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The economic effects of emigration: a literature review[2]

Introduction

Migration flows affect the economic, social and cultural situation both in the sending and receiving countries. It should be no wonder then that population mobility has always been a focus for economists and policymakers. This paper presents a semi-systematic literature review of theoretical and empirical studies on the economic impacts of migration movements.

Although there is a vast economic literature on migration, most of the papers have so far focused on the impacts of immigration, trying to explain how the movement of people affects the economic situation of the countries that receive the migrants (see: Borjas, 1994; Dustmann et al., 2016; Kerr, Kerr, 2011 or Okkerse, 2008 for immigration literature surveys). The economic impacts of labour mobility are not, however, limited to the destination economies. Equally important is that migration flows have sizeable implications for the countries of origin, such as by influencing their demographics, labour market, inequalities, public finance, welfare or long-term growth prospects. Nevertheless, the studies on the effects of migrants for the sending economies, probably partly due to the lack of the high quality, detailed data on emigration flows, are somewhat neglected.

The goal of this paper is to summarize this under-researched part of migration literature. As the number of papers focusing on the consequences of outward migration movements is rather limited, it is not possible to conduct a full meta-analysis of this part of the migration literature. Hence, this paper overviews the most

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significant studies investigating the topic, discussing different research methods, the main findings and the limitations, thus ultimately identifying existing gaps and directions for future research.

In this paper we focus on five of the most frequently discussed in the literature dimensions of the economic impacts of emigration. First, since in many countries the migration movements are heavily skewed towards educated individuals, we overview the consequences of a "brain drain", i.e. the disproportionately high departure of skilled professionals. Second, changes in the migration patterns can significantly affect the labour market outcomes of those who remain behind. Consequently, we focus on the wage adjustments in the countries of origin. Third, as the increasing number of international emigrants is often accompanied by a rise in money transfers sent to the home countries, we next explain the role of remittance inflows. Afterwards, we move to the existing evidence on how migration affects the fiscal situation of the sending economy. After all, migrants are generally young and well-educated, so their tax contributions are usually higher than the received benefits. As mentioned above, migration impacts the economies via multiple channels, both positively and negatively. Thus, a large body of migration literature attempts to evaluate the welfare effects of population movements. The findings from these studies are reviewed in the fifth section of the study. The sixth part of the paper discusses how the areas mentioned in the previous sections were affected by the large emigration wave following the 2004 EU enlargement. The last section offers conclusions.

Economic adjustments in the sending countries
"brain drain"

In most sending economies, the skill distribution of emigrants is heavily biased towards workers with a strong educational background, i.e. the share of highly skilled workers among emigrants is much higher than the share of highly skilled workers in the total population (see: Arslan et al., 2015 or Biavaschi et al., 2020 for calculations based on DIOC data). The consequences of this disproportionately high outflow of highly skilled labour for the sending economies, often referred to as a "brain drain", has long been a focus for economists, beginning with the papers by Grubel and Scott (1966), Johnson (1972), Bhagwati and Hamada (1974) and Bhagwati and Rodriguez (1975). These early theoretical studies showed that brain drain depletes the human capital accumulated in the country and diminishes the fiscal revenues and hence results in potentially large costs for the sending economies. As suggested by Lucas (1988), those economies with lower levels of human capital also use other production factors less efficiently. Hence, the loss of the highly skilled can have detrimental effects both on the potential output and the actual growth rate of GDP.

More recently, however, both theoretical and empirical studies started to emphasize the countervailing positive effects of highly skilled emigration.

First, Mountford (1997), Stark *et al.* (1997) and Beine *et al.* (2001) show that the option to emigrate incentivizes people to invest in their education ("brain gain"). Not everyone encouraged to invest in fact leaves the country, which means that the possibility of emigration can raise the stock of human capital in the home economy. These theoretical considerations were later confirmed empirically by Batista *et al.* (2012) for Cape Verde, Shrestha (2017) for Nepal and Dinkelman and Mariotti (2016) for Malawi.

