

A contested foundation of European integration: The free movement of labour

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ABSTRACT

Since the eastern enlargement of the European Union (EU), the movement from east to west has become the main driver of intra-EU mobility. Recently, the free movement of labour has been contested not only in the debates around Brexit, but also in other receiving countries. It is not on the political agenda, but several studies have highlighted the economic and demographic effects of massive emigration in eastern EU Member States. More recently, the COVID-19 pandemic has disrupted the functioning of free movement. Economic integration theory assumes that migration continues until wages are equalized in the receiving and sending countries. This paper analyses the perception of intra-EU mobility in the literature and empirically tests whether there is a relationship between the dynamism of income growth in the receiving (Germany, Austria and Spain) and sending (Central and Eastern European) countries, and the dynamism of migration. The empirical results do not support the neoclassical assumption that an equalization mechanism can function, even in the long run. To cope with recent challenges, this paper argues that free movement should not be considered as an element of a spontaneous market mechanism, but as an economic-political product, based on a constitutional order.

KEYWORDS

economic integration theory, free movement of labour, intra-EU mobility, brexit, central and eastern europe

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1. INTRODUCTION

The free movement of labour is one of the four freedoms that constitute the key elements of European economic integration. Recently, worker mobility has been under attack in several countries. The most prominent case is the Brexit referendum where the aim of ‘taking back control’ over migration policy attracted many ‘leave’ votes. The debates on the wages and working conditions of posted workers and the attempts to reduce the access to welfare benefits for European Union (EU) workers and family members also reflect the tensions.¹ In the spring of 2020, the three-month lockdown put in place due to the coronavirus pandemic severely disrupted the functioning of the freedom of movement (Maurice et al. 2020).

The issues of the free movement of labour have induced two lines of research. On the one hand, intra-EU mobility is investigated with respect to migration, and the same topics as those in the migration literature are generally addressed, including the effects on the labour market and social protection in the receiving country, the education level of migrant workers, etc. On the other hand, worker mobility in a single market is analysed in the European context as an adjustment mechanism that is very important, especially in the monetary union where one’s own accommodative monetary policy is not available in the economic policy toolkit of Member States.²

It is generally accepted that the overall level of mobility in the EU is low, especially compared to that in the US. The eastern enlargement has accelerated migration, and east-west migration is the main driver of intra-EU mobility (Batsaikhan et al. 2018). Wage differences and unemployment induce emigration, but the possibility of free movement provides an additional incentive. The increased migration from a ‘new’ Member State to an ‘old’ (EU-15) country is estimated to have been 48 per cent when the free movement regulation was implemented (Rojas-Romagosa – Bollen 2018). If the rate of east-west migration remains, it will cause conflicts in the receiving countries, despite the labour shortages and ageing societies, as the abovementioned examples like the Brexit referendum show. Even more important are the impacts on the sending countries. When projecting the current demographic figures using medium assumptions, the forecast shows that intra-EU mobility has the largest impact on population changes in the Central and Eastern European (CEE) Member States. In the Baltic and South-eastern Member States, there is a striking difference between the scenarios based on the current migration rate and no intra-EU mobility. For example, Romania is expected to lose 30 per cent of its population between 2015 and 2060 in the intra-EU mobility scenario, and ‘only’ 14 per cent in the no intra-EU mobility scenario. In the case of Poland, the difference is smaller between the scenarios (approximately five percentage points), but it is sizeable (Lutz et al. 2019). Furthermore, the forecast of the demographics-driven labour shortages in the EU suggests that the countries that are likely to experience severe supply-side constraints between 2020 and 2030 are nine CEE countries that are typically sending countries (the Czech Republic, Lithuania, Bulgaria, Poland, Estonia, Slovenia, Hungary, Latvia, and the Slovak Republic) and Germany (Streher – Leitner 2019). The Coronavirus pandemic may slow down these trends but only temporarily (Grieverson et al. 2021). The immediate labour shortage in agriculture

¹See detailed examples in Ruhs and Palme (2018).

²Recently, migrant workers have been renamed mobile workers within the EU. In this paper, we use both terms.



and healthcare after the border closures indicates that free movement has become an essential element of the EU economies (Andriescu 2020).

While the migration literature accumulated a significant amount of research on migration phenomena, economists maintain the neoclassical equilibrium approach in both economic integration theory and migration economic theory. The standard economic theory assumes that with migration, the free movement of labour results in the equalization of wages (and the marginal productivity of labour) of the receiving and sending countries, leading to an equilibrium in the labour market and an efficient resource allocation (e.g., Baldwin – Wyplosz 2015; Kahanec et al. 2016). This theory implies that decreasing wage differences may slow migration. Considering the migration trends, whether this equalizing mechanism works is of vital importance for the long term sustainability of free movement. This is not only a theoretical issue. The strict and rigid adherence of the EU to the unrestricted free movement of labour implies the tacit assumption that spontaneous market processes move toward a beneficial equilibrium. Thus, temporary frictions or tensions do not mean a legitimate claim for any restriction. This position led to an irresolvable contradiction between the EU and the UK prior to Brexit.

To the best of our knowledge, an empirical test of the assumed equalizing mechanism of labour movement has yet not carried out; thus, we conduct this study in this paper. We must emphasize that the aim of this paper is *not to contribute to migration literature* but to *check one of the pillars of economic integration theory*. If the tacit assumption of the EU position cannot be empirically proven, it opens a new perspective for intra-EU mobility. Since the recovery from the transition recession in the mid-1990s, CEE countries have converged to the average GDP per capita of the EU, and wages and incomes have also increased. Thus, we can analyse whether there is any relationship between the dynamism of the wage or income growth in receiving and sending countries and the dynamism of migration.

In the first part, we review the issues related to the free movement of labour which are on the research agenda, and, this way, we outline the perception of intra-EU mobility. The identification of the research topics shows the novelty of our approach and provides for a background when we draw the conclusions from the empirical investigation. In the second part, the emigration from CEE countries to three main destination countries (Germany, Austria and Spain) are analysed with respect to income changes using a dynamic panel regression. The conclusions summarize the lessons for European integration from both the intra-EU mobility literature and our empirical analysis.

