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**Economic Impact of Intra-EU Labour
Mobility in Receiving and Sending
Countries**

A brief Survey

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July 2020

Our Social Europe – Strong Together



Federal Ministry
of Labour and Social Affairs



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Abstract

The free movement of workers is a core element of the Single European Market. It bears the potential to counterbalance diverging labour market and economic growth developments within the European Economic Area and thus help promote upward economic and social convergence of the member states.

Against this background, this survey provides an overview of the current knowledge with regard to the the impact of intra-EU worker mobility, on economic and social development, both in the receiving member states and the sending member states. It focuses on research in the realm of economics, and concentrates on empirical impact evaluation studies. Key theoretical arguments are included as well. The survey covers five dimensions of outcomes that are essential in the debates on upward economic and social convergence of the member states on the one hand, and have elicited a substantial body of migration related research on the other: labour market effects, productivity and growth effects, human capital effects, fiscal effects, as well as social and societal effects.

The review of the evidence points to the importance of paying attention to the distribution of economic and social consequences of free intra-EU mobility of workers. Although net benefits will most likely appear, if one considers the European Union as a whole, their distribution might be quite unequal comparing mobile workers with stayers, immigrant with native workers, advantaged with disadvantaged natives, receiving member states with sending member states. The survey also demonstrates that the empirical knowledge with regard to the economic and societal impact of intra EU-mobility is still quite scattered and uneven. Much further research on the subject matter is needed, to facilitate creation of efficient mechanisms for redistributing the concomitant overall gains such that inequalities in Europe decline rather than increase.

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List of abbreviations

CGE	Computable general equilibrium
COVID-19	Coronavirus disease 2019
DSGE	Dynamic stochastic general equilibrium
EU	European Union
GDP	Gross domestic product
GNI	Gross national income
LFS	Labour Force Survey
LSMS	Living Standards Measurement Survey
OECD	Organisation for Economic Co-operation and Development
TFP	Total factor productivity
UK	United Kingdom
US	United States

Glossary

EU-8	8 of 10 countries that joined the EU in 2004 (Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia, Slovenia)
EU-10	10 countries that joined the EU in 2004 (EU-8 + Cyprus and Malta)
EU-15	15 countries forming the EU until 2004 prior to the accession of the EU-10 (Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, United Kingdom)

1. Introduction

It appears that the achievement of free movement of workers as a core element of the Single European Market is increasingly under question. Many citizens, as well as some policymakers and analysts now seem sceptical about the role free flows of workers can play in promoting upward economic and social convergence of the member states. In particular, they show concerns that intra-EU labour mobility could be detrimental to growth and development and be associated with an unequal distribution of welfare gains and losses both within and across countries.

Up to the COVID-19 pandemic imposing sudden constraints of free mobility across Europe, since the accession of ten Eastern European countries to the EU, in 2004 respectively 2007, and the gradual opening up of the labour markets of the EU-15 to migrant workers originating from the new member states, intra EU-mobility of labour has become substantially more important. It appears that net worker flows between the East and the West are strongly driven by relative economic performance of receiving and sending countries. Hence booming Ireland prior the “great recession” a decade ago, and Germany with its long thriving labour market in recent years, have attracted huge numbers of Eastern European workers, slowly progressing Bulgaria and Romania have emerged as major emigration countries, and Poland after a successful structural economic transformation has shown signs of making a transition from a major immigrant-sending country to a country becoming attractive for labour migrants from abroad.

These examples point toward the potential of cross-border mobility to work as a force counterbalancing diverging labour market and economic growth developments within the European Economic Area. However, the remaining substantial individual hurdles – language barriers, incomplete transferability of human capital, psychological and physical resettlement costs – might limit the power of intra-EU mobility as an equilibrating mechanism.

Besides, even if the EU economy as a whole benefits from free movement of workers within its borders, it bears a nucleus of social and economic divergence across member states. Naturally a given number of migrant workers translates into higher emigration rates than immigration rates, due to the fact that the total population of EU-10 is smaller compared to EU-15. Therefore potential negative externalities of emigration, for example, a loss of past public investment into human capital, accelerated demographic ageing, or exit of citizens who are crucial for innovation in the economic and social sphere tend to register more strongly in the sending member states than the potential positive externalities of immigration in the receiving member states. This imbalance is all the more important, as efficient instruments to redistribute net gains from the beneficiaries of intra-EU worker mobility are not readily available.

Against this background, this brief provides an overview of the current knowledge concerning the impact of intra-EU worker mobility, on economic and social development, both in the receiving member states and the sending member states. The survey focuses on economic research and concentrates on empirical impact evaluation studies, yet key theoretical arguments are included as well. It covers five different areas or dimensions of outcomes that are essential in the debates on upward economic and social convergence of the member states on the one hand, and have elicited a substantial body of migration research on the other:

1. Labour market effects: Mobile workers change labour supply both in the receiving and in the sending country, which may alter the respective labour market outcomes in terms of quantity (employment, unemployment) and wages. Worker mobility would contribute to upward economic convergence, if differential labour market effects in the receiving and in the sending country narrowed employment or wage gaps.
2. Growth and productivity effects: As labour is an input in production, mobility of workers will immediately change aggregate production possibilities in the sending and in the receiving country. At the same time, supposed production technologies with non-constant returns to scale, labour productivity changes in the receiving and in the sending country. In addition, there can be indirect productivity effects, which may originate from changes in capital intensity, changes in innovation patterns, or network effects, for example. Worker mobility would only make a contribution to upward economic convergence, if the combined labour supply and productivity effects made growth rate differentials between the receiving and sending country smaller. However, in some environments, e.g. with increasing returns to scale, labour migration would result in increasing divergence rather than convergence.
3. Human capital effects: A peculiar productivity channel is associated with the amount of qualifications and skills available in an economy. The sending country might suffer from loss of human capital or “brain drain”, if emigrants are better endowed with human capital than the remaining workforce. This might put it into a disadvantaged position compared to the human capital receiving country. The related economic growth effects might be larger than the immediate effect of shorter human capital supply, if there are externalities due to knowledge spillovers, for example. Detrimental brain drain effects thus might jeopardize upward economic (and social) convergence. In this context, one also needs to consider the possibility of “brain gain” effects emerging in the sending country, however. These may originate from enhanced human capital investment in order to maintain the option to emigrate, investment of remittances, or emigrants returning with enhanced skill levels after a temporary stay abroad. If brain gain effects dominated brain drain effects, mobility of skilled labour could possibly enhance upward convergence of the sending and the receiving country.

4. Fiscal effects: Mobile workers are citizens who pay taxes, receive government transfers and utilize publicly provided goods. Their relative net position in the fiscal systems of the receiving and sending country depends on many factors, in particular the respective degree of integration in the labour market, the respective returns to human capital, and the design and relative generosity of the tax and transfer systems. Worker mobility may immediately enhance upward convergence, if net fiscal gains in the receiving country are smaller than in the sending country. A possible case would be unemployed workers leaving in order to terminate welfare dependency, but not reaching a strong economic (and thereby fiscal) position in the receiving country. But upward convergence could be enhanced also indirectly, provided that the receiving country has a larger fiscal gain from migration than the sending country, and that a fiscal equalisation mechanism is in place that redistributes the overall fiscal effect of mobility such that the receiving country is put at a relative disadvantage.
5. Social and societal effects: Mobility also impacts on social outcomes on the micro level and on the level of the society as a whole. Irrespective of economic outcomes, migrant workers (and their families) may suffer – pre and post migration – from stigmatization, discrimination or lack of social integration, for example, and differential social outcomes and status in the sending and receiving country might strengthen or weaken overall social cohesion. On the societal level, migrants' exposure to distinct values, policies and institutions in the receiving and the sending country might foster upward social convergence, via their cross-border ties and capacity as cross-border (cultural) navigators. On the other hand, emigration might work against social convergence or promote polarization, if agents who are key to social stabilization prefer to leave a community, or if migrants in making location choices give high importance to similarities of tastes.

The remainder of this survey is structured as follows. Section 2 focuses on the labour market impact of mobile workers, in particular employment and wage changes of non-mobile workers. Section 3 addresses changes in economic growth patterns and productivity patterns associated with shifts in aggregate labour supply due to migration. Section 4 discusses how brain drain (and brain gain) aspects, much discussed in the context of emerging economies, are relevant in the context of intra-EU worker mobility. Section 5 considers the fiscal position of European citizens who move across borders relative to that of non-mobile citizens, and the size of the concomitant aggregate net surplus or deficits in government budgets. In section 6 a range of mobility effects that do not arise in the immediate economic domain but in the social and societal spheres are summarized. Finally, section 7 concludes.

2. Labour Market Effects

The notion that intra-EU mobility might support convergence of European labour market outcomes, notably with regard to wages and (un-)employment rates, corresponds to a quite straightforward line of conceptual arguments. Suppose that the capital stock is fixed, that mobility across borders is not costly and that human capital endowments of migrants are perfect substitutes for non-migrants. Then labour markets with higher wage levels would attract workers from low wage countries, and if wages are flexible enough to clear markets, increased labour supply induces wages to fall in receiving countries. This response is detrimental to native workers whereas the immigrants experience a welfare gain from remaining employed but obtaining a higher income. In this setting, also workers left behind benefit from an income gain associated with less competition on the domestic labour market. Note that the negative wage impact on native workers can be small (or even zero) provided that labour demand is not very sensitive to the wage level, as could be the case, for example, in the presence of labour shortages in a thriving economy. In a situation where wages are comparatively low in countries of origin but still not sufficiently low as to avoid domestic unemployment, emigration reducing labour supply might furthermore improve upon relative employment opportunities within the work force left behind.