Second, the analyses of the international mobility of workers often emphasize the important role of return migration. Around 30% of migrants return to their home countries within twenty years (Karin, Giovanni, 2009). When they return, they bring with them the skills they have acquired abroad. These skills raise the level of human capital accumulated in the country and hence increase economic growth. Work experience gained abroad is usually highly valued at the home locations, and greatly enhances the earnings of the return migrants (Dustmann et al., 2011). Moreover, return migrants often bring assets they accumulated in the richer destination countries and invest them in the home country, thereby boosting the local economy.

Other channels through which skilled emigration can positively affect the source economy include the "brain bank", i.e. emigration of highly skilled individuals helps the remaining innovators gain access to valuable knowledge accumulated abroad, increases diasporic network effects, i.e. migration facilitates business cooperation between home and foreign economies, and has a positive impact on trade as emigrants are usually more willing than foreign citizens to purchase goods produced in their home economy.

Wage effects

A large body of migration literature analyses the labour market effects of migration, and in particular the impacts on the wages of non-migrants. According to the standard law of supply and demand, a reduction in labour supply resulting from emigration should lead to an increase in wages on the local labour market. The empirical investigation of this theory is, however, far from easy since, as pointed out by Dustmann *et al*. (2015), information on emigrants is difficult to obtain. To overcome this obstacle, Aydemir and Borjas (2007) and Mishra (2007) exploit the fact that most Mexican emigrants move to the US, and use the US census data to measure the size and composition of the Mexican emigrant population. In the next step, the authors use the Mexican censuses to obtain data on wages and calculate the correlations between the wages of different age-skill groups of the Mexican population and the proportions of emigrants from the same groups. Both studies find a significant positive correlation between the level of wages in Mexico and emigration rates. Additionally, Aydemir and Borjas (2007) point out that emigration plays a significant role in the evolution of the Mexican wage structure, leading to a rise in relative wages in the middle of the Mexican wage distribution and to a drop at the extremes. A similar empirical strategy was employed by Elsner (2013a) to investigate emigration from Lithuania. To describe the population of Lithuanian emigrants, he uses data from Ireland and the UK. This approach has obvious limitations, as it does not account for the migrants living in other destination locations. The analysis of Elsner (2013a) confirms the positive impact of population outflows on the level of average wages and a greater rise in wages in groups of workers with higher emigration rates. In earlier studies, a positive link between the emigration and home wages in Sweden and Ireland was found by Karlstrom (1985) and O'Rourke (1995), respectively.

Other studies on the effect of emigration on local labour markets include, for example, Hanson (2007) who uses Mexican microdata from 1990 and 2000 to show that the strongest wage increases were observed in the Mexican states with the highest emigration rates, Elsner (2013b) who uses Lithuanian data to calibrate the structural model of labour demand and finds a significant effect of population outflows on the wage distribution between young and old workers, and Docquier *et al.* (2014) who calibrate the aggregate model of labour demand and supply using the data on bilateral emigrants stocks for 195 countries in 1990 and 2000, and find that emigration negatively affects the wages of less educated non-migrants and increases inequalities within the country.

Income effects

The negative consequences of large population outflows can be limited by the inflow of remittances, which are an important source of income in many developing countries (Rapoport, Docquier, 2005). Mandelman and Zlate (2012) and di Giovanni *et al*. (2015) analyse the insurance role of remittances and conclude that remittances not only raise household income but also allow consumption smoothing and serve as a buffer against negative income shocks, and hence are welfare improving.

As noted in the literature, remittances are important not only from the perspective of the individual household, but also for the economic aggregates of the remittance-receiving economies. Moreover, there is a series of papers focusing on the labour market impact of remittances, highlighting their role in the evolution of labour supply and wages. Many studies find that households receiving money transfers from abroad limit their labour market participation (see e.g. Grigorian, Melkonyan, 2011 or Kim, 2007). Additionally, through their impact on labour supply, remittances can indirectly exert a positive pressure on the aggregate level of wages. A contradicting view on the role of remittances for labour participation was presented by Posso (2012). This author uses the aggregate level data on a panel of 66 developing economies and shows a positive relationship between remittances and aggregate labour supply. A possible explanation of this result is that neighbouring households notice the benefits of remittances and hence increase their labour supply in order to cover migration-related costs and help their family members emigrate. Remittances, similarly to other non-market income transfers, also have significant impacts on reservation wages, occupational choice and investment opportunities, including those concerning education and training (Chami et al., 2018).