2. PERCEPTION OF INTRA-EU MOBILITY IN THE LITERATURE

In the first decade of the enlarged EU, intra-EU mobility did not seem to be an important issue. Accession Treaties allowed for seven-year transitional measures (‘derogation’) and only Ireland, Sweden and the UK did not use this option; thus, it took time for the impacts of free movement to evolve. Analysing the migration data of countries with both liberal and restrictive transitional arrangements, migration flows seemed significantly lower than what was anticipated prior to the enlargement (Anderson 2015; Barrell et al. 2010; Kancs 2011). Due to the open door policy, the UK faced the impacts of the increasing migration influx by the early 2010s (Curtice 2017). The Prime Minister, David Cameron, looked for ways to restrict the intra-EU mobility from



2013 onwards (Milton 2018). Increasing numbers of studies on the experiences of the UK and those of other countries have been published in recent years. The aim of the following literature review is to identify the various approaches of scientific perception and not to give an exhaustive overview.

2.1. Effects of migration in receiving countries

As the free movement of labour came under attack, economic analyses strove to prove the economic advantages of mobility concerning the EU Member States (e.g., Kahanec – Pytliková 2017; Foster-McGregor – Pöschl 2016). The detailed investigation of the UK provided a complex picture. The influx from eastern Member States significantly but mildly decreased wages (one to two per cent), depending on the share of immigrants in the local labour market. This weak wage pressure alone cannot explain the growing anti-immigration sentiment. However, on the one hand, CEE migrants settled in more rural areas, which had never experienced large migration inflows before. On the other hand, immigration was not supported by fiscal policy (e.g., enhanced housing construction and public services) due to the austerity measures of the financial crisis. The growing difficulties of accessing the welfare system might have been associated with immigration (Becker – Fetzner 2018).

The political economy approach reveals further aspects. The most sensitive point in the receiving countries is usually not the wage effect but rather equal welfare treatment for the EU citizens on the move (Schmidt et al. 2018). In the enlarged EU with increased inequalities, internal asymmetries are accumulated between the market integration: free movement at the supranational level and social protection at the national level (Kureková 2013; Ruhs 2017; Wagner 2015).

Several papers investigate the impacts of institutional differences on labour market imperfections and migration. The political conflicts around free movement can be interpreted by considering the institutional differences in labour markets, welfare states, social insurance policies and family policies (Brücker et al. 2014; Migali 2018; Ruhs – Palme 2018).

Researchers scrutinize the attitudes towards free movement and their possible drivers. On average, support for the freedom of movement is high, but there is a great degree of cross-national variation. Citizens in richer countries that tend to receive more EU mobile workers seem to be more prone to perceiving free movement as a threat (Vasilopoulou – Talving 2019) and immigration from CEE countries had negative effects on the support for European integration (Toshkov – Kortenska 2015). Welfare chauvinist attitudes are rooted in class and status positions, but they are clearly sensitive to contingent situations and life experiences (Ferrera – Pellegata 2018).

2.2. Effects of migration in sending countries

In CEE, free movement has been a very popular opportunity for individuals after decades of Communist regimes. Emigration reduced the excess supply of labour during the restructuring period, and remittances flowed to home countries. Some risks of emigration in sending countries – e.g., brain drain, skill shortages and adverse demographic consequences – emerged soon after the 2004 enlargement (Kahanec – Zimmermann 2010).

Economic integration theory assumes that migration promotes the more efficient allocation of labour. However, in line with several studies and their earlier research, Galgóczi and Leschke



(2015) and Verwiebe et al. (2014) highlight that a characteristic feature of post-2004 migrants is skills and occupation mismatches. These CEE migrants are overwhelmingly employed in sectors that do not require higher education. This 'brain-waste' or 'downskilling' means that the post-enlargement east-west labour mobility has not contributed to a better human capital allocation. In contrast, migrants from the EU-15 are mainly employed in jobs that match their skills and experience.

Overall, fewer studies address the effects of migration in sending rather than in receiving countries. Surprisingly, the first comprehensive analysis focusing exclusively on sending countries was published neither by a research group from Central and Eastern Europe nor by a European think tank, but rather by the International Monetary Fund. Atoyán et al. (2016) investigate the emigration from 1990 to 2012 from Central, Eastern and Southeastern Europe. Overall, emigration decreased cumulative real GDP growth by an average of seven percentage points in the region and slowed convergence, especially in the Baltics and Southeastern Europe. If instead of GDP, real GNI is estimated considering remittances, the cumulative loss is five percentage points. Atoyán et al. (2016) expect that emigration will continue, and its effects call for comprehensive policy responses.

In intra-EU mobility, brain drain affects not only CEE countries but also Southern Eurozone countries, and there is little circulation and mutual exchange between sending and receiving countries and infrequent return migration (Cenci 2015). Arrieta et al. (2017) emphasize the negative impact of brain drain on the integration of European science. Due to the high-skilled eastern emigration, east-west cross-border research collaboration was weakened, despite EU entrants gaining access to EU resources incentivizing cross-border integration. To ensure brain circulation and the integration of the European Research Area, effective home-return incentives are needed.

2.3. Comprehensive analyses of intra-EU mobility

Some publications provide comprehensive analyses of intra-EU mobility. They scrutinize many aspects of migration that are examined in the above-cited studies and address the processes and impacts in both receiving and sending countries. However, the conclusions are different. The mainstream studies offer policy options which aim to ease migration and enhance the efficiency of resource allocation (e.g., Kahanec – Zimmermann 2010, 2016). The Brussels think-tank Bruegel published a blueprint of the intra-EU mobility and migration from the outside. Batsaikhan et al. (2018) provide a balanced analysis of the benefits and challenges of migration issues by equally considering the positions of the sending and receiving countries. However, their policy options for CEE countries (e.g., training programs or taxation measures) are hardly sufficient responses to the problems known in the literature and listed in their study.