Yet altogether the theoretical predictions of economic theory as regards the impact of cross-border mobility of migrant and non-migrant workers in the destination and origin countries are far from clear-cut. They crucially hinge on the skill-mix of mobile workers, relative to the non-mobile work forces, as well as on the structures of the economies hosting and sending migrants. In this context, it is typical to differentiate between skilled and unskilled labour. Unless the skill composition of mobile workers is the same as those of non-mobile workers, migration – in both receiving and sending countries – tends to induce short-run changes in employment rates and wages of different skill types, depending on the skill-level specific degree of substitutability or complementarity between mobile and non-mobile workers (Chiswick 1980; Chiswick et al. 1992). For example, if high-skilled immigrants are good substitutes of high-skilled but complements to low-skilled native workers, an intake of high-skilled workers can have detrimental wage or employment effects, at least in the short-term, for high-skilled native workers, while low-skilled natives benefit from positive labour demand spill-overs lifting their wages up, or unemployment down. Thus inequality of labour market opportunities or outcomes in the receiving country may decline, whereas the opposite may appear in the migrant workers' country of origin. However, more elaborated economic models that allow openness in international trade or a sufficiently flexible mix of the output produced in the traded good sector can yield the prediction of no long run labour effects of immigration in the receiving countries. This holds at least provided that the immigration shock is not too large (Gaston and Nelson 2002; Hanson and Slaughter 2002). As output prices in this setting are fixed on world markets, the economy responds to an inflow of migrant labour by producing relatively more of the tradeable goods that require more intense

use of the type of labour (be it low-skilled or high-skilled) that becomes relatively more abundant due to migration. Similarly, if capital stocks adjust to changes in labour supply via domestic or international investment, aggregate wage levels and interest rates should remain constant as well (Ottaviano and Peri 2011).

These considerations make clear that from a conceptual point of view, the effects mobile workers have on wages and employment of non-mobile workers are completely ambiguous. It is perfectly conceivable that immigration (emigration) has no effects on labour market outcomes in receiving (sending) countries, *or* depresses outcomes or improves outcomes, depending on production technologies and the degree of international competitiveness of the economies affected. Thus, diagnosis of specific labour market effects of international mobility is an empirical domain.

The body of literature quantifying labour market wage and employment effects in countries receiving immigrants – surveyed for example by Dustmann and Glitz (2005), Borjas (1999) and Friedberg and Hunt (1995) – is substantial, though not especially focused on the impact of intra-EU worker mobility. The bottom line to be drawn from this research appears to be that inflows of migrant workers have limited negative if any effects on wages and unemployment rates of natives. If anything, the estimated adverse labour market effects of immigration tend to be somewhat larger in Europe compared to the US case, and stronger for low-skilled or otherwise more vulnerable groups (including earlier immigrants). In contrast, empirical research on the labour market effects of emigration, i.e. in the sending countries, is much less developed. A limiting factor is that obtaining appropriate information on emigrant workers is difficult given that they often fail to deregister from residence registries when moving abroad. A pioneering study has been undertaken by Mishra (2007) within the context of emigration from Mexico. She uncovers a positive impact of medium-skilled workers leaving to the United States on the wage level of non-mobile medium-skilled Mexican workers, which suggest that that emigration alleviates competitive pressure on the source country labour market.

A noteworthy study on labour market effects of international worker flows has been conducted by Docquier et al. (2014). It is peculiar, for it analyses the full set of bilateral migration flows within the set of OECD countries, distinguished by skill-level, and considers both immigration and emigration effects. The authors estimate a reasonably diverse spectrum of individual labour market effects, yet some common findings emerge: i) immigration had a small positive or no effect on the average wages of non-migrant natives in all the OECD countries; ii) positive average wage effects for less qualified (non-college educated) have in the tendency been larger than for more qualified workers; and iii) emigration had a negative and significant wage effect (up to minus 7%) on less educated natives left behind. These results can be attributed to the specific nature of the cross-border worker flows within the OECD, during the observation period 1990-2000. Overall, they exhibit a higher share of better qualified workers than in the non-mobile work forces in both receiving and sending countries. This supports the view that mobility

induced changes in supply of high skilled labour systematically affects low skilled labour due to complementarities in labour demand.

The results of the literature that specifically addresses the labour market impact of intra EU-mobility appear to be very much in line with those from the more general migration studies outlined above. This literature has evolved corresponding to migration patterns evolving since EU enlargement in 2004, i.e. growing East-West mobility with a high share of worker flows. The consensus finding concerning labour effects in countries is that immigration from Eastern European accession countries has significantly increased employment rates in the receiving EU-15 countries (Kahanec and Pytlikova 2017). At the same time, workers in the Western European economies absorbing substantial numbers of new intra-EU immigrants have experienced close to zero adverse effects, though some mild substitution effects might have occurred in specific labour market segments.

For example, the Migration Advisory Committee (2012) assesses that strong inflows from new member states after EU-enlargement in 2004 did not raise native unemployment in the UK. This assessment holds considering the overall unemployment rate as well as unemployment rates of a range of subgroups in the workforce. A study by Lemos and Portes (2013) on the labour market effects of opening up the UK labour market for labour migrants from the new member states in Eastern Europe corroborates these claims. However, Blanchflower et al. (2007) and Blanchflower and Shadforth (2009) point out that some wage moderation might have appeared in the UK in anticipation of the 2004 EU enlargement, stemming from fear that the immediate unrestricted access of Eastern European workers would generate impact higher unemployment. In addition, Blanchflower and Lawton (2010) express some concerns of substitution effects affecting low-skilled segments of the labour market when the UK economy moves into recession and fewer plain jobs are available.

Similarly, Doyle et al. (2006) do not find evidence that granting early access to workers from the new member states to the Swedish labour market lead to displacement of Swedish workers. They acknowledge though that their observation period of two years is probably too short to detect the equilibrium labour market responses to rising immigration of European citizens. Brenke et al (2010) consider the German case. They observe that new immigrants who arrive in particular from Poland mainly occupy low-skilled segments of the labour market. Given the characteristics of workers employed in these segments, they are unlikely to displace native workers, but rather immigrants from outside Europe who hold a disproportionate employment share.

Finally, several studies have evaluated the labour market impact of intra-EU mobility in Ireland – the country among the EU-15 with the largest relative share of immigrants originating from the new EU member states of 2004 (Doyle et al. 2006, Barrett 2010, Hughes 2011). Neither of these studies has found significant evidence of labour force displacement of natives or downward pressure on wages. However, Hughes (2011) observes that the recent EU migrants have served as

a kind of buffer stock during the great recession associated with the global financial crisis of 2008. In this situation EU-10 nationals lost their jobs at a much higher rate than natives, which accelerated return migration.

Considering the impact of post-enlargement emigration on new EU members labour markets, surveyed by Zaiceva (2014), it appears that on the whole, outmigration has contributed to higher wages for stayers, as well as to lower unemployment. At the same time, there are signs that the outflow of dominantly skilled workers has contributed to higher skill shortages in countries of origin, and exacerbated mismatches between jobs and skills. The available – altogether scarce – evidence on the subject matter falls into two categories: macroeconomic simulations and impact assessment studies based on micro level data for particular Eastern European member states.

In the former realm, Holland et al. (2011) starting from compiled migration data over the period 2004-2009 simulate that in the absence of emigration, unemployment in 2009 in the EU-8 would have been higher by about 0.3 percentage points (with the largest impact in Poland and Estonia) and by even above 0.5 percentage points in Bulgaria and Romania. Estimated longer term effects on unemployment rates, however are negligible. Considering also wages where available, the study concludes that emigration has impacted short-term wages growth of about 2.7% in Poland, 0.7% in Hungary and 0.4% in the Czech Republic. Simulated longer term are only marginally smaller. Baas et al. (2010) in another macroeconomic simulation study also predict a positive if small short run wage effect of intra-EU migration for the group of Eastern European sending countries (0.3%), as well as a mild reduction of the unemployment rate (0.4 percentage points). According to this study, the additional wage growth due to emigration in the countries of origin is experienced by all skill groups, whereas the decline of unemployment concentrates among the low skilled.

Dustmann et al. (2015) evaluate the effect of emigration from Poland around the time of EU accession. Exploiting variation in region-specific emigration rates, they show that emigration from Poland was largest for workers with intermediate level skills and estimate that in the consequence wages for this skill group increased significantly on the Polish labour market. The study also suggests that emigration led to a slight increase in wages overall but that workers at the low end of the skill distribution made no gains and may actually have experienced slight wage decreases. The results of the study concerning the average effects are corroborated by a descriptive analysis suggesting that wage effects of emigration have been moderate, with favourable business cycle conditions and structural changes during the economic transition process being much more important drivers behind substantial aggregate wage growth in Poland (Kaczmarczyk 2012). The same appears to hold with regard to the decline in unemployment rates post EU enlargement.

Likewise, Hazans and Philips (2010) argue that strong employment growth and a rising number of job vacancies did more to lower unemployment and boost wages in the Baltic States than

post-accession emigration. Elsner (2013) employs an approach similar to that of Mishra (2007), in order to study the effects of massive emigration to Ireland and the UK on labour market outcomes in Lithuania. Controlling for the fact that workers leaving to these destinations are a specifically selected group, he estimates that the positive impact of emigration on the wages of workers left behind are positive and quite substantial. The estimates imply that a one percentage point increase in the emigration rate has led to an increase of stayers' real wages on average by 0.67%. In addition, estimated wage gains appear to be positively correlated with the group-specific emigration rate in Lithuania. Thus, emigration explains 8% of the overall wage increase in Lithuania between 2002 and 2006, and up to 16% of the wage increase for men.

In summary, the impact of migration on wages and employment of non-mobile workers (in both receiving and sending countries) is theoretically ambiguous. Yet a substantial body of empirical research on the matter suggests that labour market effects of migration, in the aggregate, are mostly close to zero. If anything, non-mobile workers who are substitutes in production are affected most. This means that incumbent workers in receiving countries who occupy the same skill segment as immigrants tend to suffer from moderate wage pressure and somewhat higher unemployment, whereas workers in sending countries tend to benefit from higher wages and lower unemployment as competition in their labour market segment becomes less stiff. As a result, intra-EU mobility of workers might indeed contribute to upward convergence of labour outcomes across Europe – on the whole, the evidence in particular suggests a positive impact of post-enlargement emigration in new EU members labour markets. It appears however that the contribution of worker mobility to convergence of wages and (un-)employment levels has been small so far, and that general economic growth and productivity dynamics are much stronger drivers of labour market outcomes in comparison. The main beneficiaries of intra-EU worker mobility in terms of labour market outcomes thus seem to be the mobile workers themselves.