Fiscal effects

By affecting labour supply and changing the composition of society, emigration can potentially affect the fiscal situation of the sending country. Emigrants, who are usually at their most productive ages and positively selected in terms of educational attainment, tend to contribute more in taxes than they receive in benefits and therefore their absence might create a great burden for the public purse of the source country.

A series of papers have analysed different possible taxation schemes that could offset the losses incurred by the sending countries, with the prominent example being a "Bhagwati tax" (Bhagwati, Wilson, 1989)[3]. The empirical evidence on the fiscal implications of emigration is, however, very scarce. Johansson (2008) uses a dynamic accounting framework developed by Storesletten (2003) to identify the relations between the fiscal costs of emigrants in Sweden and their personal characteristics. The identified costs appear to be quite high in the aggregate, but very heterogeneous across workers. It is more costly for the government if the emigrant is a middle-aged man with a university degree. This paper, however, does not account for the general equilibrium effects, which seems to be crucial as changes in factor prices caused by migration affect government revenues from taxation. Desai *et al*. (2009) analyse how skilled emigration to the US affects fiscal accounts in India. The authors use the Mincer wage regressions to estimate the counterfactual wage series that the Indian emigrants would have earned in India if they had not decided to leave the country, and then integrate these calculations with the model of the Indian fiscal system. Their results suggest that in 2000 Indian emigration to the US cost India net tax contributions equal to 2.5% of the total fiscal revenues. It was also pointed out that these losses were partially offset by an increase in remittances transferred to the country.

Many countries experience increasing demographic strains. Rising longevity and declining fertility create large burdens for the unfunded pensions systems, in which the benefits of current retirees are financed by the contributions of current workers. As migrants are usually young, they are sometimes seen as a remedy for these problems (Han, 2013). The idea that immigration can alleviate the pension burdens is not new

[3] A "Bhagwati tax", also known as a "tax on brains", should be collected on the earnings of skilled emigrants, received abroad and redistributed within the home country.

and goes back at least to Razin and Sadka (1998). Intuitively, the outward migration should have adverse effects and thus threaten pension system sustainability. To the best of our knowledge, this topic is, however, still relatively unexplored.

Welfare effects

As described above, migration impacts economies in myriads of ways. Consequently, a number of papers seek to capture the complex interactions between different economic mechanisms and estimate the global welfare effects of migration by using large multi-country macroeconomic models.

Parts of these papers try to evaluate the impact of migration on global welfare by comparing the world with the observed levels of migration with the autarky, in which no migration movements are possible. Aubry *et al*. (2016) use a multi-country structural model of the OECD economy that accounts for the interactions between the labour market, fiscal, and market size effects of migration, and find that recent migration has been beneficial for around 69% of the non-migrant OECD population (mostly residing in the immigration countries) and most of this gain comes from the market size effect, i.e. increasing the variety of goods that are available to consumers. Di Giovanni *et al*. (2015) calibrate the multi-sector model of the world economy with cross-country differences in labour productivity, international trade, remittances and heterogeneous workforce. According to their estimates, cross-border mobility generates around 5 to 10% welfare gains for the main receiving countries. In the group of sending countries, the welfare gains are only observed for those with high levels of received remittances.

Other papers calculate the welfare effects of migration by comparing the world with the currently observed level of migration to the counterfactual scenario where the number and/or composition of migrants is changed. For example, Klein and Ventura (2009) use a two-region life-cycle model with endogenous migration and cross-country TFP differences, and observe large gains in output, capital accumulation and welfare from removing barriers to labour mobility; Marchiori *et al.* (2013) develop a multi-region general equilibrium model of the world economy characterized by overlapping generation dynamics and argue that prevalent high-skilled emigration and brain drain can be very harmful for the sending countries; Biavaschi *et al.* (2020) use a multi-country model with trade, remittances and human capital externalities to compare the current world with the counterfactual, where the skill structure of migrants is changed, i.e. all migrants are neutrally selected from their home countries, and find that migration is beneficial for most receiving economies and for the sending economies where migration externalities such as remittances, brain gain and the network effect in trade are strong.