Norwegian authors represent a more critical standpoint, examining labour mobility in the enlarged single European market. The benefits and costs of labour mobility are unlikely to be shared in a fair and balanced way in the complex European regulative context. If the CEE countries remain locked in the position of labour and skill exporters, it may hamper the European convergence scenario. They contrast the official EU vision on the unequivocally beneficial impacts of mobility with reality, and they call for a rethinking of the EU regulatory framework (Dølvik 2017; Friberg 2017; Genelyte 2017).



2.4. Migration as an adjustment vehicle in a monetary union

A particular line of research seeks to prove that free movement helps to absorb asymmetric economic shocks without prolonged unemployment. In a monetary union, negative demand shocks cannot be attenuated by currency depreciation.

The assumption that migration may be an adjustment vehicle for asymmetric shocks originates from the equilibrium model of factor price equalization. The starting point is that the wages and marginal productivity of labour are equal in two countries. If one of the countries is exposed to a negative demand shock, emigration can lead to a new wage equilibrium where the wage decrease is less in the sending country than it would be without migration. Furthermore, wages also decrease in the receiving country. In case of positive demand shocks, labour mobility can limit wage growth and maintain competitiveness. Based on this model, [Kahanec et al. \(2016\)](#) test the responsiveness of migration flows to economic shocks from 1995 to 2010. They find that post-enlargement migration mainly responded to the economic conditions in the receiving rather than in the sending Member States. Further investigation shows that from 2004 to 2014, immigrants in the EU were more flexible than natives when responding to labour shortages across Europe in various occupations and sectors ([Kahanec – Guzi 2017](#)).

[Arpaia et al. \(2016\)](#) confirm the adjustment effect of labour mobility. Their model shows that over the period from 1970 to 2013, mobility absorbed about a quarter of an asymmetric shock within one year and approximately 50 per cent of the peak after five years.

3. IS AN EQUALIZATION MECHANISM FUNCTIONING?

The literature reveals many aspects of intra-EU mobility. Studies on receiving countries focus on institutional effects in the labour market and industrial relations rather than economic issues. From an economic point of view, free movement is praised as an adjustment vehicle in the monetary union. Challenges for sending countries were realized shortly after the 2004 enlargement, but they have received attention only recently. However, we did not find studies which would address the core statement of economic integration theory on the wage equalizing effect of labour movement.

In economic integration theory, the consequence of labour market integration is that migration will continue with the wages of the receiving country decreasing and the wages of the sending country increasing until wages are equalized. The theory considers that this is the simplest framework, and the wage effect may be different depending on whether the immigrants' skills are complementary or substitutable to those of domestic workers. The imperfections of labour markets (institutional, regulatory varieties, etc.) may also prevent wages from equalizing. Despite the imperfections, standard integration theory assumes a causal relation between migration and wage changes ([Baldwin – Wyplosz 2015](#): Chapter 8). If this equalizing mechanism exists, the strict adherence of the EU to the free movement of labour as a taboo can be upheld. In this case, frictions and tensions are temporary and can be mitigated by the improvement of the allocation mechanism. The benefits of free movement outweigh the difficulties, and any restriction or intervention can be avoided. In this paper, our aim is to find a model that is able to focus on the empirical testing of this assumed equalizing mechanism.

As the literature review indicates, there are different migration patterns in the EU; thus, it could be inappropriate to seek evidence on the relation between wages and migration at



the EU level. The size and dynamics of emigration from CEE countries (Hungary, Poland, the Czech Republic, Slovakia, Slovenia, Romania, Bulgaria, Estonia, Latvia, and Lithuania) suggests that their mobility to main destination countries, such as Germany, Austria and Spain are the cases in which empirical testing can identify casual relations between wages and migration in complex labour market and migration processes. We choose these destination countries because the numbers of immigrants are relatively concentrated in them, which supports the explanatory power of the statistical analysis and that these countries are attractive for all CEE countries. Furthermore, the majority of CEE countries have very close economic relationships with Germany and Austria in the Central European manufacturing core. Based on integration theory, our hypothesis is that decreasing income differences decelerate the emigration rate.

3.1. Data

It is not possible to find data on intra-EU worker mobility directly. We could collect the longest continuous time series from the OECD's Migration Database, where foreign populations by nationality are available.³ The stock data changes show net migration, which can be applied as a proxy for labour mobility, because the working age population is overrepresented among emigrants. To make the data comparable, we used the change in the number of foreign citizens living in the host country (net migration) relative to the population of the sending country (the data of population in sending countries was retrieved from Eurostat). The longest available continuous time series started for Germany and Spain in 2000 and for Austria in 2002, and we handled these time series separately.

The current analysis focuses on the migration effect of wage changes; thus, it is more reasonable to use income data that include the impacts of various taxation and social benefits. Presumably, not the wage but rather the income influences migration decisions, and social benefits and other transfers are also considered before the emigration decision (Pedersen et al. 2008). From the available income data, the adjusted gross disposable income of households per capita (in PPS based on current prices) may have the largest influence on migration decisions. The indicator reflects the purchasing power of households and their ability to invest in goods and services or to save for the future by accounting for taxes, social contributions and monetary in-kind social benefits. To complete this study, we analyse the migration process with the wage differences as well, and we use the net earnings (EUR) of a single person without children who earns average wage. Assuming an effect on migration, we introduce data on the unemployment rate, GINI coefficient and the ratio of the 20–39-year-old age group to the total population in the sending countries as control explanatory variables. These variables proved to be important drivers of migration in several studies (e.g., Alvarez-Plata et al. 2003; Mayda 2010; Ortega – Peri 2009; De Giorgi – Pellizzari 2009). All of these data are retrieved from Eurostat. The lagged values of the explanatory variables are applied because presumably the data of the previous year motivate migration decisions. In addition, by using the lagged values of explanatory variables, we can avoid the problem of reverse causality.