3. Productivity and Growth Effects

The effect of migration on growth and productivity may work through different channels. Jaumotte et al. (2016) identify three components of GDP per capita which can illustrate these mechanisms in the receiving countries: the working age-to-total population ratio, the employment-to-working age population ratio, and labour productivity. The first mechanism is determined by an increase in the working age population caused by immigration given that migrants are typically younger than natives. Therefore, and assuming no other adjustments, GDP per capita will increase via a decreased dependency ratio.

The second mechanism related to the employment rate may differ between the short- and the long-run. In the long run, there should be no effect of immigration on the average employment rate because the additional supply of workers is neutralized by the additional demand for goods and services in the enlarged economy. In the short-run, however, the effect on the employment

rate depends on the substitutability or complementarity of migrants and natives in the labour market. Migration may either lead to more unemployment among natives (substitutes) or lead natives move to more complex jobs while migrants take up routine jobs (complements).

The latter effect however, also depends on the skill level of migrants, which is related to the third channel – labour productivity. The latter is affected by the capital-to-labour-ratio, average human capital per worker, and total factor productivity (TFP). While migration initially leads to a decrease in the capital-to-labour-ratio, an increase in the return to capital and therefore an increase in investments, capital per worker returns to its previous level in the long-run. The effect on the average human capital per worker depends on the education level of the migrants relative to natives. TFP can increase through low- as well as high-skilled migration. Whereas high-skilled immigrants may increase TFP through increased innovation, productivity spillovers or an increased diversity in productive skills, the effect of low-skilled immigrants works through occupational reallocation and task specialization of immigrants and natives.

The relevant – macroeconomic – studies assessing the effect of intra-EU migration on growth and productivity utilize on the one hand general equilibrium models, such as computable general equilibrium (CGE) or dynamic stochastic general equilibrium (DSGE) models simulating effects of migration on the economy being able to take into account an increased demand in goods and services, an increase in investment, and different levels of education of migrants (Jaumotte et al., 2016; Peri, 2016).

On the other hand, reduced form econometric analyses are used to measure the causal impact of migration on output and productivity. Measuring this impact however, faces empirical challenges such as reverse causality. For instance, a supposedly positive impact of immigration on GDP per capita could in truth originate from high immigration rates due to high GDP levels. Moreover, self-selection in migration decisions poses another endogeneity concern. By using instrumental variable approaches, the empirical literature attempts to provide causal estimates taking into account these issues of endogeneity (e.g., Ortega and Peri, 2014; Jaumotte et al., 2016 or Kahanec and Pytlikova, 2017).

The literature focuses mainly on the effects of migration on GDP (per capita) in the receiving countries or on the aggregated effects of the integrated area, while only a few studies focus on the sending economies. Key papers in this area often analyse a set of a number of countries and do not only focus on the European Union or Europe as a whole. For instance, Ortega and Peri (2014) and Alesina et al. (2016) employ pseudo-gravity models to address endogeneity for a wide set of countries. Ortega and Peri (2014) focus on the effect of a country's openness to trade and immigration on GDP per capita. They find a robust, positive effect of openness to immigration on GDP per capita, however, no significant effect of openness to trade. This effect works mainly through an increase in TFP which is in part related to an increased diversity in productive skills and increased innovation, measured by patents.

A similar study by Alesina et al. (2016) finds a positive effect of birthplace diversity on GDP per capita, especially of skilled immigrants in richer receiving countries. While applying a similar econometric approach, Jaumotte et al. (2016) and Aleksynska and Tritah (2015) focus on economically advanced receiving countries. They also find a positive effect of immigration on GDP per capita, with immigrants in prime working age being main contributors to GDP compared to younger immigrants (Aleksynska and Tritah, 2015).

Early studies focusing on intra-EU migration include Baas et al. (2010) and Baas and Brücker (2010). Baas et al. (2010) employ two different general equilibrium models to assess the impact of intra-EU migration from the EU-8 to EU-15 countries between 2004 and 2007. They find that post-enlargement immigration from the EU-8 increases GDP in the integrated EU area by about 0.1 percent in the short-run and by about 0.2 percent in the long-run, with the latter corresponding to a sum of 24 billion euros. However, in the sending countries GDP declines by about 0.5 percent in the short-run and by about 1 percent in the long-run. GDP per capita increases in the short-run in the EU-8, but returns back to almost its initial value in the long-run. Moreover, the skill structure of the migrant population from the EU-8 seems to be relatively similar to the one in the receiving countries and is only moderately better qualified than the individuals in the sending countries.

Baas and Brücker (2010) perform a similar analysis examining the macroeconomic impacts of the 2004 Eastern enlargement of the EU on Germany and the UK. In particular, they employ a CGE model that considers trade, capital flows, migration and governmental transfers. The baseline scenario refers to a situation without EU enlargement. The findings point to a 1 percent increase in GDP in both countries compared to a scenario without Eastern enlargement. The increase primarily results from trade flows in Germany and from labour market gains in the UK. Germany's GDP would have increased even more, if it had applied a similar immigration policy as the UK.

The findings of two more recent studies analysing the economic impact of intra-EU migration confirm the previous results of a positive impact on growth (Kahanec and Pytliková 2017; Clemens and Hart 2018). Clemens and Hart (2018) use a DSGE model to analyse the impact of intra-EU migration on GDP development in Germany between 1996 and 2016. They find that without intra-EU migration the annual GDP growth rate would have been on average 0.2 percentage points lower. Kahanec and Pytliková (2017) investigate the economic effects of migration from new EU member states and Eastern Partnership countries to old EU member states between 1995 and 2010. They use international migration data from different sources and an instrumental variable strategy to account for reverse causality issues. They find statistically significant positive effects of migration flows from the new EU member states on GDP and GDP per capita in the EU-15 and a negative effect on output per worker. Results on migration from Eastern Partnership countries point to slightly negative effects on GDP and GDP per capita. The authors assume that these heterogeneous results by origin countries may stem from a different

composition of migrants from these two regions or a different legal status the immigrants have upon entering the EU-15.

Atoyan et al. (2016) focus on the effect of emigration and its economic impact in the sending countries in Central, Eastern and South-Eastern countries. They use OECD and World Bank migration and remittances data and different methodological strategies such as instrumental variables and simulation of a partial equilibrium model to assess the impact of emigration on growth and other economic outcomes. The findings point to a negative effect of emigration on potential annual growth rates, especially in Albania, Montenegro, Romania, Latvia, and Lithuania. Moreover, emigration of skilled workers decreased TFP in the sending countries. Using GNI instead of GDP and thereby taking into account remittances leads to a smaller negative effect of emigration.

Portes and Forte (2017) reverse the classic East-West European migration studies by estimating the impact of a Brexit-induced reduction in migration flows to the UK on the UK economy. For the projection they use relationships from the empirical literature. They find a significant reduction in GDP and GDP per capita which is predicted to be even larger in 2030 than in 2020. The authors assume that the size of this decrease is comparable to the reduction induced by trade.

One possible channel for the aforementioned migration-induced increase in GDP per capita in receiving countries are increased innovation activities related to immigrants as already suggested by Ortega and Peri (2014). Fassio et al. (2019), e.g., investigate the effect of skilled migration on innovation at the industry level in the UK, France and Germany. They use the French and British Labour Force Surveys (LFSs) and the German microcensus and match these data with the European patents and citations database. By employing an instrumental variable strategy they find a positive effect of high-skilled migrants on patent citations. However, this effect differs by industry, in that it is more pronounced in industries with low levels of over-education, high levels of FDI and openness to trade and, with higher ethnic diversity.

On the whole, the available studies on the growth and productivity effects of intra-EU labour migration suggest that it is beneficial for the EU as a whole, and for the receiving countries in particular. These benefits are associated with both the additional supply of labour as input in production, and – altogether slight gains in labour productivity, which may stem from knowledge spillovers or enhanced innovation capacity, for example. The evidence also suggests however that sending countries tend to experience comparatively less positive or even negative impacts of emigration on their macroeconomic output, although remittances of emigrants to their home country may help buffer such detrimental effects. Therefore, overall mobility of workers within Europe might contribute to divergence rather than convergence of economic performance and well-being, as measured by gross domestic of national product.

4. Human Capital Effects

Migration-induced human capital effects in sending and receiving countries are characterized by two key underlying concepts: brain drain and brain gain (see, e.g., Boeri et al. 2012). In this context, “brain drain” refers to the costs occurring to sending countries from the human capital loss of high-skilled emigrants. These costs include fiscal costs, as the training and education of high-skilled emigrants has usually been financed by public funds, but the sending countries do not reap the related benefits in terms of the subsequent (wage) tax revenues of these emigrants. Additional (short-term) production costs can arise from the inefficient use of other production factors in the absence of the emigrants who left (Grubel and Scott 1966; Bhagwati and Hamada 1974).

Next to these negative human capital effects for sending countries, in the recent literature also positive effects are discussed.¹ These possible effects are referred to as “brain gain”, and they mainly arise through two mechanisms. First, the possibility of emigration to more economically developed countries provides additional incentives for the population in the sending countries to invest in human capital (e.g. Beine et al. 2001; Beine et al. 2008). Thus, despite a certain rate of emigration of high-skilled individuals, through this incentive mechanism it is even possible that human capital in sending countries actually increases compared to a situation without emigration and incentive for investment at all. At least, negative effects of brain drain may be mitigated.

Second, the return migration of high-skilled workers to their home countries also induces brain gain. Return migrants tend to have a higher human capital stock than before their departure through work experience and further qualification in the receiving country. This human capital accumulation in turn benefits the sending countries (Mayr and Peri 2009).

Ultimately, it is an empirical question whether the two mechanisms of brain gain can compensate for the brain drain through emigration. Whether a sending country is a winner or loser of emigration (and of return migration) also depends on country-specific factors, such as the number and composition of emigrants, the level of economic development as well as population size, language and geographical location (Docquier 2014). Remittances from emigrants to relatives in the sending country also play a role.

