although it will not cease completely due to pull factors of the existing Czech diaspora in the EU and the existing (although diminishing) economic disparities between countries.

Emigration of skilled workforce from the Czech Republic. Figure 8 is based on the IAB Brain Drain dataset that gathers information on the stock of migrants, i.e. the number of foreign-born people aged 25 years and over, living in each of the 20 considered OECD destination countries, by year, gender, country of origin and educational level.[9] Educational levels are distinguished as low-, medium- and high-skilled. As illustrated, highly skilled Czechs, both men and women, are much more likely to be living abroad compared to their medium- and low-skilled counterparts. In 2010, around 13 % and 10 % of highly educated women and men, respectively, were living abroad, compared to less than 6 % of low-skilled and less than 2 % of medium-skilled Czechs.

Figure 8. The share of Czechs living abroad by education and by gender, year 2000 and 2010.



Source: IAB Brain Drain Dataset. Brücker H., Capuano, S. and Marfouk, A. (2013). Education, gender and international migration: insights from a panel-dataset 1980-2010, mimeo.

Unfortunately, due to the lack of suitable data, we cannot determine much about the other characteristics of emigrants, such as other demographic and family characteristics, occupational and field of study selection etc. Some information about occupational selection can be gathered from a study by Drbohlav and Rákoczyová

[9] See:" http://www.iab.de/en/daten/iab-brain-drain-data.aspx"

(2010). According to this study, around 700 medical doctors emigrated from Czech Republic in 2010.[10] There was also relatively high emigration of Czech scientists and researchers. According to estimates, around 3 350 to 5 800 (i.e. 10-17 % of Czech R&D experts) work in other OECD countries (Drbohlav and Rákoczyová, 2010). According to the study, emigration of experts is predominantly temporary and their foreign work experience contributes to the increase of human and social capital in the Czech Republic. Yet, the risk of brain drain remains relevant for the Czech Republic.

Main destinations of high-skilled Czechs and factors driving their migration. Table 2 shows the main destinations of highly skilled Czechs using information from the IAB Brain Drain dataset. There is a slight difference with respect to main destinations and their order shown in Table 1. Highly skilled Czechs prefer destinations such as the US, Canada, Australia and the UK, destinations characterised by a higher skill premium (i.e., differences in wage-skill premium for high skilled, and higher income inequality). This is in line with work of e.g. Grogger and Hanson (2013, 2015) that emphasises immigrant selection and sorting to be important characteristics of migration.

Selection refers to how migrants are chosen from the skill distribution of their home countries, whereas sorting refers to a choice of destinations of those migrants among potential countries. In the simplest case, the relative return to skill across countries determines the skill composition of the migrant flows between any pair of countries (Borjas, 1987). According to Borjas (1987), highly-educated migrants tend to migrate to countries with higher wage inequality to receive the greatest returns in terms of wages. The favourite destinations for Czechs are countries where English is the official language. A widely spoken language such as English is an important pull factor in migration, as language proficiency can help the high-skilled migrants access the destination's labour market. Given that English is now such a universal language and is widely taught in early school years, English may help potential migrants to transfer their education and skills more easily (Adsera and Pytlikova, 2015 and 2016). Migrants may also prefer English-speaking destinations to learn English. By acquiring English language skills, migrants invest in their human capital, which is a valuable assets to be used in their home country (Adsera and Pytlikova, 2015 and 2016).

Table 2. Top 6 destination of Czech high-skilled emigrants, year 2000 and 2010.

High-Skilled Czech emigrants living abroad							
2000				**2010**			
Males		**Females**		**Males**		**Females**	
United States	10 220	United States	9 268	Canada	11 759	United States	12 523
Canada	8 766	Canada	7 087	United States	11 070	Canada	11 808
Germany	6 598	Germany	6 435	Austria	6 927	Germany	9 410
Austria	4 303	Austria	2 673	Germany	4 091	Austria	4 487
Switzerland	2 095	Australia	1 907	Finland	3 709	United Kingdom	4 008
Australia	2 008	United Kingdom	1 900	Australia	2 452	Australia	3 041

[10] At that time the threat to mass emigration of medical doctors served as an instrument to enforce their wage increases (Drbohlav and Rákoczyová, 2010)

Source: IAB Brain Drain Dataset. Brücker H., Capuano, S. and Marfouk, A. (2013). Education, gender and international migration: insights from a panel-dataset 1980-2010, mimeo.