Based on integration theory, we should assume the equalization of absolute wage or income differences. However, statistical data do not show decreasing wage or income differences in the last

³In Eurostat the data of some years were missing and the OECD's Migration Database is widely used for modeling migration in OECD countries (e.g., Docquier et al. 2014; Ortega – Peri 2009; Pedersen et al. 2008). The OECD dataset contains the stock of foreign citizens recorded in the population register.



16–18 years. Wage differences have been strongly increasing, while the differences between the adjusted gross disposable incomes have been slowly increasing or stagnating, with the exception of Spain (Figures 1–3). On the other hand, average net migration has significant volatility.

This is not a surprise because the initial difference was so large that the absolute differences increased from 2000 to 2018 compared almost all CEE countries with Germany and Austria, despite the faster growth rate of CEE countries’ incomes (that is, their relative convergence). As we cannot observe an equalization in absolute wages,⁴ we introduce a weaker hypothesis, that decreasing relative income differences decelerate the emigration rate. Therefore, we replaced the absolute data with relative data, which means using the ratio of the income of sending countries to the income of host countries. An increasing ratio indicates income convergence, and a decreasing ratio indicates income divergence.

3.2. Model

The relatively small amount of data and the state-specific differences in sending countries require the use of a panel regression. This method is able to handle time-invariant country effects (e.g., distance or cultural and historical proximity), which may be significant in the case of migration (Alvarez-Plata et al. 2003). The panel regression also makes it possible to control for year effects (e.g., the end of the derogation of labour market regulation in Germany and Austria in 2011).

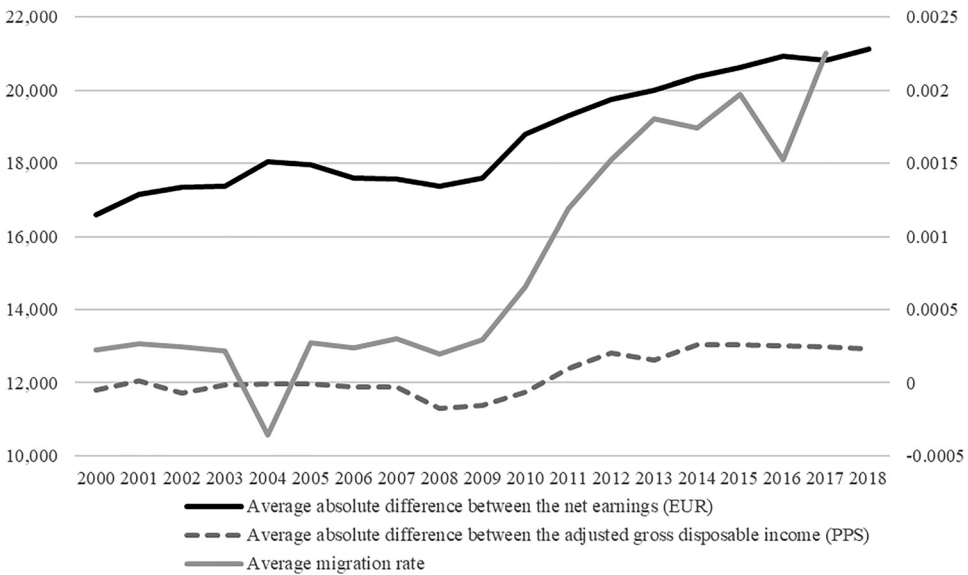


Fig. 1. Average earnings and gross disposable income differences and the migration rate of the CEE countries in the case of Germany (2000–2018)

Source: authors, using data from Eurostat and the OECD Migration Database.

⁴Dustmann (2003) also finds that relative and not absolute wage differences influenced the behavior of immigrants from Southern Europe and Turkey over a 14-year period from 1984 onwards.



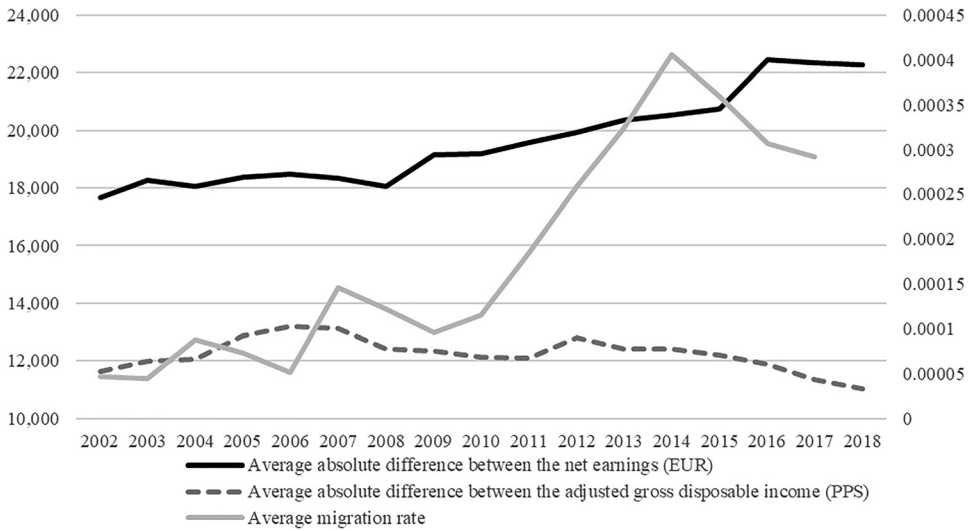


Fig. 2. Average earnings and gross disposable income differences and the migration rate of the CEE countries in the case of Austria (2002–2018)

Source: authors, using data from Eurostat and the OECD Migration Database.