A related concept in the debate about brain drain and brain gain is “brain circulation”. Circular migration movements arise from the fact that migration decisions are not necessarily of a permanent, but rather of a temporary character (Zimmermann 2014). Accordingly, circular

¹ It should be noted that sometimes brain gain is only defined from the perspective of receiving countries, referring to their gain in terms of the additional human capital of high-skilled immigrants.

migration includes further migration to third countries or the return migration of emigrants to their home countries.

Below, the empirical findings on brain drain and brain gain are primarily discussed in the context of internal EU migration. These movements are largely migration flows from Eastern or Southern European countries to Western or Northern European countries. Accordingly, OECD data on emigrants and “expatriates” from 2004 suggest that the regions with the highest brain-drain rates worldwide include Eastern European countries and the Balkans, and also Central America and the Caribbean Islands, Southwest Asia, and Sub-Saharan Africa (Katseli et al. 2006).

Straubhaar and Wolburg (1999) is an early study on the effects of internal migration in Europe analysing migration flows from Central and Eastern European countries to Germany and their effects in sending countries. The authors use data from the Eurostat Labour Force Survey (LFS) to measure the effects of East-West migration to Germany from 1992 to 1994. They find a positive human capital effect of immigration in Germany, and a brain drain effect in the Eastern European sending countries (Bulgaria, Poland, Hungary, Romania, former Czechoslovakia, and former Soviet Union). Using a macroeconomic simulation model, they also show that the relative proportion of high-skilled individuals in the population positively correlates with emerging international income differentials. Furthermore, aggregate (global) welfare increases as the overall gains exceed the losses. Taking remittances into account does not substantially affect results as the amount of remittances from Germany to Eastern European countries does not fully compensate for the brain drain in these sending countries.

Mayr and Peri (2009) develop a theoretical model in which workers in a less developed economy acquire a certain level of education and subsequently make a migration and return decision. On the basis of this model, the effects of a relaxed migration policy on human capital and wages in the sending country are estimated. In this context, changes in migration restrictions between Eastern and Western Europe between 1990 and 2010 are used as a policy experiment. When doing so, the authors find a clear brain gain effect for Eastern European sending countries, which is induced both by return migration and by additional incentives to invest in human capital. These results thus contradict those of Straubhaar and Wolburg (1999) and support the actual presence of both theoretical mechanisms underlying a possible brain gain in sending countries.

In a rather descriptive paper, Alcidi and Gros (2019) use Eurostat data to examine mobility within the EU and its impact on sending countries. They show that in 2017 people of working age (aged 20 to 64 years) from the new member states in Eastern and South-Eastern Europe were significantly more likely to live in another EU country than people from the old member states (with the exception of Portugal). The highest share of emigrants is observed in Romania with 19.7 percent. In comparison, only 1.0 percent of the German working age population lives in another EU country. However, these shares do not take into account different levels of education, and these figures are therefore not very informative about a possible brain drain.

In a next step, the authors thus analyse how the proportion of high-skilled emigrants relates to the proportion of high-skilled people remaining in the main European sending countries. When doing so, a brain drain can be observed for Bulgaria, Greece, Italy, Poland, Romania and Spain in 2007 and 2017. However, there are differences in the underlying dynamics: While the brain drain decreased in Romania, Bulgaria and Poland during this period, it increased in Greece, Italy and Spain. The net migration rates of high-skilled individuals also point to a brain drain in Italy, Greece and Spain, whereas positive net migration rates of high-skilled individuals can be observed in the United Kingdom and in Germany. The authors identify classical push and pull factors as the main causes underlying the observed migration flows (i.e. wage and unemployment differentials as well as differences in the quality of institutions and living standards based on data from the Social Progress Index).

Kaczmarczyk (2010) focuses on the effects of mobility from Poland after the EU enlargement in 2004. Based on a descriptive analysis of Polish LFS data, he shows that the share of high-skilled emigrants from Poland increased significantly from 15 to 20 percent after the EU enlargement in 2004. The proportion of female emigrants has risen from 18 to 27 percent, that of male emigrants from 12 to 16 percent. The largest share of high-skilled emigrants from Poland moved to the United Kingdom.

In this context, Kaczmarczyk (2010) analyses two additional human capital effects: “brain overflow” and “brain waste”. Accordingly, next to the level of the emigration rate of high-skilled individuals, also their distribution across sectors may be important for assessing a potential brain drain. Kaczmarczyk (2010) focuses on the emigration of medical personnel and indeed identifies a brain overflow for Poland. In this case, there is initially an oversupply of high-skilled workers in a given sector in the sending country. Therefore, the emigration of some of these high-skilled workers occurs at little or no costs as it reduces the previous imbalance in the sectoral labour market in the sending country. Kaczmarczyk (2018) thus refers to a “statistical brain drain” in Poland, since the average emigrant has a higher skill level than the average Polish citizen, but the number of emigrants from specific sectors does not appear excessive.

For the receiving country, in this case the United Kingdom, Kaczmarczyk (2010) and Drinkwater et al. (2009) observe a brain waste of Polish immigrants. Using LFS data, Drinkwater et al. (2009) compare the cohort of immigrants to the United Kingdom shortly after the EU enlargement in 2004 with other cohorts of immigrants. It becomes clear that Polish immigrants in particular experience lower returns to education than recent immigrants from other countries. Thus, immigrant Poles often work below their qualification level. However, it remains unclear whether these Polish immigrants will remain in the United Kingdom in the long term and if yes, how their income profiles would develop over time.

Iacob (2018) examines the push factors relevant for high-skilled individuals from Romania that lead to their emigration. Through an online survey, which was distributed in social networks and

by email, 370 high-skilled Romanians working abroad were interviewed. In the sample, 60 percent are female and the average age is 33.6 years. Most of the participants work in the service industry and in the health sector. Since the sample is relatively small and non-randomly selected, the answers cannot be understood as representative for Romanian emigrants and can only be interpreted as indications for potential underlying mechanisms. Corruption, economic instability and an unsatisfactory income level are mentioned as the three most important push factors by the Romanian emigrants who were interviewed. The three most frequently named factors that are influenced by a brain drain in Romania are remittances, real estate prices and unemployment. The three most important factors to reduce the brain drain problem in Romania are reduced corruption, higher wages and improved health care, and these thus almost identically mirror the most important push factors.

In conclusion, the picture emerging from analyses of brain drain associated with intra-EU labour mobility points to a relatively high share of skilled migrants leaving economies with relatively poor labour market prospects for the better skilled (mostly in Southern and Eastern Europe) to take advantage of employment in the more dynamic and productive economies of Central and Northern Europe. How this skill-selectivity in worker flows impacts on macro economic performance, and whether or not it is detrimental to upward convergence, remains far from clear at this stage. From the perspective of the receiving countries, brain waste due to EU migrants working below their qualification level warrants attention. It means that the full economic benefits of mobility are not realized. At the same time, sending countries may suffer from a loss of well-educated specialists whose employment could be conducive to innovation and domestic growth, and sunk (public) investment into schooling and training. Reliable estimates on the size of such adverse brain drain effects in the EU context are hardly available; the few related studies suggest that they are hitherto not too large. Yet the potential costs of brain drain and brain waste demand closer empirical analyses, as do possible potential brain gains emerging in sending countries due to enhanced investment into schooling of would-be emigrants or temporary emigrants returning with enhanced skill levels.

5. Fiscal Effects

Considering the economic consequences of free intra-EU labour mobility, the impact on government budgets has been receiving particular attention. As unrestricted labour mobility in Europe is combined with the principle of equal access to public benefits for workers, a much-debated concern is that relatively generous welfare states could especially attract agents who are essentially motivated by gaining access to public benefits. Host countries thus functioning as “welfare magnets” could experience net fiscal burdens, i.e., gain less additional government revenue from labour migrants than they need to spend more on additional social benefits (Borjas 1999; Verschueren 2014; Razin and Wahba 2015).

Whether this is indeed the case, however, is mainly an empirical question. Generally speaking, the fiscal net benefits (additional government revenue minus additional public expenses) from labour mobility hinge on migrant-related and host-country related factors (Vargas-Silva 2015). At the individual immigrant level, net contributions to the overall government budget in the host country are strongly driven by the employment rate and the wage income obtained. This reflects intra-generational redistribution, in other words governments redirecting resources from the relatively rich to the relatively poor via the tax-transfer system.

As a corollary, net fiscal payments made by labour migrants tend to be systematically larger than those by other groups of migrants, for example refugees who as a group are characterised by systematically less positive labour market outcomes. A further implication is that net fiscal payments of labour migrants correlate strongly with their individual educational attainment. Yet as the labour market position of migrant workers might suffer from incomplete transferability of human capital or over-qualification, their net fiscal position tends to be worse than that of workers in the incumbent population with the same educational attainment.

A second key determinant of immigrants’ net fiscal position is their age. This reflects the “inter-generational contract” normally inherent in public finances: the current young and old generations depend on income transfers from the current working age population. Therefore, evaluation of the net fiscal position of migrants ideally would take into account that individual net payments to the government on average turn negative towards the end of the life-course after withdrawal from the labour market. As labour migrants tend to be younger than the incumbent population in the host country, short-term calculations ignoring prospective ageing tend to overestimate their net fiscal contribution. However, forward-looking accounting studies taking into account the future life-cycle of immigrants (Auerbach and Oreopoulos 2000; Bonin et al. 2000) are fairly rare; they are considerably more demanding in terms of data and necessary assumptions than evaluations for the short term. Moreover, return migration in the course of the life-cycle may have a critical impact on the net fiscal contribution, which is seldom considered in such studies due to data limitations.

Considering host-country related factors, the generosity of the welfare state, as indicated by the range of public social services provided, the level of benefit payments and the strictness of eligibility criteria, everything else equal, systematically correlate with the size of the aggregate fiscal effect of immigration. Besides, the degree to which welfare benefits are financed via contributions or general taxes could play a systematic role. It has been suggested that the propensity of negative fiscal effects of migration is smaller in welfare states with a higher share of contributory benefits. In a contributory system, tax-benefit linkages tend to be strong: immigrants who have only made small (social insurance) contributions in the host country thus would only be eligible to small benefits. In addition, more progressive tax-transfer-systems, everything else equal, are associated with a worse fiscal net position of labour migrants, supposing that they have an income disadvantage compared to incumbent workers. Likewise, the fiscal position of immigrants tends to be worse considering government revenue systems with higher shares of capital taxes or lower shares of consumption taxes.² Finally, countries with labour market institutions that reduce the demand for low-wage employment tend to experience larger net fiscal gains from immigration. The reason is a selection effect as only comparatively productive workers can enter their labour market through free worker mobility (Ruhs 2017).