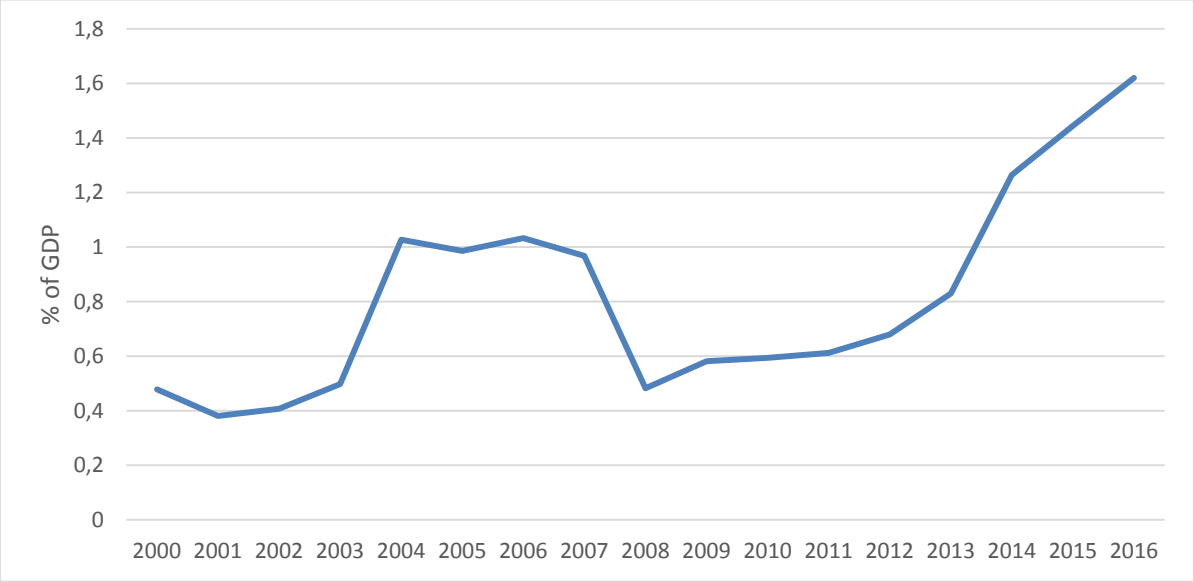
3 Emigration of skilled labour and its impact on domestic economies beyond the labour market

There are several channels through which international migrants can affect their domestic economies, for example, via increased flow of international capital such as foreign direct investments (FDI), flow of remittances and trade. Economic outcomes in source countries – e.g. productivity, innovation, GDP per capital and total GDP – will also be affected depending whether the high-skilled emigration leads to a net loss of human capital, so-called brain drain, or whether there is no loss but a movement between areas, so-called brain exchange, or whether there is an increasing level of human capital from information and know-how exchanges via e.g. return migration or circular migration, so-called brain gain.

Emigration may also have social implications, for example by affecting family structures in origins, educational outcomes and well-being of children left behind. Finally, emigration may also accelerate demographic problems such as those related to the aging population. Depending from which regions people are more likely to emigrate abroad, it may also depopulate certain problematic regions and further deepen regional disparities. Generally, literature on the impact of migration on sending economies is scarce. One reason is a lack of data and the difficulty of tracking emigrants if they do not register when leaving their country. Unfortunately, this applies to the Czech Republic since there are no suitable data to study the impacts of Czech emigration on domestic economy. The following sections review some of the existing literature based on evidence from other countries.