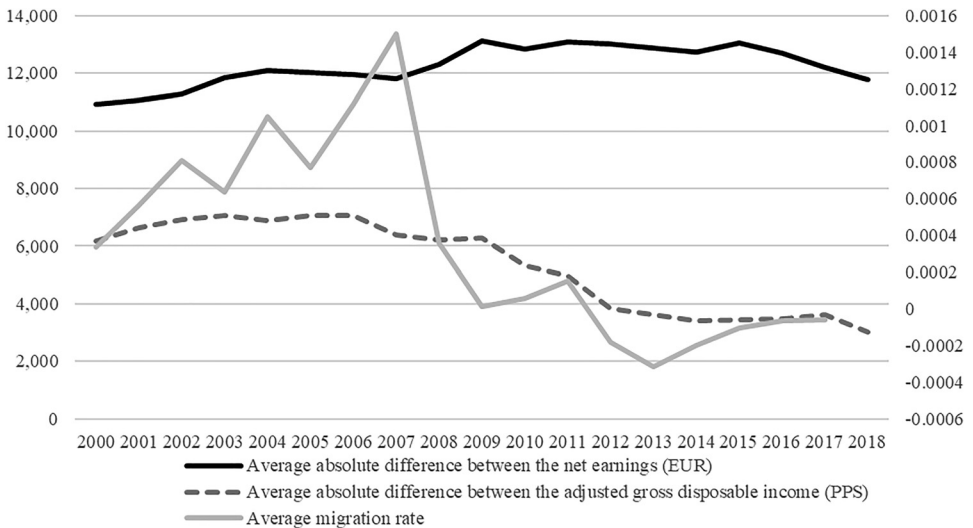


Fig. 3. Average earnings and gross disposable income differences and the migration rate of the CEE countries in the case of Spain (2000–2018)

Source: authors, using data from Eurostat and the OECD Migration Database.



Panel methods assume the stationarity of data, which we examined by using the panel unit root test of Im, Pesaran and Shin (2003). This test indicated that all our data were unit root processes at that level; however, they are stationary⁵ after differentiation. Thus, we use the difference of the variables.

Migration could easily be an autoregressive process e.g., family members may follow the pioneers in the following years, under what is called a network effect (Mayda 2010), or the pool of the mobile workforce is less in the next year, and the time series are relatively short. Considering these facts, we use a dynamic panel model, which is usually applied in the literature to examine migration processes (Mayda 2010; Giuliatti et al. 2011; Ruysen et al. 2014).

Based on Arellano (2003), the following panel equation can be written:

$$\Delta Y_{i,t} = \alpha \Delta Y_{i,t-1} + \beta' \Delta X_{i,t-1} + \sum \delta_t D_t + \Delta v_{i,t} \tag{1}$$

where $\Delta Y_{i,t}$ is the percentage point change in the net migration from the sending country (*i*) relative to its population, $\Delta Y_{i,t-k}$ are the lagged values of $\Delta Y_{i,t}$, $\Delta X_{i,t-1}$ is the vector of the explanatory variables in the previous year (the percentage point change in relative income-differences, the percentage point change in the unemployment rate in sending countries and the percentage point change in the rate of the 20–39-year-old age group in sending countries and the change in GINI coefficient) and D_t is the time-specific dummy. With the differencing estimator, we can eliminate the individual state-specific effect and the error term is auto-correlated and can be correlated with the lagged dependent variables; therefore, the dynamic panel estimator uses all the values of $Y_{i,t-k}$ with $k > 1$ as instruments for $\Delta Y_{i,t-1}$ (Arellano – Bond 1991), which also means that we can handle endogeneity by instrumental variables estimation. Therefore, we use the following relation as an orthogonality condition:

$$E(\Delta v_{i,t} \cdot Y_{i,t-k}) = 0, \quad k > 1 \tag{2}$$

In a dynamic panel regression, one must determine how many lagged values of the dependent variable should be used as explanatory variables. To determine this, the error terms' autoregressive process is tested, and if it is not an AR(1) process, the model will be extended with the next lagged value. If we get an AR(1) process, the lag and the model are optimal. The Sargan test evaluates whether the model has no more explanatory variables than necessary. This means that the model is not overidentified. If we cannot reject the null hypothesis (that is, the *P* value is higher than 0.05), the model is not overidentified.

In the end, the output of our estimation will be the following:

$$\begin{aligned} \Delta citizens_{i,t} = & \sum_{k=1} \alpha_k \Delta citizens_{i,t-k} + \beta_1 \Delta income_{i,t-1} + \beta_2 \Delta unemprate_{i,t-1} + \beta_3 \Delta (20-39)_{i,t-1} \\ & + \beta_3 \Delta (GINI)_{i,t-1} \sum \delta_t D_t + v_{i,t} \end{aligned} \tag{3}$$

Based on integration theory, we expect the sign of β_1 to be negative, which means that if the change in the income ratio of sending/receiving countries ($\Delta income$) is increasing, the number of people moving abroad ($\Delta citizens$) will decrease; and if there is income divergence, labour

⁵This means that the expected value is constant in time, and the auto-covariance function depends only on the number of lags.



migration will increase. The signs of β_2 and β_3 are expected to be positive. Therefore, if the unemployment rate of the sending countries increased in the previous year, the migration to receiving countries will also increase. In addition, if the proportion of the 20–39 year-old age group in sending countries increased in the previous year, emigration will increase. We also assume a positive sign for the GINI coefficient: the higher the inequality, the higher the willingness to emigrate.

Tables 1 and 2 summarize the results in the three receiving countries (see detailed results in Appendix). In the case of Germany, the relative adjusted gross disposable income difference had a significant effect on migration. If the relative adjusted income difference decreases by one percentage point in the previous year, the migration will decrease by 0.3 percentage points. However, the relative wage difference did not have any significant effect at all. In the case of Austria and Spain, neither the relative adjusted gross disposable income difference, nor the relative wage difference had any significant effect on migration. The change in the unemployment rate ($\Delta\text{unemprate}$) is a significant variable with a positive sign in every case. The change in ratio of the 20–39 year-old age group ($\Delta 20\text{--}39$) and the GINI coefficient are significant only in the case of Spain. As we assumed earlier, the positive change in the GINI coefficient and the 20–39 year-old age group have a positive impact on the migration rate. Based on the P values of the Sargan tests, the models are not overidentified, and thus we used the correct estimation.