Research on the fiscal effects of EU migrants, especially research that adopts a comparative country perspective, is still very scarce. An important benchmark study which evaluates the fiscal impact of immigration across a range of European host countries has been conducted by the OECD (2013), but their analysis does not distinguish neither between type of immigrants or nor countries of origin. A key message of this study is that the estimated short-term fiscal impact of immigration in general is very small, and whether positive or negative rarely exceeds 0.5% of GDP in a given year during the observation period 2007-2009. Still there is noticeable variation in the net fiscal position of immigrants across Europe. While in most host countries the population of immigrants contributes positively to government budgets, households of migrants are net benefit recipients of government transfers in Slovakia, Poland (countries with small immigrant populations), Ireland, France and Germany (countries with large immigrant populations).

The OECD (2013) study shows that structural features of countries' immigrant populations, in addition to the degree of inter- and intra-generational redistribution systematically shape the observed differences. One main driver is variation in age profiles as mentioned earlier. Current net contributions to government coffers tend to be smaller where immigration is less of a recent phenomenon, i.e. where the immigrant population is relatively old. A second driver is variation in educational attainment. Countries where the net fiscal contribution of immigrant households increases little with the immigrants' education levels are characterized by a high share of immigrants employed in positions below formal qualification (like Italy and Spain), a high share

² Remittances might mitigate any positive fiscal impact from consumption taxes.

of high-skilled humanitarian immigrants who did not come for employment (like Austria and Germany), or a high share of high-skilled immigrants still very young and therefore not in an advanced position on the labour market. This observation underlines the importance of the employment positions reached by immigrants as an independent driver of their current net fiscal contributions.

Concerning the specific fiscal impact of intra-EU mobility, some studies focus on the experience of single receiving countries. Dustmann and Frattini (2014) estimate the net fiscal contributions of the immigrant population in the UK for each year during the period 1995 to 2012, and since 2001 for more recent immigrants. Their estimates suggest that immigrants originating from the European Economic Area overall have made net fiscal contributions. In contrast, immigrants originating from outside the European Economic Area, as has been the case with natives, overall have drawn net benefits from the UK fiscal system. The evidence furthermore suggests that more recent immigrants independent of area of origin have contributed positively to the tax and transfer system although the country was running budget deficits during most of the observation period. Finally, Dustmann and Frattini (2014) show that especially recent immigrants from inside the European Economic Area helped to reduce the fiscal burden of natives, given that the cost of providing fixed public goods can be shared among a larger population, which yields significant relief for native taxpayers.

In a companion study, Dustmann et al. (2010) assess the fiscal impact of migration to the UK from the eight Central and Eastern European countries that joined the EU in 2004. Again, they find that in each fiscal year, immigrants from these areas overall have made net contributions to the fiscal system. Their positive fiscal stance is an outcome of markedly higher labour force participation rates, even when compared to natives with the same demographic characteristics. In the consequence, the immigrants to the UK taking advantage of free labour mobility within the enlarged EU are substantially less likely to make use of public housing and welfare services, while contributing a disproportionate amount of indirect taxes.

While Dustmann and co-authors evaluate the fiscal impact of intra-EU mobility within the context of a liberal welfare regime, Martinsen and Rotger (2017) examine the fiscal impact of EU immigration on the tax financed, universalistic Danish welfare state. Their analysis benefits from access to comprehensive public administrative records which registers *de facto* direct tax payments, as well as use of welfare benefits and public services by all EU citizens residing in Denmark, during the time span 2002 -2013. The observation period thus covers several waves of EU enlargement, as well as the transition period opening up Denmark for free intra-EU worker mobility by May 2009. The study concludes that EU immigrants have made a significant positive net contribution the Danish tax and transfer system. Average net payments per capita have remained fairly constant over the observed time span, apart from a mild drop associated with the 2004 EU enlargement and a more substantial temporary decline during the phase of the great recession 2008-2010. Net fiscal contributions are positive for EU citizens both from old and new

member states, although the fiscal stance of the latter appears systematically less positive in comparison. Nevertheless, the evidence presented by Martinsen and Rotger (2017) does not support the hypothesis that the universal Danish welfare state would constitute a welfare magnet for EU (labour) migrants. The same conclusion is reached by Ruist (2014) who estimates a zero to small positive net contribution of immigrants from the ten new EU member states to the Swedish tax-transfer system in fiscal year 2007 – although Sweden in contrast to the rest of the older member states refrained from imposing restrictions on the access of EU citizens to its universal welfare state.

A first comparative country study on the fiscal impact of intra-EU immigration on Austria, Germany the Netherlands and the UK during the period 2007-2013 has been conducted by Bogdanov et al. (2014). It confirms essential conclusions drawn by the single-country analyses mentioned above. In all four countries, despite quite different tax and transfer systems, the current net contribution made by EU migrants to government budgets has been positive. In all countries covered besides the Netherlands, net payments to the fiscal system remain positive even if one abstracts from the net contributions to the pension system, which are overestimated as claims on future retirement income are ignored.

A much more comprehensive comparative cross-country on the fiscal impact of intra-EU mobility that covers almost all European Economic Area countries for the period 2004-2015 in a static setting has been delivered by Nyman and Ahlskog (2018). Its results are remarkably similar to those from the OECD (2013) study discussed above: For most countries, net fiscal effects of EU citizens received are in the range of -0.5% to +0.5%. If measured at the micro level, the average net fiscal contributions by EU immigrant households are in the range of 5.000 Euro below or above those of native households in 23 out of 29 host countries considered.

The results by Nyman and Ahlskog (2018) furthermore suggest that EU workers and other EU migrants would generate systematically larger positive net effects on the government budgets in typical immigration countries in the European Economic Area, especially those countries hosting large shares of EU workers. On the other hand, the estimated short-term net contributions of EU workers lean towards zero in Eastern European Countries which are typical sending countries of EU labour migrants. Further analysis by Österman, Palme, and Ruhs (2019) considering the differences between the EU 15 countries does not support the hypothesis that that more generous Western welfare systems would experience systematically smaller (or even negative) net effects of EU migrants on government budgets. The explanation is that more generous welfare regimes also impose higher tax rates, and thus EU migrants who generally exhibit higher employment rates compared to natives, even if they benefit from more generous provision of public goods and services, also tend to pay more to the public coffers in exchange. Despite the generally high employment rates of intra EU-migrants their net contribution to unemployment insurance schemes appears relatively small, and even negative in a number of member states (Gschwind et al. 2019). This can be attributed to disadvantages as regards wage rates and

especially unemployment risks. Yet the rather disadvantaged position of EU migrants within this particular part of the welfare state accounts for rather little when calculating their overall fiscal position against the tax and transfer system. The reason is that the share of the unemployment system within the entire government budget is generally quite small.

All studies discussed so far consider fiscal impact of immigration only from the perspective of the receiving countries. Alcidi and Gros (2019) argue that large-scale (net) emigration, as it is affecting some Eastern European member states could have negative effects on the source country, as it becomes more difficult for governments to finance current expenditure and to service public debt provided that emigration erodes tax base. As a result, affected countries might enter into a vicious circle, if they need to economize on welfare spending and the quality of public goods, which in turn is a factor pushing further emigration. They further point out that additional value added tax revenue stemming from remittances might mitigate the immediate negative fiscal impact of emigration, whereas accelerated demographic ageing as the young are leaving, might exacerbate fiscal or debt sustainability issues.

Adequate calculations of net fiscal effects from the perspective of the European sending countries, however, are missing to date. The conceptual and data issues to be solved for such an endeavour are formidable, in particular those related to remittances, temporary or circular migration, and trans-national portability of social insurance entitlements. Cristea and Grabara (2019) perform some basic regression analyses suggesting that higher levels of emigration in emerging Eastern European member states (Romania, Poland, Slovakia) during the period of 2007-2017 are associated with lower levels of net government revenue. Yet the study does not address potential endogeneity issues and more importantly, does not demonstrate negative economies of scale, i.e. that net tax burdens per capita in the populations left behind would indeed increase.

To summarize, the quite developed literature on fiscal impact of immigration suggests that receiving countries tend to benefit from positive net contributions by labour migrants to government budgets, although the estimated fiscal returns are normally quite small. Positive effects are enhanced by good qualification and labour market integration rates of migrants –pre-conditions that apply to many labour migrants taking advantage of free movement of workers within the EU. Comparative cross-country analyses furthermore suggest that member states with more generous welfare systems would experience systematically smaller (or even negative) fiscal returns from an intake of intra-EU workers; considering labour migration, the welfare magnet hypothesis is generally not supported by the evidence.

Cross-country comparisons also suggest that the mostly labour sending Eastern European member states benefit comparatively less from immigration. Reliable estimates of the fiscal effects of emigration from these countries are lacking. These effects may lean towards the negative, given that many of the emigrants are high skilled. Yet in a wider perspective, return

migration of temporary migrants carrying human capital acquired abroad may change the picture, as may indirect fiscal returns via remittances. However, if such relieving factors are not too strong, the relative fiscal position of member states that are net recipients of intra-EU labour migrants might improve compared to the fiscal position of member states that are net senders. In other words, free mobility of workers within the EU might work against upward convergence of fiscal strength across the EU, unless the differentials were effectively counterbalanced by fiscal equalisation mechanisms on the European level.

6. Social and Societal Effects

Labour migration can trigger a number of social and societal effects. These include changes at the individual and household level as well as changes within migrants' families. For example, remittances are an important transmission mechanism through which the economic constraints of family members left behind may be relaxed. Hence, remittances may trigger economically relevant (mostly positive, but under certain circumstances also negative) effects. Social effects may result from the fact that certain persons – usually the “male breadwinners” – are not present in the family unit that remains in the sending country.