Emigrants and remittances. A consequence of emigration on source countries is a flow of financial remittances from migrants to their families in countries of origin. As the available statistics reveal, the level of received remittances to the Czech Republic as a percentage of GDP has been growing in recent years, reaching 1.6 % of GDP in 2016, see Figure 9. The effects of remittances on various aspects of home countries have been analysed in several studies. There is a general consensus among researchers that remittances contribute positively to source country economies. Remittances increase the income of migrants' families leading to an increase in domestic saving as well as an increase in household spending on education and health (Ratha et al, 2011). Low-income households usually use remittance inflows for consumption expenditures, whereas higher income households use them for investment, among others, in human capital (Yang, 2011). Remittances are also positively correlated with small household investments and small business investments, helping households to overcome credit market restrictions. In this way, remittances can help to increase new business in source countries (Ratha et al, 2011; Yang, 2011; Docquier, Rapoport and Salomone, 2011; Hanson, 2008). From evidence on CEE countries, remittances were found to have a positive effect on investments of entrepreneurs in Moldavia (Culiuc, 2006). There also seems to be a consensus, that more highly educated workers tend to send more remittances to their families at home as they can earn more (Andersen and Christensen, 2009; Anghel et al., 2015). Remittances are also positively associated with the share of female and college-educated migrants (Le Goff and Salamone, 2016).

Figure 9. Personal remittances received by the Czech Republic from all countries in the world (% GDP)



Source: World Development Indicators, the World Bank.

Brain drain, brain gain or brain exchange – and fiscal and welfare consequences. A valid concern for the Czech Republic in recent years is that the migration of highly skilled workers (brain drain) is detrimental to the sending country, affecting its development particularly long-term,[11] but also short-term if the country experiences a shortage of highly educated labour. Brain drain does not allow the country a return on its investment in educating and training its workers. The loss is particularly significant to the emigration of highly skilled professionals in important sectors of health and education.[12] On the other hand, return migration may encourage know-how, skills, technology and business networks into home countries (brain exchange). Thus, a way for sending countries to minimise the negative effects of brain drain is to encourage their citizens to return, help them to reintegrate into the home country labour market, and facilitate knowledge spillovers via, for example, encouraging diversity management. The effects of highly-skilled workers on human capital have been fairly extensively debated in the literature and the results are so far relatively mixed (Hanson, 2008). Although general opinion is that there is a brain drain of workers from developing countries, there are some studies pointing towards positive effects on source country human capital. In an article analysing particular cases of brain drain, Docquier and Rapoport (2009) show that, depending on specific conditions, the migration of the highly skilled can have a positive effect (the case of Indian IT sector), a mixed effect (the case of African medical staff) or a negative effect (the case of European researchers). The data for circular and return migration remain frustratingly limited. The OECD (2008) tries to compile available data on return migration and they show that around 20 %-50 % of migrants leave destinations within five years of arrival, with some variability by countries and time. It seems, however, that high-skilled migrants are more likely to leave than low-skilled migrants. All in all, depending on which of the effects prevails, the skilled emigration will have fiscal and

[11] The brain-drain of women is of particular significance and concern (Docquier et al., 2011).

[12] Internet: http://www.mfa.gov.tr/opportunuties-and-challenges-of-international-migration-for-sending-and-receiving-countries.tr.mfa

welfare consequences for the source economies. Given the unavailability of time series data on emigration from Czech Republic by skill level, and the difficulty of mapping the scale of return migration of Czechs, it is hard to conclude about the overall effects for the Czech economy. What is clear is that it would benefit the country to facilitate the return of high-skilled Czech emigrants and high-skilled immigration from abroad, and ensure a smooth integration of both groups into the Czech labour market. In this way, the Czech Republic may gain further knowledge, skills, technology and access to global networks, and strengthen its competitive advantage.

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

Effects of skilled emigration from Czech Republic on labour market conditions of receiving countries. Regarding the evidence on effects of post-enlargement migration on receiving EU countries, there seems to be a consensus in the literature on no significant or negligible effects of CEE immigration on wages or unemployment rates of natives (Kahanec and Zimmermann, 2010; Gilpin et al., 2006; Blanchflower Saleheen, and Shadforth, 2007; Lemos and Portes, 2008). For example, even in Ireland, the country with the highest relative inflows from the new EU Member States, there were no statistically significant effects of migration on aggregate unemployment rate, although some substitution might have occurred (Doyle, Hughes, and Wadensjö, 2006; Barrett, 2010).