The hypothesis that decreasing relative income differences decelerate the emigration rate is supported only in a single case, when the gross disposable income changes are scrutinized in the Germany vs. CEE relation. Estimations do not prove a similar effect in the case of net earnings. However, the difference in the two estimations underpins the finding of the migration literature, namely, that not only wages but social benefits also influence migration decisions. Our finding is also in line with migration studies in that the unemployment rate in the sending countries is a

Table 1. Dynamic panel estimations in the case of Germany, Austria and Spain with net earnings (EUR)

Variables	Germany		Austria		Spain	
	Coefficients	P -value	Coefficients	P -value	Coefficients	P -value
$\Delta\text{citizens}(-1)$	0.048	0.602	-0.110	0.123	-0.180**	0.030
Const.	0.001***	0.002	-0.000	0.654	0.000	0.112
$\Delta\text{netearn}(-1)$	0.003	0.215	0.000	0.910	0.001	0.896
$\Delta\text{unemprate}(-1)$	0.007***	0.000	0.001**	0.011	0.009*	0.058
$\Delta 20\text{--}39(-1)$	-0.001	0.932	-0.002	0.643	0.072**	0.040
$\Delta\text{GINI}(-1)$	0.003	0.517	-0.000	0.665	0.014**	0.012
Number of instruments	119		99		119	
Test for AR(1) errors	-2.678	0.007	-2.321	0.020	-2.711	0.007
Test for AR(2) errors	0.611	0.541	-0.173	0.863	-0.421	0.155
Sargan test P -value	0.062		0.053		0.051	

Source: authors' calculation using data from the OECD Migration Database and Eurostat.



Table 2. Dynamic panel estimations in the case of Germany, Austria and Spain with adjusted gross disposable income (PPS)

Variables	Germany		Austria		Spain	
	Coefficients	P-value	Coefficients	P-value	Coefficients	P-value
Δ citizens(-1)	0.0411	0.647	-0.111	0.136	-0.189**	0.024
Const.	0.001***	0.000	-0.000	0.648	0.001	0.171
Δ adjincome(-1)	-0.003*	0.070	-0.000	0.998	0.003	0.495
Δ unemprate(-1)	0.006***	0.000	0.001***	0.009	0.010**	0.044
Δ 20-39(-1)	-0.000	0.985	-0.002	0.628	0.073**	0.036
Δ GINI(-1)	0.003	0.559	-0.000	0.646	0.013**	0.014
Number of instruments	119		99		119	
Test for AR(1) errors	-2.678	0.007	-2.363	0.018	-2.748	0.006
Test for AR(2) errors	0.618	0.537	-0.154	0.877	-1.424	0.154
Sargan test P-value	0.058		0.054		0.056	

Source: authors' calculation using data from the OECD Migration Database and Eurostat.

significant explanatory variable, and higher unemployment results in increasing emigration. Interestingly, the changing pool of the most mobile age group only affected the dynamics of migration in the case of Spain, despite the ageing of CEE societies. In theory, decreasing inequalities provide better perspectives in the sending countries that may slow down emigration. However, we cannot identify such a process (or its reversed version) in the CEE countries, and the change of the GINI coefficient is insignificant in the case of Germany and Austria. It is possible that the impact of changing inequalities is observable with a longer time lag than that of income and unemployment.

To check whether our results are robust, we used a simple pooled OLS model for analysing our data and the dynamic panel model without time dummies and omitting the GINI coefficient or the 20–39 year-old age group. In all cases, we got the same signs and similar coefficients for all variables as in the original dynamic panel estimation. These calculations confirm that our results are robust.

4. CONCLUSIONS

Neoclassical economic theory assumes that labour mobility has an equalizing effect on wages, which is also a basic assumption in economic integration. As absolute convergence in earnings cannot be proven between the group of main sending countries (CEE countries) and their main destination countries (Germany, Austria and Spain), this paper has tested a weaker hypothesis, namely, whether relative convergence (changes in relative income differences) can slow down migration. The results of the empirical analysis support this hypothesis only in



income differences in the case of Germany. An economist may explain these results referring to frictions, rigidities, substitution between labour and capital or institutional differences etc. and may maintain equilibrium theory in the long run. However, it cannot establish policy options, if 16–18 year-long time series provides such vague evidence. Keynes's bon mot is more relevant: in the long run, we are all dead.

This fact must be emphasized because an equilibrium model implies that market forces automatically move the variables into the equilibrium state. By relying on this mechanism, it gives a false sense of security, and economic policy may overlook and miss policy responses. This attitude was prevalent in the British case. The UK economy obviously benefited from intra-EU mobility, but its unnoticed and uneven regional and social effects increased the 'leave' votes in the Brexit referendum.⁶ It can never be decided whether more flexibility of the EU with respect to free movement and in-work benefit regulations could have been enough to result in the 'remain' outcome for the Brexit referendum.⁷

In the studies of EU authors and think tanks, the perception of the free movement of labour is determined by the effort to leave the constituting elements of a single market untouched (and to avoid 'cherry picking'), which is underpinned by the equilibrium model of the labour market. This perception explains that although studies have revealed serious problems, particularly in sending countries, the suggested policy options aim only to ease free movement and enhance its efficiency, and they do not try to address other problems (e.g., political tensions, brain drain, and demographic consequences). A coincidence of political interests also supports this perception. In the EU demographic scenarios, among the net receiving Member States, Germany's population would decline without immigration from EU countries, even with high international migration (Lutz et al. 2019). With a few exceptions, the CEE governments also did not raise the issues of free movement prior to the COVID-19 pandemic. On the one hand, this right is very popular with their voters; on the other hand, these governments fear that any debate or restriction would lead to their second-class membership. It is symptomatic that the uneven distribution of the costs and benefits between sending and receiving countries was first explicitly pronounced by 'outsiders', namely, IMF staff members (Atoyán et al. 2016) and Norwegian authors (Dølvik – Eldring 2017).