Potential effects at the societal level can be negative if, for example, emigrating elites contribute to a destabilization of political conditions or to a weakening of political or economic institutions. On the other hand, social or societal innovations may be positively evaluated if, for example, emigrants convey different views and knowledge about foreign institutional models through their ties to their countries of origin. Since the literature on this topic in the context of internal EU migration is rather small, the review in this section also includes findings from European countries in general.

Research on the effects on families left behind has so far mainly investigated migration movements outside Europe, i.e. in the American and Asian context (Antman (2013) comprehensively reviews this literature). The main focus here is on the effects on the children left behind (predominantly in terms of their education and health outcomes), but also the effects on partners and parents that are left behind are analysed. For example, the transmission mechanism of remittances and the associated possible relaxation of family budget constraints are investigated (e.g. Alcaraz et al. 2012).

To solve the problem of self-selection in the context of migration decisions (i.e., as emigration is not random, households with and without migration experiences are generally not comparable), if possible natural experiments such as the migration lottery in New Zealand are used to identify causal effects on families left behind (Gibson et al. 2011a, b). Effects on children left behind generally differ depending on which parent (or which family member) emigrates for how long, on the child's gender and on characteristics of the sending and receiving countries. However, it

appears that these studies only have limited external validity, especially in the European context. For example, the level of economic development of the sending countries that are mostly studied in the literature is typically much lower than that of European sending countries. Moreover, the geographical distances in Europe are usually much smaller and at normal times, there are no migration restrictions between EU countries – except for transitional arrangements that could have been in place for a certain period after the EU enlargement.

While there are few studies that examine the effects of migration on family members left behind in Europe, remittances are only considered as a side effect, if at all. Giannelli and Mangiavacchi (2010), for example, analyse the impact of parental migration – mainly of the father as very few mothers emigrate – on various educational outcomes of the children left behind in Albania. Using data from the World Bank Living Standard Measurement Survey (LSMS) for 2005, the authors are able to reconstruct the time periods in which one parent of the child had emigrated. Results indicate negative effects as the probability of school drop-out and of a prolonged duration of schooling³ increases with the duration of the father's emigration. These effects are more pronounced for girls and in rural areas. The mechanisms behind these correlations are suspected to be rooted in the traditional gender family roles in Albania, which imply that in case of an absent father other (mostly older) male family members take over the responsibility for educational decisions. Hence, girls receive less education as it had been the case in the past. An absent father may also force children to compensate by working in the household or in the family's own agricultural field, leaving less time for school matters. However, this study does not explicitly account for selection problems in the migration context.

While one Romanian study (Pescaru 2015) arrives at similar conclusions as Giannelli and Mangiavacchi (2010), another Romanian study reports different findings (Botezat and Pfeiffer 2020). However, Pescaru (2015) and Botezat and Pfeiffer (2020) use very different methodological approaches. By means of a small survey of just over 100 individuals whose parents have worked abroad for a certain period of time, Pescaru (2015) investigates different effects of these emigration episodes on children left behind. The survey is not representative and the analysis does not take into account selective migration. Hence, results can only be understood as vague indications for potential effects. For example, 90 percent of the interviewees agree with the statement that children had worse grades in school when one parent had emigrated.

Botezat and Pfeiffer (2020) use representative data from Gallup International for 2007. They apply an instrumental variable strategy to investigate the causal effects of parental migration of at least 12 months on children's educational and health outcomes.⁴ Results indicate a significant

³ Note that this does not mean an extended period of schooling in a positive sense (i.e. acquiring a higher degree), but an unnecessarily and inefficiently extended period of schooling.

⁴ The main drawback is that Botezat and Pfeiffer (2020) only have access to cross-sectional survey data.

positive effect of the migration of at least one parent on the average grade of the children left behind in Romania, as well as an increase in learning time for school. The latter effect, however, is only observed for children in urban areas. But their analysis also shows that the emigration of at least one parent increases the probability that children suffer from physical illness or depression. These negative health effects are more pronounced for children in rural areas. The differences found between urban and rural areas are consistent with the findings of Giannelli and Mangiavacchi (2010) in the sense that children left behind in rural areas appear to be affected more negatively from parental emigration than children living in an urban environment.

Clifton-Sprigg (2019) is a more recent study using survey and administrative data from Poland that contain information on educational outcomes and episodes of parental migration over a period of three years. Exploiting the panel dimension of these data, the author can establish a causal relationship between the emigration of at least one parent and the school grades of the children left behind. When comparing the grades of the children in families with an emigrating parent to the children in families without, Clifton-Sprigg (2019) concludes that parental migration has a positive, yet not very large effect on school grades. This result applies in particular to children whose parents have at least an (intermediate) school leaving certificate, to children who have not been assigned any additional tasks in the household, and to children who experience a parental emigration episode of at least 12 months. The latter result corroborates the findings of Botezat and Pfeiffer (2020).

Two further descriptive studies examine the effects of parental migration on children's life satisfaction and health outcomes. Cortina (2014) analyses the effects on children's life satisfaction on the basis of survey data she collected herself in Albania and other countries. Households with migration experiences and households without such experiences are interviewed, so that at least a comparative analysis can be carried out, although the sample size is relatively small with just under 400 observations. Again, results should therefore be viewed as correlations. Her findings indicate that children in families with at least one immigrant parent in Tirana have a statistically significantly lower life satisfaction than children in families without migration experience. However, this study does not take into account the problem of self-selection of the migration decision. As a result, it is unclear whether children in the respective families may have been more dissatisfied even before their parents emigrated or whether migration is actually causing differences in life satisfaction.

Gassmann et al. (2013) use representative household survey data from Moldova to compare educational and health outcomes of children from families with and without parental migration experiences. Although their results should be viewed as descriptive correlations rather than causal effects, any differences in the different dimensions of well-being between children with and without emigrating parents are not statistically significant. However, children in households where parents have returned from abroad appear to be in better physical and emotional health than children in households where parents have not (yet) returned.

Mendola and Carletto (2012) also examine the effects of migration on household members that are left behind, but focus on partners instead of children. Using data from the LSMS for 2005 in Albania⁵ and applying an instrumental variable strategy, they find that in households where the partner currently lives abroad, the woman remaining in Albania engages in more unpaid work and less paid work. However, women are more likely to become self-employed if their partner has lived abroad in the past. This finding suggests that migration can bring about a change in traditional gender roles. For men left behind – a minority in the Albanian context – these correlations are not found. Moreover, lower educated women benefit more from the migration experience of their partner than higher educated women, as the former are more likely to change status from unpaid work to paid self-employment.

In addition to the direct effects within the family, changes induced by migration can also take place at the societal level. The main assumption underlying such changes – which are often referred to in the literature as “social remittances” (Grabowska 2018) – is that social and cultural values can be transferred from the receiving country to the sending country via return migration.

Next to findings from qualitative studies (for example, White and Grabowska 2019), there are also findings on social remittances from quantitative studies. For example, Careja and Emmenegger (2012) use survey data to compare the political attitudes of return migrants from Western European countries and Central or Eastern European countries with those of individuals from Central or Eastern European countries without migration experience. The corresponding results show that return migrants from Western European countries have more confidence in the EU, are more interested in the EU and in foreign policy-relevant news, and are more likely to participate in European elections than their compatriots in the home country without migration experience. However, since the authors do not take into account the selection problem with regard to migration decisions, it remains unclear whether the opinions of return migrants from Western European countries may have been different already before their emigration and may even have been a reason for the decision to migrate to these countries.

In contrast, Barsbai et al. (2017) use a quasi-experiment of an emigration wave from Moldova after the Russian financial crisis of 1998 to investigate election results of the Moldovan parliamentary elections in 2009. By exploiting this quasi-experimental setting and by taking into account the election results before the large emigration wave, the authors are able to identify causal effects of migration on political preferences. Their results show that districts with a higher share of emigrants to Western Europe had a statistically significantly lower share of votes for the

⁵ Giannelli and Mangiavacchi (2010) use the same data.

Communist Party in the 2009/2010 elections. The authors interpret these results as an indication of a transfer of social and cultural values across national borders.

Two studies which use the same instrumental variables strategy examine the impact of migration on corruption in countries of former Yugoslavia (Ivlevs and King 2017) and in Moldova (Höckel et al. 2018). Ivlevs and King (2017) use data from the Gallup Balkan Monitor for 2010 and 2011 and find that people in their home countries with friends or relatives abroad are statistically significantly less likely to report bribing officials. Moreover, they perceive corrupt behavior by public officials as less acceptable. Höckel et al. (2018) investigate bribery payments to teachers in Moldova and find that households in which at least one parent has emigrated are statistically significantly less likely to pay bribes than households without migration experience. Both studies thus confirm the assumption that migration experiences can have an impact on prevailing social practices and attitudes towards them.

Nikolova et al. (2017) use data from the Gallup World Poll and show that individuals remaining in Bulgaria and Romania who have family and friends abroad exhibit higher levels of civic engagement (approximated by donations), volunteer work and help for strangers. In addition, the civic engagement of those who are left behind is more pronounced when their friends and relatives are in a receiving country with a higher average level of civic engagement than other receiving countries. This correlation – in line with the results from previously discussed studies – may indicate a social transmission channel as a likely mechanism. However, these results should only be viewed as correlations, since the cross-sectional character of the analysed data does not allow for a causal interpretation.

In sum, the evidence on the social and societal effects of intra-EU migration is still scarce. The literature encompasses mostly descriptive studies, while studies that identify causal effects of migration by properly controlling for selectivity issues are hardly available. At the household level, the picture as regards social advantages and disadvantages appears quite mixed, in line with corresponding evidence from a larger literature focusing migration between developing and developed countries. For example, family member left behind might suffer from worse health or subjective well-being, but sending a household member abroad might also be beneficial, for example, due to remittances help overcome liquidity constraints and invest in better education. Concerning outcomes on the societal level, the rather thin evidence within the European context points to a migration-initiated transmission of social and cultural values such as democratic attitudes, rule of law and support for anti-corruption measures across national borders, namely from the host to the sending countries. In this regard, intra EU-mobility (of workers) might facilitate spreading of values fundamental to the Union.