The above studies focus mainly on the welfare of non-migrants. The biggest gains are, however, captured by migrants themselves (Clemens, 2011). Although migrants can benefit greatly by moving to higher-wage economies, a number of papers highlight the significant differences in the labour market performance of migrants and indigenous workers. These differences are only to a small extent explained by economic discrimination. More importantly, they result, at least initially, from imperfect substitutability between immigrants and natives (Dustmann, Preston, 2012; Scharfbillig, Weissler, 2019). After all, migrants may differ in work experience and often face language barriers. When migrants arrive in the host countries, they gradually acquire knowledge of the language (Lessem, Sanders, 2020), country-specific skills, customs and become familiar with the nature of the local labour markets, and these factors tend to raise their earnings (Chiswick, 1978). As a result, the economic situation of immigrants improves with the duration of stay in the destination country (Büchel, Frick, 2005; Busch et al., 2020) and the gap between native and foreign-born workers declines over time (Lehmer, Ludsteck, 2015).

EU post-enlargement emigration

This part of the article discusses how the areas mentioned in the previous sections were affected by the large emigration wave from eight Central and Eastern European countries (EU8) after their entry to the EU in 2004.

The freedom of movement of workers is one of the four fundamental freedoms guaranteed by EU law. It entitles EU nationals not only to freely travel across the EU but also to work in other member states. Following these regulations, the old member states had to open their labour markets for the new entrants[4]. Consequently, the new EU8 countries experienced large migration outflows to richer old member states. As reported by Baas *et al.* (2010), the number of EU8 citizens living abroad more than doubled between the end of 2003 and the end of 2007. An outflow on such a massive scale had never been experienced before by these countries.

Post-accession migration received a lot of attention in the economic debate. A large number of studies focus exclusively on the characteristics and consequences of migration for one particular country (e.g. Elsner, 2013b or Dustmann et al., 2015), whereas the others analyse migration from the perspective of the European Union as a whole (e.g. Caliendo et al., 2017). The latter group include mainly studies based on theoretical frameworks and aggregate migration data. For example, Baas *et al.* (2010) use two different general equilibrium models, i.e. a structural model with a nested production function and wage rigidities and a CGE model, to argue that EU integration led to sizable increases in aggregate output but had only moderate impact on the labour markets of the integrated area. According

[4] According to the Accession Treaty of 2003, the old member states could take advantage of the transitional agreements and postpone access to their labour markets. The first countries which opened their borders in 2004 were the UK, Ireland and Sweden.

to the authors' calculations, in the short-run the wages in the new member states might increase by 0.3% and the unemployment rate might drop by 0.4 pp., but in the long-run, due to adjustments in capital stocks, migration seems to be neutral for wages and unemployment in these economies.

Country studies are usually empirical, analyse almost exclusively the implications for the labour market, and focus mainly on the Baltic states, in which emigrant to population ratios are the highest (e.g. Thaut, 2009; Hazans, Philips, 2011 or Anniste et al., 2012) or Poland, i.e. the country with the highest absolute number of emigrants.

Poland was the largest economy entering the EU in 2004. Joining the EU significantly increased Poles' mobility and resulted in large migration outflows from the country. Figure 1 presents the evolution of the number of Poles living abroad based on the estimates of the Polish CSO. The Figure clearly shows that in the post-accession period, the stock of Polish emigrants rose rapidly and significantly. Between 2002 and 2008, it nearly tripled. The small decline observed in the later years resulted from cyclical factors related to a global financial crisis rather than from a change in long-term tendencies. More recently, we again observed a moderate, upward trend in the stock of Polish emigrants.