A study by Brenke, Yuksel, and Zimmermann (2010) analyses the impact of EU8 immigrants on the German labour market since the EU enlargement and find that the majority of the new EU8 migrants are male and young and less educated than the previous migration waves. The authors document some competition for low-skilled jobs between EU8 migrants and immigrants from third non-EU countries living in Germany. Using the EU SILC data, Kahanec et al. (2016) compare the EU8 and EU2 migrants in the 'old' EU15 countries with natives in terms of education, skills, unemployment and participation rates. According to Kahanec et al. (2016) it seems that Denmark is particularly successful in attracting highly educated CEE immigrants relative to the educational composition of natives, followed by France and the Netherlands; whereas Italy, Greece, Portugal, Cyprus, Spain and the UK receive rather low-educated CEE migrants compared to their natives. The EU SILC data also show that EU8 and EU2 migrants tend to work in less skilled occupations, which indicates a prevalence of down-skilling among CEE migrants working in the EU15 countries, which means 'accepting jobs in the destination that are below their qualifications' (Kahanec et al., 2016). Looking at the overall economic effects of migration from the new EU countries, Kahanec and Pytlikova (2017) find 'positive and significant effects of post-enlargement migration flows from [those countries] on old [EU] member states' GDP, GDP per capita, and employment rate, and a negative effect on output per worker' (Kahanec and Pytlikova, 2017).

Effects of skilled emigration from the Czech Republic on labour market conditions in the origin country. Regarding the impact of emigration from CEE macro-region on sending economies, the empirical evidence is rather scarce, mostly due to lack of data. Nonetheless, the existing studies tend to find increased wages and lower unemployment in connection with CEE emigration. For example, Elsner (2013a; 2013b) analyses effects of emigration from Lithuania, one of the countries with the highest emigration rates, on wages, and finds that it generated higher wages in the origin. Zaiceva (2014) finds positive effect of emigration on economic outcomes in CEE origins, for example reduction in excess supply of labour, lower unemployment, and increase in wages in the new EU Member States plus additional positive effects

through remittances and possibly a brain gain. Dustman et al. (2015) show that emigration from Poland led to a small increase in wages, particularly for high- and medium-skilled workers, the two skill groups with the largest relative emigration rates from Poland. The study shows that Polish workers at the low end of the skill distribution might have experienced even some reduction in wages (Dustman et al., 2015).

Emigration and economic effects on origins. Empirical evidence suggest that migrants' diaspora has a positive effect on the source economies via an economic connection between the sending and receiving country (Ratha et al, 2011). In particular, emigrants appear to increase exports from the source country by generating foreign demand for national products, by reducing the fixed costs of trade, through the network effects and stimulates the trade of differentiated products (Peri and Requena, 2009; Rauch, 2001; Rauch and Trindade, 2002; Hatzigeorgiou, 2010; Parotta, Pozzoli and Sala, 2016). The migrant diaspora also helps to establish business networks (Hanson, 2008; Peri and Requena, 2009), and generate foreign investments (FDI) (Kugler and Rapoport 2011, Javorcik et al. 2011; Gormsen and Pytlikova, 2012; Kim and Park; 2013). Several studies find that high-skilled migrants provide technological and business benefits to their countries of origin, e g. see a survey by Saxenian et al. (2002) of immigrant scientists and engineers in Silicon Valley, which finds that about half of high-skilled migrants engage in business exchanges with their home countries annually or with a greater frequency. The survey further suggests that more than 80 % of high-skilled migrants share technical information. Some recent studies suggest that high-skilled migrants abroad also help with outsourcing of work to their origins (Ghani et al., 2014) on evidence of U.S.-based high-skilled Indian workers and their role in outsourcing work to India. This may likely be applied to situation in CEE countries, but the evidence is missing so far.

Additional benefits of return and circular migration. The return and circular migration of highly skilled workers back to the Czech Republic may, in addition to skill, know-how and technology transfer, bring different perspectives and ideas, abilities to solve problems (i.e. heuristics) (Hong and Page, 2001, 2004; Berliant and Fujita, 2011) as well as knowledge of global markets and their customers (Osborne, 2000). This in turn stimulates creative solutions and innovation and positively affects performance of firms and workplaces (Sparber, 2009; Parrota et al. 2014a and 2014b) and a performance of larger regions (Ottaviano and Pero, 2006; Sparber, 2010; Suedekum et al. 2009) and the entire economy (Alesina and La Ferrara, 2005).

Given that returning emigrants know the Czech language and the Czech environment and culture, they do not face so-called costs of cross-cultural dealing, i.e. communication barriers, reduced coherence, lower trust etc. that are typical for international immigrants (Lazear, 1999; Sparber, 2009, Parrota et al. 2014a and 2014b). Such a diversity of views, perspectives and heuristics boosts creativity and innovation, the major elements needed for innovation-driven economic growth (Aghion, 2012).