7. Conclusion

This brief survey of the current knowledge on the potential effects of intra-EU labour mobility in receiving and sending member states demonstrates that a focussed picture of whether unlimited worker flows within the Single European Market overall would foster upward convergence of economies and societies is very difficult to obtain. One reason is that mobility of workers impacts a wide range of outcome variables. Moreover, the direction of the expected responses of these variables is often theoretically ambiguous. One therefore has to rely on empirical evidence, but estimates considering intra-EU labour mobility effects are often limited to case studies for particular countries, at a particular point in time– and barely transferable from one specific setting to another.

A further problem is that performing a clean empirical analysis of the effects of geographical labour mobility faces high obstacles. First of all, migration choices are frequently endogenous, i.e. agents making their decisions as regards moving or not take into account how the target variable develops post moving. For example, agents will prefer to move into countries with high expected wage growth or strong labour demand. Therefore, ex post it might appear that countries hosting a larger number of migrant workers experience higher wage or employment growth *because of* immigration, although the true direction of causality is the other way round. Circumstances that yield migration flows as good as random are rare – and thus is unbiased evidence on migration effects. Second, data on emigrants is much less available than data on immigrants. Consequently, the literature on intra EU-mobility effects heavily leans towards the experiences of receiving member states. This is a serious deficiency given that negative externalities from worker flows appear to be more likely to occur in the sending than in the receiving countries. In order to obtain better evidence concerning impacts of worker outflows, efforts to collect better data on emigrants would be most welcome. Longitudinal data tracing agents both before and after crossing borders within Europe would be ideal. In order to move in this direction, efforts concerning harmonization of register data across member states might help.

Thus the evidence on the economic consequences of intra EU-mobility (albeit overall more well-rounded than the evidence concerning social and societal effects) is quite scattered and uneven. Nevertheless a few tentative general conclusions emerge:

- The impact of mobile workers on labour market outcomes of native workers is close to zero in the receiving member states. Displacement effects if anything seem to be small, but they tend to hit especially vulnerable groups. The gains from access to host country labour markets dominantly accrue to the labour migrants themselves: they generally benefit from high employment rates relative to comparable native workers, plus a real wage advantage compared to country of origin, despite risks of exposure to downgrading in occupational status post migration. Labour market effects on stayers in the sending country are under-researched; the available evidence points in the direction of slightly

positive effects on average, but some disparity of wage responses as regards different types of workers.

- The overall impact of mobile European citizens on public budgets in receiving countries ranges from positive to negative, but in most fiscal systems the effects appear small in relation to GDP. Relatively high employment rates among of EU migrant workers translate into relatively low rates of welfare dependency. Overcoming wage gaps due to lack of host country specific human capital, incomplete transferability of home country human capital, or brain waste could enlarge fiscal net gains from immigration. So far the evidence does not support the notion that the net fiscal position of EU citizens received is systematically worse in member states with more generous welfare states. Natives in receiving countries can benefit considerably from inflows of EU citizens as financing of non-rival public goods and debt can be shared among a larger population; this fiscal externality registers larger at the upper end of the income distribution as net tax revenue schemes are generally progressive. Sending countries probably experience the opposite effects, but valid estimates of fiscal effects of emigration are missing to date.
- The shares of skilled workers among intra-EU migrants are generally high. On account of this, free flows of labour tend to raise the average qualification in the workforce structure in receiving member states, and to reduce it in sending member states. This changes the preconditions for of economic growth in addition to the direct reallocation of labour as input factor in production. The consensus view on the growth effects of intra-EU worker mobility appears to be that total GDP in the European Economic Area is enlarged, but that at the same time national patterns of GDP and GDP per capita growth are changed, probably to the relative disadvantage of the Eastern European member states.

In sum these observations point to the importance of paying attention to the distribution of economic consequences of free intra-EU mobility of workers. Net benefits of migration will most likely appear for the European Union as a whole. However, their distribution might be quite unequal between different groups: mobile workers versus stayers, immigrant versus native workers, advantaged versus disadvantaged natives, receiving member states versus sending member states. However, we still need much better evidence on the specific economic and societal consequences of free intra-EU worker mobility, in order to facilitate creation of efficient mechanisms for redistributing the concomitant overall gains such that inequalities in Europe decline rather than increase.

References

- Alcaraz, C., D. Chiquiar, and A. Salcedo (2012). Remittances, schooling, and child labour in Mexico. *Journal of Development Economics* 97(1), 156-165.
- Alcidi, C., and D. Gros (2019). EU mobile workers: A challenge to public finances? Contribution for informal ECOFIN, Bucharest, 5-6 April, 2019. CEPS Special Report.
- Aleksynska, M., and A. Tritah, (2015). The heterogeneity of immigrants, host countries' income and productivity: A channel accounting approach. *Economic Inquiry* 53(1), 150-172.
- Alesina, A., J. Harnoss and H. Rapoport (2016). Birthplace diversity and economic prosperity. *Journal of Economic Growth* 21(2), 101-138.
- Antman, F. (2013). The impact of migration on family left behind, in A.F. Constant and K.F. Zimmermann (Hrsg.) *International Handbook on the Economics of Migration*, Edward Elgar, Northampton, MA, 293-308.
- Atoyán, R., L. Christiansen, A. Dizioli, C. Ebeke, N. Ilahi, A. Ilyina, G. Mehrez, H. Qu, F. Ræi, A. Rhee, and D. Zakharova (2016). Emigration and its economic impact on Eastern Europe. *IMF Staff Discussion Note 16/07*, International Monetary Fund.
- Auerbach, A. J., and P. Oreopoulos (2000). The fiscal effect of US immigration: A generational accounting perspective. *Tax Policy and the Economy* 14, 123-156.
- Baas, T., and H. Brücker (2010). Macroeconomic impact of Eastern enlargement on Germany and UK: Evidence from a CGE model. *Applied Economics Letters* 17(2), 125-128.
- Baas, T., H. Brücker, and A. Hauptmann (2010). Labour mobility in the enlarged EU: Who wins, who loses?, in: M. Kahanec, K. F. Zimmermann (eds.), *EU labour markets after post-enlargement migration*. Berlin et al., 47-70.
- Barrett, A. (2010). EU Enlargement and Ireland's labour market in: M. Kahanec, K. F. Zimmermann (eds.), *EU labour markets after post-enlargement migration*. Berlin et al., 155-161.
- Barsbai, T., H. Rapoport, A. Steinmayr, and C. Trebesch (2017). The effect of labour migration on the diffusion of democracy: Evidence from a former Soviet Republic. *American Economic Journal: Applied Economics* 9(3), 36-69.
- Beine, M., F. Docquier, and H. Rapoport (2001). Brain drain and economic growth: Theory and evidence. *Journal of Development Economics* 64(1), 275-289.

- Beine, M., F. Docquier, and H. Rapoport (2008). Brain drain and human capital formation in developing countries: Winners and losers. *The Economic Journal* 118(April), 631–652.
- Bhagwati, J., and K. Hamada (1974). The brain drain, international integration of markets for professionals and unemployment. *Journal of Development Economics* 1(1), 19–42.
- Blanchflower, D. G., Saleheen, J., and C. Shadforth (2007). The impact of the recent migration from Eastern Europe on the UK economy. IZA Discussion Paper No. 2615, Institute of Labor Economics (IZA), Bonn.
- Blanchflower, D. G. and C. Shadforth (2009). Fear, unemployment and migration. *The Economic Journal* 119(535), F136-F182.
- Blanchflower, D.G. and H. Lawton (2010). The impact of the recent expansion of the EU on the UK labour market in: M. Kahanec, K. F. Zimmermann (eds.), *EU labour markets after post-enlargement migration*. Berlin et al., 181-215.
- Boeri, T., H. Brücker, F. Docquier, and H. Rapoport (Eds.) (2012). *Brain drain and brain gain – The global competition to attract high-skilled migrants*. Oxford University Press.
- Bogdanov, L., A. Hristova, K. Yotov, E. Bruno, A. Valcke, and T. Barber (2014). Fiscal impact of EU migrants in Austria, Germany the Netherlands and the UK. European Citizen Action Service.
- Bonin, H., B. Raffelhüschen, and J. Walliser (2000). Can immigration alleviate the demographic burden? *Finanzarchiv* 57(1), 1-21.
- Borjas, G. J. (1999). Immigration and welfare magnets. *Journal of Labor Economics* 17(4), 607–637.
- Botezat, A., and F. Pfeiffer (2020). The impact of parental labour migration on left-behind children's educational and psychosocial outcomes: Evidence from Romania. *Popul Space Place*. 26:e2277. <https://doi.org/10.1002/psp.2277>.
- Brenke, K., M. Yuksel, and K. F. Zimmermann (2010). EU enlargement under continued mobility restrictions: Consequences for the German labour market in: M. Kahanec, K. F. Zimmermann (eds.), *EU labour markets after post-enlargement migration*. Berlin et al., 111-129.
- Careja, R., and P. Emmenegger (2012). Making democratic citizens: The effects of migration experience on political attitudes in Central and Eastern Europe. *Comparative Political Studies* 45(7), 871–898.
- Chiswick, B. R. (1980). The earnings of white and colored immigrants in Britain. *Economica*, 47(185), 81-87.