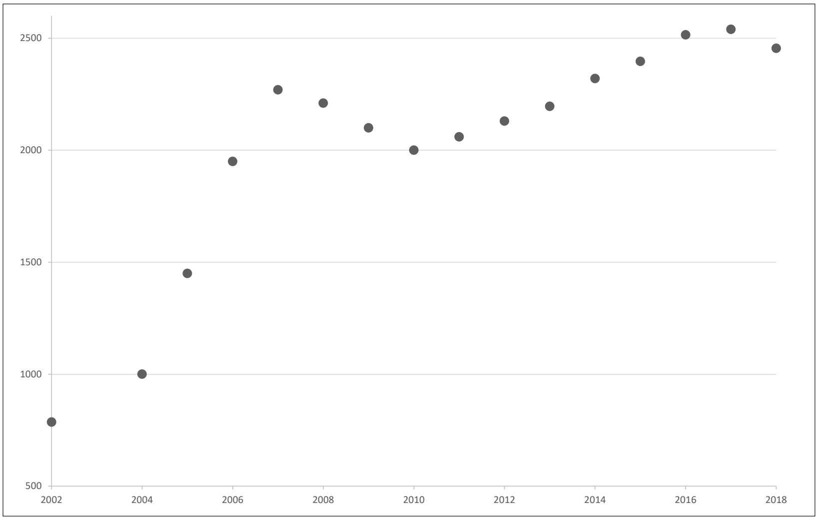

Figure 1. Number of Poles living abroad (in thousands)

Source: Polish CSO, the data corresponds to the number of Poles living abroad for more than two months (before 2006) or more than three months (since 2006). Differences in the duration of stay abroad before and after 2006 result from the change in the data reporting introduced by Polish CSO.

The analysis performed by Kaczmarczyk and Okólski (2008) suggests that the migration outflows from Poland after the EU enlargement were very different from previous emigration waves. More and more migrants were young, well-educated and, at the same time, living in small, economically backward regions with limited employment opportunities. Similar conclusions regarding the selectivity of Polish post-accession emigration were drawn by Barslund *et al.* (2014), Fihel *et al.* (2006) and Kaczmarczyk *et al.* (2010). These papers emphasized that the impact of the increased population outflow on the Polish labour market was rather moderate and did not contribute to a significant reduction in the unemployment rate or increase in wage pressure[5]. According to these studies, the decline in unemployment rates and the growth in wages in this period resulted from favourable business cycle factors and restructuring effects. Changes in the wages of stayers were also analysed in more theoretical frameworks. For example, Budnik (2008) used a model with search and matching factors and migration flows, and confirmed the mediocre response of wages to emigration.

Although the identified impact of emigration on Poland's wages was only slightly positive, changes in the skill composition of Poland's population resulting from emigration could potentially affect the discrepancies between the earnings of different skill groups. This presumption was confirmed by Dustmann *et al*. (2015) who used the LFS data on the individuals who were absent from the households at the time of the survey and had been living abroad for more than three months, to show that the change in the level of income differed among the skill groups and mirrored changes in the relative labour supplies.

As far as the remittances are concerned, their role, both in Poland and other CEE new member states, has increased since the EU-accession: according to the World Bank data, the remittances received to GDP ratio in Poland increased from 0.8% in 2002 to 1.2% in 2018, with a peak at 2.5% in 2006. After EU-entry, remittances have significantly contributed to the growth of disposable income, in particular for the residents of small towns and rural areas (Kindler, 2018) and boosted the aggregate consumption (Barbone et al., 2012).

As discussed in previous sections, emigration might potentially have important implications for fiscal revenue and expenditure. However, as argued by Atoyan *et al.* (2016), the impact of emigration on the overall fiscal position in the CEE region has been small and short-lived.

Conclusions

Despite its great economic relevance, the consequences of emigration for non-migrants remain relatively under-researched (Zaiceva, 2014). The existing empirical studies lack a general equilibrium dimension and hence are not very helpful in assessing all important long-term macroeconomic consequences.

[5] These findings are in contrast to the conclusions drawn by the studies on the Baltic states, according to which emerging labour shortages led in these countries to strong wage growth and reduction in unemployment.