The perception of EU documents is similar to that of EU researchers. The European Commission launched a report series on intra-EU mobility in 2014. The aim of this report is to provide quantitative information to support workers' right to free movement. These reports provide in-depth analyses, but it is not their task to offer policy options (Canetta et al. 2014). A study published by the European Parliament claims that emigration is one of the reasons for qualitative labour shortages in six Member States: Bulgaria, Hungary, Lithuania, Poland, Romania, and Slovakia. This study recommends 'using international mobility as a solution while avoiding brain drain' (Reymen et al. 2015: 63), but it is not clear how this harmony can be achieved.

Immediately after the Brexit referendum, leading experts announced a proposal for a new type of partnership between the EU and the UK. These experts distinguish between the functional

⁶Studying the debates on migration before the Brexit referendum and the following blame game, it is apparent that those who argued for the advantages of free movement used only macroeconomic data and models, disregarding regional and non-economic impacts. See for example the publications and blog posts of the influential think tank, Bruegel (<https://bruegel.org/>).

⁷For more information on the various drivers of Brexit, see Curtice (2017).



and economic-social constitutional definition of a deeply integrated market. The free movement of labour is not necessarily an element of the functional approach. It is the part of the political project and an essential element of the single market established by the Treaty of Rome (Pisani-Ferry et al. 2016). This distinction did not become the subject of scientific discourse, although it could have opened a way to more flexible regulation. Instead, the COVID-19 pandemic has resulted in an unprecedented situation, and a radical restriction of free movement has been unavoidable. The European Commission proposed what was inconceivable earlier: the coordination of measures restricting free movement in the EU (European Commission 2020).

Both the perception of intra-EU mobility and our empirical analysis suggest that the sustainable free movement requires a renewed approach. The free movement of labour is one of the most important achievements of European integration that offers substantial benefits for Member States. The free movement of labour is able to deepen the common European identity, to promote more efficient allocations of labour and knowledge transfers and to contribute to the absorption of asymmetric economic shocks. However, these advantages prevail if intra-EU mobility is not persistently and predominantly one-way. In a heterogeneous region such as the EU, the regulatory power of business cycles and the pool of labour are not sufficient. A new aspect is that the challenges of a public health crisis – which may occur more frequently due to climate change – enforce flexible regulations. These circumstances also underline that free movement cannot be considered as an element of a spontaneous equalizing market mechanism.

It is worth recalling that the EU's aim – laid down in the Treaty on the Union – is to achieve a model of social market economy. The founding fathers of this model claimed that market economy is not a natural phenomenon but a fragile, artificial (political-cultural) product, based on a constitutional order (that is, a regulatory framework), which requires constant care and supervision (e.g., Röpke 1942: 87–90, 168). Market equilibrium should be the result of a regulation that meets two requirements: being functioning and just (Eucken 1952/1990: 166). This approach may be helpful in facing the current challenges and in preserving the benefits of free movement within the EU.

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Appendix

A/1. Dynamic panel estimation in the case of Germany with net earnings (EUR)

	Germany Δcitizens
Δcitizens(-1)	0.048 (0.093)
Δnetearnings (-1)	0.003 (0.002)
Δunemprate(-1)	0.007*** (0.001)
Δ20-39(-1)	-0.001 (0.017)
ΔGINI(-1)	0.003 (0.004)
year_2003	-0.001*** (0.000)
year_2004	-0.001*** (0.000)
year_2005	-0.001*** (0.000)
year_2006	-0.000 (0.000)
year_2007	-0.001*** (0.000)
year_2008	-0.001** (0.000)
year_2009	-0.001*** (0.000)
year_2010	-0.001*** (0.000)
year_2011	-0.001** (0.000)

(continued)



A/1. Continued

	Germany Δcitizens
year_2012	-0.000 (0.000)
year_2013	-0.000 (0.000)
year_2014	-0.001** (0.000)
year_2015	-0.001** (0.000)
year_2016	-0.000** (0.000)
year_2017	-0.001*** (0.000)
Cons.	0.001*** (0.000)
Test for AR(1) error	0.007
Test for AR(2) error	0.541

Standard errors in parentheses.

* $P < 0.10$, ** $P < 0.05$, *** $P < 0.01$.

Note: year_2001, year_2002, year_2018 dropped because of collinearity.

Source: authors, using data from the OECD Migration Database and Eurostat.

A/2. Dynamic panel estimation in the case of Germany with adjusted gross disposable income (PPS)

	Germany Δcitizens
Δ citizens(-1)	0.041 (0.900)
Δ adjincome(-1)	-0.003* (0.002)
Δ unemprate(-1)	0.006*** (0.001)

(continued)



A/2. Continued

	Germany Δcitizens
Δ20-39(-1)	-0.000 (0.017)
ΔGINI(-1)	0.003 (0.004)
year_2003	-0.001*** (0.000)
year_2004	-0.001*** (0.000)
year_2005	-0.001*** (0.000)
year_2006	-0.000 (0.000)
year_2007	-0.001*** (0.000)
year_2008	-0.001** (0.000)
year_2009	-0.001*** (0.000)
year_2010	-0.001*** (0.000)
year_2011	-0.001*** (0.000)
year_2012	-0.000 (0.000)
year_2013	-0.001* (0.000)
year_2014	-0.001** (0.000)
year_2015	-0.001*** (0.000)

(continued)



A/2. Continued

	Germany Δcitizens
year_2016	-0.000***
	(0.000)
year_2017	-0.001***
	(0.000)
Cons.	0.001***
	(0.000)
Test for AR(1) error	0.007
Test for AR(2) error	0.537

Standard errors in parentheses.