- Chiswick, C. U., B. R. Chiswick, and G. Karras (1992). The impact of immigrants on the macroeconomy. *Carnegie-Rochester Conference Series on Public Policy*, 37(1), 279-316.
- Cristea, L. A. and J. Grabara (2019). Fiscal impact of the migration phenomenon. *Journal of International Studies* 12, 144-159.
- Clemens, M., and J. Hart (2018). EU-Zuwanderung hat das Wirtschaftswachstum in Deutschland erhöht. *DIW-Wochenbericht, Deutsches Institut für Wirtschaftsforschung (DIW), Berlin*, 85(44) 955-963.
- Clifton-Sprigg, J. M. (2019). Out of sight, out of mind? The education outcomes of children with parents working abroad. *Oxford Economic Papers* 71(1), 73-94.
- Cortina, J. (2014). Beyond the money: The impact of international migration on children's life satisfaction - Evidence from Ecuador and Albania. *Migration and Development* 3(1), 1-19.
- Docquier, F. (2014). The brain drain from developing countries. *IZA World of Labour* 2014: 31, doi: 10.15185/izawol.31.
- Docquier, F., Ozden, Ç., and Peri, G. (2014). The labour market effects of immigration and emigration in OECD countries. *The Economic Journal* 124, 1106-1145.
- Doyle, N., G. Hughes, and E. Wadensjö (2006). Freedom of movement for workers from Central and Eastern Europe. Experiences in Ireland and Sweden. *Swedish Institute for European Policy Studies (SIEPS), Report No. 5, Stockholm*.
- Drinkwater, S., J. Eade, and M. Garapich (2009). Poles apart? EU enlargement and the labour market outcomes of immigrants in the United Kingdom. *International Migration* 47(1), 161-190.
- Dustmann, C. and A. Glitz (2005). *Immigration, jobs and wages: Theory, evidence and opinion*. CEPR Report, London.
- Dustmann, C. and T. Frattini (2014). The fiscal effects of immigration to the UK. *The Economic Journal* 124, F593-F643.
- Dustmann, C., T. Frattini, and C. Halls. (2010). Assessing the fiscal costs and benefits of A8 migration to the UK. *Fiscal Studies*, 31, 1-41.
- Dustmann, C., T. Frattini, and A. Rosso (2015). The effect of emigration from Poland on Polish wages. *Scandinavian Journal of Economics* 117, 522-564.
- Elsner, B. (2013). Does emigration benefit the stayers? Evidence from EU enlargement. *Journal of Population Economics* 26, 531-553.

- Fassio, C., F. Montobbio, and A. Venturini (2019). Skilled migration and innovation in European industries. *Research Policy* 48(3) 706-718.
- Friedberg, R. M. and J. Hunt (1995). The impact of immigration on host country wages, employment and growth. *Journal of Economic Perspectives* 9(2), 23-44.
- Gassmann, F., M., Siegel, M, Vanore, and J. Weidler (2013). The impact of migration on children left behind in Moldova. UNU-MERIT Working Paper Series, No. 2013-043, Maastricht.
- Gaston, N. and D. Nelson (2002). The employment and wage effects of immigration: Trade and labour economics perspectives. In D. Greenaway, R. Upward, and K. Wakelin (Eds.), *Trade, investment, migration and labour market adjustment*, Chapter 12, pp. 201-235. Palgrave.
- Giannelli, G.C., and L. Mangiavacchi (2010). Children's schooling and parental migration: Empirical evidence on the "left behind" generation in Albania. *Labour* 24(s1), 76-92.
- Gibson, J., D. McKenzie, and S. Stillman (2011a). The impacts of international migration on remaining household members: Omnibus results from a migration lottery program. *Review of Economics and Statistics* 93(4), 1297-318.
- Gibson, J., D. McKenzie, and S. Stillman (2011b). What happens to diet and child health when migration splits households? Evidence from a migration lottery program. *Food Policy* 36(1), 7-15.
- Grabowska, I. (2018). *Social remittances: Channels of diffusion in white*, A., Grabowska, I., Kaczmarczyk, P., und Slany, K., *The impact of migration on Poland: EU mobility and social change*. London: UCL Press, 68-89.
- Grubel, H. B., and A. D. Scott (1966). The international flow of human capital. *American Economic Review* 56(1/2), 268-274.
- Gschwind, L., P. Nyman, and J. Palme (2019). Unemployment benefits, EU migrant workers, and the cost of social protection in European welfare states. REMINDER Project.
- Hanson, G. H. and M. Slaughter (2002). Labor market adjustment in open economies: Evidence from U.S. States. *Journal of International Economics*, 57 (1), 3-29.
- Hazans, M., and K. Philips (2010). The post-enlargement migration experience in the Baltic labour markets. In: Kahanec, M., and K. F. Zimmermann (eds). *EU Labour markets after post-enlargement migration*. Berlin: Springer, 255-304.
- Holland, D., T. Fic, A. Rincon-Aznar, L. Stoke, and P. Paluchowski (2011). Labour mobility within the EU – The impact of enlargement and the functioning of the transitional arrangements.

- Final Report. Study for the DG Employment, Social Affairs and Inclusion, European Commission. London: National Institute of Economic and Social Research.
- Höckel, L., M. Silva, and T. Stöhr (2018). Can parental migration reduce petty corruption in education? *The World Bank Economic Review* 32(1), 109-126.
- Hughes, G. (2011). Free movement in the EU – The case of Ireland. Friedrich Ebert Stiftung, Berlin.
- Iacob, R. (2018). Brain drain phenomenon in Romania: What comes in line after corruption? A quantitative analysis of the determinant causes of Romanian skilled migration. *Romanian Journal of Communication and Public Relations* 20 (2), 53-78.
- Ivlevs, A., and R. M. King (2017). Does emigration reduce corruption? *Public Choice* 171, 389–408.
- Jaumotte, F., K. Koloskova and S. C. Saxena (2016). Impact of migration on income levels in advanced economies, Spillover Notes No. 16/08, International Monetary Fund.
- Kaczmarczyk, P. (2010). Brains on the move? Recent migration of the highly skilled from Poland and its consequences. In: R. Black, G. Engbersen, M. Okolski, and C. Pantiru (eds.). *A continent moving West? EU Enlargement and labour migration from Central and Eastern Europe*, Amsterdam University Press, 165–186.
- Kaczmarczyk, P. (2012). Labour market impacts of post-accession migration from Poland. In: *Free movement of workers and labour market adjustment: Recent experiences from OECD countries and the European Union*. Paris: OECD Publishing, 173–194.
- Kaczmarczyk, P. (2018). Post-accession migration and the Polish labour market: Expected and unexpected effects. In: A. White, I. Grabowska, P. Kaczmarczyk, and K. Slany (eds.), *The impact of migration on Poland: EU mobility and social change*, UCL Press, 90–107.
- Kahanec, M., and M. Pytliková (2017). The economic impact of East–West migration on the European Union. *Empirica* 44, 407–434.
- Katseli, L. T., R. E. B. Lucas, and T. Xenogiani (2006). Effects of migration on sending countries: What do we know? OECD Development Centre, Working Paper No. 250.
- Lemos, S., and J. Portes (2013). New Labour? The Impact of Migration from Central and Eastern European Countries on the UK Labour Market. *B.E. Journal of Economic Analysis and Policy*, 14(1), 299-338.
- Martinsen, D. S., and G. Pons Rotger (2017). The fiscal impact of EU immigration on the tax-financed welfare state: Testing the ‘welfare burden’ thesis. *European Union Politics* 18(4), 620–639.

- Mayr, K., and G. Peri (2009). Brain drain and brain return: Theory and application to Eastern-Western Europe. *The B.E. Journal of Economic Analysis & Policy* 9(1), 1–52.
- Mendola, M., and C. Carletto (2012). Migration and gender differences in the home labour market: Evidence from Albania. *Labour Economics* 19, 870–880.
- Migration Advisory Committee (2012). Analysis of the impacts of migration. Migration Advisory Committee, London.
- Mishra, P. (2007). Emigration and wages in source countries: Evidence from Mexico. *Journal of Development Economics* 82(1), 180–199.
- Nikolova, M., M. Roman, and K. F. Zimmermann (2017). Left behind but doing good? Civic engagement in two post-socialist countries. *Journal of Comparative Economics* 45, 658–684.
- Nyman, P. and R. Ahlskog (2018). Fiscal effects of intra-EEA migration. Deliverable 4.1, REMINDER Project.
- OECD (2013). The fiscal impact of immigration in OECD countries. In: *International Migration Outlook 2013*, Chapter 3, Paris: OECD Publishing, 125–189.
- Ortega, F., and G. Peri (2014). Openness and income: The roles of trade and migration. *Journal of International Economics* 92, 231–251.
- Ottaviano, G. I. P. and G. Peri (2011), Rethinking the effect of immigration on wages, *Journal of the European Economic Association*, 10(1), 152–197.
- Östermann, M., J. Palme, and M. Ruhs (2019). National institutions and the fiscal effects of EU migrants. REMINDER Project.
- Peri, G. (2016). Immigrants, productivity, and labour markets. *Journal of Economic Perspectives* 30(4), 3–30.
- Pescaru, M. (2015). Consequences of parents' migration on children rearing and education. *Procedia Social and Behavioral Sciences* 180, 674–681.
- Portes, J., and G. Forte (2017). The economic impact of Brexit-induced reductions in migration. *Oxford Review of Economic Policy*, 33(S1) S31–S44.
- Razin, A., and J. Wahba (2015). Welfare magnet hypothesis, fiscal burden, and immigration skill selectivity, *Scandinavian Journal of Economics* 117(2), 369–402.
- Ruhs, M. (2017). Free movement in the European Union: National institutions vs common policies? *International Migration* 55(S1), 22–38.

- Ruist, J. (2014). Free immigration and welfare access: The Swedish experience. *Fiscal Studies* 35, 19-39.
- Straubhaar, T., and M. R. Wolburg (1999). Brain drain and brain gain in Europe – An evaluation of the East-European migration to Germany. *Jahrbücher f. Nationalökonomie u. Statistik* 218(5+6), 574-604.
- Vargas-Silva, C. (2015). The fiscal impact of immigrants: taxes and benefits. In: B. Chiswick, and P. Miller (eds.). *Handbook of the Economics of International Migration*, Vol. 1., Elsevier: Amsterdam, 845–875.
- Verschueren, H. (2014). Free movement or benefit tourism: The unreasonable burden of Brey. *European Journal of Migration and Law* 16(2), 147–179.
- White, A., and I. Grabowska (2019). Social remittances and social change in Central and Eastern Europe: Embedding migration in the study of society. *Central and Eastern European Migration Review* 8(1), 33–50.
- Zaiceva, A. (2014). Post-enlargement emigration and new EU members' labor markets. *IZA World of Labor* 2014: 40.
- Zimmermann, K. F. (2014). Circular migration. *IZA World of Labor* 2014: 1.

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