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

Policy actions to encourage high-skilled immigration to the Czech Republic. The Czech government has pursued several steps recently to encourage high-skilled immigration. For example, it introduced the 'Welcome Package' programme, designed to speed up the admission process for key foreign managers (CEOs, upper level management workers), investors and specialists to work in the Czech Republic. The

Package promises reduction in the time required to obtain a work permit to 10 business days and a long-term visa to 30 days. However, the programme faces criticism for being selective with respect to countries and bigger firms, and also being very bureaucratic, and thus does very little to reduce the extent of the actual work that permit or visa documentation required before the package or in connection with 'standard' applications.

Since 2007, there has also been the so-called 'Blue' and 'Green' card system for qualified workers with tertiary education and key specialists, supposed to make it easier for those workers to come to the Czech Republic. But the system has not functioned well, being rather complicated and extremely bureaucratic and therefore did not receive much attention abroad.

Recently, a programme called 'Fast Track' was introduced to enable a faster transfer of highly qualified employees from third countries who are sent by their company to the Czech Republic. If employers and their employees meet the project criteria, the qualified workers receive a work permit and a long-term visa for six months within 30 days (now called an employee card)[13], which is a significantly shorter time than the standard issue period of around 60 days. In 2013, the government also introduced a project 'Fast track for students from the third countries applying for the long-term visa/long-term residence with the purpose of study' that aims to speed up the procedure of processing the applications for a long-term visa or long-term residence for students from third countries. To help foreigners integrate, several so-called 'Centres for support of the integration of foreigners' (CPIC), have been established. CPICs are there to initiate, organise and carry out activities helping social, legal, linguistic and cultural integration of foreigners. The centres exist in all regions of the Czech Republic. Importantly, the centres provide among other things free Czech language courses, legal counselling, information service and assistance when dealing with public institutions, etc. Recently, the government also developed 'Project Ukraine' and 'Regime Ukraine', which should simplify labour migration from Ukraine.

Barriers to immigration and subsequent integration of highly skilled immigrant workers and their families into the Czech Republic. Although there have been recent efforts to facilitate labour migration, see section above, there is still much to be done, particularly to attract high-skilled talent from abroad. The Czech Republic has one of the most restrictive immigration policies. For example in 2015, it scored 45 out of the maximum 100 points in the Migrant Integration Policy Index (MIPEX), where 0 stands for unfavourable and 100 for most favourable conditions for immigration and diversity, positioning the country 24th among 38 advanced countries.

Focusing on highly skilled immigration, the Czech system falls down in areas particularly important for high skilled immigrant workers and their families. For example, there is no equal access to the public health insurance system for temporary residents and their families. Those legal migrants then have to take out private health insurance cover on much less equitable terms (e.g. with higher premiums or can be even excluded for pre-existing conditions). Furthermore, for high skilled immigrants that come to the Czech Republic it must be important that their families and children integrate well into the society and into labour markets. But the public schooling system in the Czech Republic is not well-designed to help immigrant children in schools, a system of integration programmes is missing. The children with no or limited proficiency of Czech may feel disadvantaged among other school children and

[13] Internet: http://www.mvcr.cz/mvcren/article/employee-card-682810.aspx

they perform worse than natives (Pisa, 2012)[14]. Besides expensive private English-speaking schools, there are also not that many public schools that teach in English. For some expats coming to the country with their families temporarily, this may pose a problem and be the reason to return, or to not come in the first place.

Temporary migrant workers and their families must also wait to become long-term residents to be treated equally regarding study grants, training and employment services intended for job-seekers. This may create difficulties for family members who accompany highly skilled workers to the Czech Republic to enter the labour market and integrate into society.

Finally, the Czech Republic does not do much to retain foreign university absolvents who studied in the Czech Republic. Currently, foreign students from non-EU countries in the Czech Republic are often forced to leave the country after completing their studies unless they start to fulfill another purpose of their stay, such as employment (for this purpose they have a free access to the labour market). Those students represent a highly skilled potential that is already integrated into the Czech Republic, given that the students have often learned the language and established social contacts during their studies.