* $P < 0.10$, ** $P < 0.05$, *** $P < 0.01$.

Note: year_2001, year_2002, year_2018 dropped because of collinearity.

Source: authors, using data from the OECD Migration Database and Eurostat.

A/3. Dynamic panel estimations in the case of Austria with net earnings (EUR)

	Austria(1) Δcitizens
Δcitizens(-1)	-0.110
	(0.071)
Δnetearnings (-1)	0.000
	(0.001)
Δunemprate(-1)	0.001**
	(0.001)
Δ20-39(-1)	-0.002
	(0.005)
ΔGINI(-1)	-0.000
	(0.001)
year_2005	0.000
	(0.000)
year_2006	0.000
	(0.000)

(continued)



A/3. Continued

	Austria(1) Δcitizens
year_2007	0.000
	(0.000)
year_2008	0.000**
	(0.000)
year_2009	0.000
	(0.000)
year_2010	-0.000
	(0.000)
year_2011	0.000
	(0.000)
year_2012	0.000*
	(0.000)
year_2013	0.000*
	(0.000)
year_2014	0.000
	(0.000)
year_2015	0.000*
	(0.000)
year_2016	-0.000
	(0.000)
year_2017	-0.000
	(0.000)
Cons.	-0.000
	(0.000)
Test for AR(1) error	0.020
Test for AR(2) error	0.863

Standard errors in parentheses.

* $P < 0.10$, ** $P < 0.05$, *** $P < 0.01$.

Note: year_2003, year_2004, year_2018 dropped because of collinearity.

Source: authors, using data from the OECD Migration Database and Eurostat.



A/4. Dynamic panel estimations in the case of Austria with adjusted gross disposable income (PPS)

	Austria(1) Δcitizens
Δcitizens(-1)	-0.111
	(0.747)
Δadjincome (-1)	-0.000
	(0.000)
Δunemprate(-1)	0.001***
	(0.001)
Δ20-39(-1)	-0.002
	(0.005)
ΔGINI(-1)	-0.000
	(0.001)
year_2005	0.000
	(0.000)
year_2006	0.000
	(0.000)
year_2007	0.000
	(0.000)
year_2008	0.000**
	(0.000)
year_2009	0.000
	(0.000)
year_2010	-0.000
	(0.000)
year_2011	0.000
	(0.000)
year_2012	0.000*
	(0.000)
year_2013	0.000*
	(0.000)
year_2014	0.000
	(0.000)

(continued)



A/4. Continued

	Austria(1) Δcitizens
year_2015	0.000**
	(0.000)
year_2016	-0.000
	(0.000)
year_2017	-0.000***
	(0.000)
Cons.	-0.000
	(0.000)
Test for AR(1) error	0.018
Test for AR(2) error	0.877

Standard errors in parentheses.

* $P < 0.10$, ** $P < 0.05$, *** $P < 0.01$.

Note: year_2003, year_2004, year_2018 dropped because of collinearity.

Source: authors, using data from the OECD Migration Database and Eurostat.

A/5. Dynamic panel estimation in the case of Spain with net earnings (EUR)

	Germany Δcitizens
Δcitizens(-1)	-0.180**
	(0.083)
Δnetearnings (-1)	0.001
	(0.005)
Δunemprate(-1)	0.009*
	(0.005)
Δ20-39(-1)	0.072**
	(0.035)
ΔGINI(-1)	0.014**
	(0.005)
year_2003	-0.000
	(0.000)

(continued)



A/5. Continued

	Germany Δcitizens
year_2004	-0.001
	(0.000)
year_2005	-0.000
	(0.000)
year_2006	-0.001**
	(0.000)
year_2007	-0.000
	(0.000)
year_2008	-0.000
	(0.000)
year_2009	-0.002***
	(0.000)
year_2010	-0.001**
	(0.001)
year_2011	-0.001*
	(0.000)
year_2012	-0.000
	(0.000)
year_2013	-0.001*
	(0.000)
year_2014	-0.001
	(0.000)
year_2015	-0.000
	(0.000)
year_2016	0.000
	(0.000)
year_2017	-0.000
	(0.000)
Cons.	0.001
	(0.000)

(continued)



A/5. Continued

	Germany Δcitizens
Test for AR(1) error	0.007
Test for AR(2) error	0.155

Standard errors in parentheses.

* $P < 0.10$, ** $P < 0.05$, *** $P < 0.01$.

Note: year_2001, year_2002, year_2018 dropped because of collinearity.

Source: authors, using data from the OECD Migration Database and Eurostat.

A/6. Dynamic panel estimation in the case of Spain with adjusted gross disposable income (PPS)

	Germany Δcitizens
Δcitizens(-1)	-0.189**
	(0.084)
Δadjincome(-1)	0.003
	(0.004)
Δunemprate(-1)	0.010**
	(0.005)
Δ20-39(-1)	0.073**
	(0.035)
ΔGINI(-1)	0.013**
	(0.005)
year_2003	-0.000
	(0.000)
year_2004	-0.001*
	(0.000)
year_2005	-0.000
	(0.000)
year_2006	-0.001**
	(0.000)
year_2007	-0.000
	(0.000)

(continued)



A/6. Continued

	Germany Δcitizens
year_2008	–0.000 (0.000)
year_2009	–0.002*** (0.000)
year_2010	–0.001*** (0.000)
year_2011	–0.001* (0.000)
year_2012	–0.000 (0.000)
year_2013	–0.001** (0.000)
year_2014	–0.001* (0.000)
year_2015	–0.000 (0.000)
year_2016	–0.000 (0.000)
year_2017	–0.000 (0.000)
Cons.	0.001* (0.000)
Test for AR(1) error	0.006
Test for AR(2) error	0.154

Standard errors in parentheses.

* $P < 0.10$, ** $P < 0.05$, *** $P < 0.01$.

Note: year_2001, year_2002, year_2018 dropped because of collinearity.

Source: authors, using data from the OECD Migration Database and Eurostat.

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