The other obvious limitations of these studies are the limited availability and the poor quality of the data on emigration. As pointed out by Clemens (2011), the detailed statistics are either not collected or are confidential. On the other hand, the publicly available data is often incomparable over time and between countries, and is frequently released with significant delay. These shortcomings are mitigated by the existing general equilibrium models for labour mobility. However, these theoretical frameworks are usually highly aggregative and hence silent about many important redistribution effects, and they offer little help in designing and targeting social and economic policies. Considering the above, the migration research still faces many challenges and much work is needed to fill the existing gaps. The interesting directions for future studies include the so far rather neglected fiscal effects of emigration and, in particular, its implications for pension system sustainability. Moreover, the developed theoretical models should include more dimensions of the agents' heterogeneity, thanks to which they would be able to give a broader view on the impact on economic inequalities and redistribution, and to identify the winners and losers of population movements.

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Summary

Despite great policy, social and economic relevance, the consequences of international population movements for the sending countries remain relatively under-researched. Migration economics has so far focused mostly on the impact of immigration, trying to explain how the movement of people affects the economic situation of the countries that receive migrants. Studies on the source economies are mostly empirical and analyse the effects of outward population movements on local labour markets, and in particular the wages of those who stay behind, as well as the consequences of brain drain. This paper conducts a review of the literature on the economic impacts of migration movements. It presents the current state of knowledge and main findings from existing empirical and theoretical studies, focusing on five areas: consequences of brain drain, implications for wages of non-migrants, role of the remittances sent by emigrants to the home countries, fiscal effects and welfare consequences. We describe different approaches used so far in the literature to evaluate the effects of emigrants on non-migrants, focusing both on the methodology, findings and limitations. The article also tries to identify gaps in the existing literature, as well as the potential directions for future research. Finally, we place special emphasis on the consequences of population movements following the 2004 EU enlargement, and particularly, on the emigration from Poland as the largest economy entering the EU in 2004.

Keywords: emigration, labour market, economics of migration.

Ekonomiczne skutki emigracji: przegląd literatury

Streszczenie

Choć międzynarodowe przypływy ludności mają znaczący wpływ na wiele płaszczyzn życia politycznego, społecznego i ekonomicznego, to wciąż relatywnie niewiele wiadomo o ich konsekwencjach dla krajów wysyłających migrantów. Zdecydowana większość pozycji literatury ekonomicznej poświęconych ruchom migracyjnym skupia się na konsekwencjach imigracji i próbuje wyjaśnić, jak mobilność ludności wpływa na sytuację ekonomiczną panującą w kraju przyjmującym migrantów. Mniej liczne badania o krajach wysyłających, to w głównej mierze prace empiryczne, które mają na celu analizę skutków odpływu ludności dla lokalnego ryneku pracy, a w szczególności płace w krajach wysyłających emigrantów, oraz konsekwencje „drenażu mózgów". Niniejszy artykuł dokonuje syntetycznego przeglądu literatury emigracyjnej. Podsumowuje on obecny stan wiedzy oraz wnioski z istniejących teoretycznych i empirycznych badań nad konsekwencjami emigracji, skupiając się na pięciu obszarach: konsekwencjach drenażu mózgów, implikacjach dla poziomu płac niemigrantów, skutkach napływu przekazów pieniężnych, efektach fiskalnych oraz efektach dobrobytowych. Opracowanie przybliża różne podejścia wykorzystywane w literaturze ekonomicznej do analizy konsekwencji migracji dla krajów wysyłających, koncentrując się przy tym zarówno na zastosowanych narzędziach, otrzymanych wynikach, jak i ograniczeniach wykorzystanych podejść, a także stara się naświetlić istniejące w literaturze luki i możliwe kierunki dalszych badań. W pracy dużą uwagę poświęcono także tematyce przepływów ludności po rozszerzeniu Unii Europejskiej w 2004 r., a w szczególności emigracji z Polski, czyli największej gospodarki wstępującej w tym roku do wspólnoty.

Słowa kluczowe: emigracja, rynek pracy, ekonomia migracji.

JEL: F22, J31, J61.