Some recommendations on policy actions to facilitate immigration, adaptation and retention of highly skilled foreigners and their families in the Czech Republic. There are several areas that the Czech government could strengthen to encourage more immigration of high-skilled workers and their families, their successful integration and retention in the Czech labour market. For example, more could be done to guarantee equal access to the public health insurance system for temporary residents and their families. The public health system should be more inclusive, accessible, but also more responsive to the needs of foreign workers. Foreigners should also be granted equal access to all levels of education. Importantly for children of foreign workers, it would be desirable to increase the provision of school programmes taught in English and/or bilingual schools together with an offer of integration programmes for children of immigrants to help them integrate more smoothly into the Czech schooling system, e.g. by offering additional Czech language lessons to the children and trainings on intercultural competence at schools, etc.

Although some effort has been made to offer free Czech language courses to foreigners (as described in the section above devoted to CPIC centres), more could be done in this respect. As shown in the literature, the host country's language acquisition is one of the key aspects for successful integration of foreigners in the country's labour market and society (Adsera and Pytlikova, 2016), and from the immigrants' point of view, language proficiency is important to transfer their knowledge and education from their home countries. Otherwise there is a danger that immigrants' may waste their skills and talents by ending up in jobs below their qualification ('occupational downgrading') only because of a lack of language skills. Finally, more could be done to retain foreign university graduates who finish their studies in the Czech Republic, for example, by permitting them to stay in the Czech Republic for a period after finishing their studies to find employment in the Czech labour market.

[14] According to PISA 2012 survey, around 1.9 % foreign-born 15-year old pupils, plus another 1.4 % born in Czech Republic to immigrant parents. Around one quarter of foreign-born pupils arrive after age 12. In the tests the students without an immigrant background tend to perform better. Internet:https://www.oecd.org/pisa/pisaproducts/pisainfocus/49264831.pdf

Policy actions to address the outflows of the highly skilled or to promote return migration of highly skilled Czechs from abroad. Regarding actions to prevent the outflows of highly skilled Czechs, there are no official policy measures. The recent strong performance of the Czech economy with a steady growing economy and very low unemployment rates naturally works towards reducing the so called economic 'push' factors from the Czech Republic. These developments decrease somewhat the economic motives for emigration. From a policy perspective, more could be done to prevent native highly educated people from permanent emigration and attracting highly educated emigrants back to the country. For example, in public sectors of health and education, the wages of medical staff/doctors and school teachers are on the lower end of wage distribution in the Czech Republic as compared with the ranking of corresponding professions in other developed countries. Increasing the wages of the highly skilled in vital public sectors should be a priority. Recently, a programme 'Return' (Návrat) has been funded by the Ministry of Education, Youth and Sports to support a return of top Czech researchers from abroad in the form of grants for three years following return.

Some recommendations on policy actions to encourage return migration of highly skilled Czechs and their families back to the Czech Republic. China is relatively successful in attracting its citizens, who graduated from Western universities back home. One of the instruments that China uses is salary level comparable to salaries for the same position in the West. This method might be used in public sectors, such as in health sector or in tertiary education. Several other steps could also be taken within tertiary education to open it up to foreign experts from abroad. For example, the system of recognition of diplomas and degrees from abroad should be simplified, education from other EU countries could be automatically recognised and more bilateral agreements with third countries around degree recognition could be undertaken. It would be easier for Czech universities to attract foreign researchers if the academic title system were to change. Finally, inspiration could be taken from Denmark, Sweden, Luxembourg and the Netherlands for attracting highly skilled foreign workers and Czech citizens back to the Czech Republic. These countries have introduced a preferential tax zone for foreign experts for a certain time. For example, Denmark reduces income tax for highly qualified workers and scientists from abroad by 40 % during the first three years of working in Denmark. And, as the article by Kleven et al, 2014 shows, the number of highly educated foreigners and Danes who returned from abroad increased by 23 % after the introduction of this tax relief. The Czech Republic could encourage return migration of highly skilled and specialised Czech citizens back to the country via for instance tax deduction for some time after moving back and working in the Czech Republic, or via other suitable measures.

6 Conclusions

The Czech economy has recently been performing well, experiencing strong economic growth and low unemployment rates (3.5 % in Q1/2017). It is also experiencing labour shortages and wages are on the rise. There are plenty of job vacancies particularly for the high skilled, yet there are not enough people to fill them. Globally, there is an intense battle for talent. The situation in the Czech Republic varies in many ways. In terms of education investment, the country is under-performing compared to other developed countries. Even compared with its neighbours, the share of highly educated people in the Czech Republic is lower. Additionally, more than half of university graduates are women, who then stay out of the labour market for a long time during their most productive years because of parental leave, the longest in the world. The long parental leave system is accompanied by a lack of financially

acceptable childcare for small children and a tax credit system encouraging women to stay at home. In addition, there is a long-term trend of emigration with an average of 18 000 Czechs leaving each year (between 1993 and 2015 around 390 000 Czechs emigrated) and a large proportion of them are highly educated. In 2010, around 13 % and 10 % of highly educated women and men, respectively, were living abroad, compared to less than 6 % of the low-skilled and less than 2 % of medium-skilled Czechs. Currently, around 2.3 % of the Czech population lives abroad. Along with the aging population, these trends can exacerbate pressure on public finances. Besides an investment in education, and a greater involvement of women and seniors on the labour market, the situation can also be alleviated by attracting highly qualified workers from abroad - both foreigners and Czechs.

From the available statistics, it seems that most Czech emigrants are labour migrants. Their top destinations are neighbouring countries such as Germany and Austria, but also English–speaking countries with larger skill premium, such as the US, Canada, Australia and the UK. These last destinations are particularly popular with the highly-skilled. Czech emigrants may impact their home economy through a number of channels, for example via increased flow of international capital such as foreign direct investments (FDI), flow of remittances and portfolio investments, and then via trade. For example, in 2016, the level of received remittances in the Czech Republic reached 1.6 percentage of GDP, which is not insignificant. There is a general consensus among researchers that remittances contribute positively to the source country economy through, for example, increased consumption and investments in human capital, among others. The effect on human capital formation and on the general welfare of the Czech Republic also depends on the size of the brain drain, brain gain and brain exchange phenomenon. Given that time series data on emigration from Czech Republic by skill level are unavailable, and that mapping the scale of return migration of Czechs is difficult, it is hard to conclude on the overall effects of emigration on the Czech economy. From what we know, it would benefit the country to attract back highly skilled Czech emigrants and to promote high-skilled immigration of labour from abroad to transfer complementary knowledge, skills and technology. This would help to enhance valuable skillsets and know-how in the Czech labour market and increase access to global networks. Subsequently, the Czech economy could experience a boost in its innovation and productivity potential and gain a competitive advantage.

The Czech government has pursued several policy actions recently to encourage high-skilled immigration, such as packages to speed up work and residence permit procedures for high skilled third country workers, fast track long-term visas for students from third countries, and establishing centres for integration of foreigners that offer free Czech language courses. Although these are certainly steps in the right direction, several of the policy packages are still too bureaucratic and important barriers still exist for high skilled workers to come to the Czech Republic and to integrate with their families into the country's labour market and society.

Guaranteeing equal access to the Czech public health system insurance schemes for foreigners coming even on a temporary basis appears to be a key. More could also be done to strengthen integration prospects for children in the Czech school system. For example, with more provision of school programmes taught in English and/or bilingual schools for children of expat families, and vitally, a system of integration programmes such as intensive Czech language courses for children of immigrants and courses of inter-cultural diversity management for staff, which appear crucial to help children integrate more smoothly into the Czech school system and society.

Finally, more could be done to retain foreign university graduates who finish their studies in the Czech Republic, for example, by permitting them to stay in the Czech Republic for a time following their studies to find employment. These steps would certainly strengthen the position of Czech Republic as a potential destination for foreign-born talent. Regarding the return of high-skilled emigrants back to the Czech Republic, there is only one programme to encourage Czech citizens to return, which tries to attract top Czech researchers from abroad to Czech universities.

This report attempts to highlight measures that could potentially be implemented, both for attracting foreign-born and Czech high-skilled talent from abroad to the Czech Republic. The attraction and retention of highly-qualified foreigners and Czechs from abroad would strengthen the workforce diversity and its knowledge base, vital to creativity, innovation and, consequently, to the innovation-driven economic growth, desperately needed by the Czech economy. At the same time, such migration would help to alleviate welfare burdens associated with population aging that the Czech economy will face in the near future.

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