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Internal migration and EU regional policy transfer payments: a panel data analysis for 28 EU member countries

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Abstract

This paper analyses the effect of EU regional policy transfer payments on migration flows among 28 EU member countries. The hypothesis is tested that EU structural funds payments do hamper internal migration across the EU. This is done in two ways. First, the paper by Egger, Eggert and Larch (2014) is reestimated and extended. Until today they are the first and the only ones that empirically tested the above hypothesis, which they have derived from a new economic geography (NEG) model. Second, a more traditional neoclassical model of the migration and regional policy nexus is tested. As in Egger, Eggert and Larch (2014), in both cases a significant effect of EU regional policy expenditures on the measure of bilateral migration among EU member countries is identified. However, contrary to Egger, Eggert and Larch (2014), the effect is mostly positive. In the first case, on average, a one percentage point increase of structural funds expenditures in per cent of GDP leads to an increase of net bilateral migration by about 0.3-0.5%. The neoclassical model yields similar results. On average, a ten percent increase in structural funds expenditures leads to an increase in the measure of bilateral migration by about 0.015-0.17 emigrants per 100,000 individuals in the origin country's population. Hence, EU regional policy transfer payments spur instead of hamper internal migration across EU member countries. Possible explanations for this, at first glance, counterintuitive finding are given.

JEL-Classification: E62, F15, F22, H53, I38, R58

Keywords: EU regional policy, EU structural funds, internal migration, European integration

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1 Introduction

The economic geography of the European Union (EU) is characterised by tremendous regional disparities. The living and working conditions of citizens across the EU, most often measured in terms of gross domestic product (GDP) per capita and unemployment rates, are markedly different. The EU therefore conducts a regional policy since its foundation by the Treaty of Rome in 1957 which is supposed to improve and harmonise the conditions of its citizens. The main instruments to execute this policy are the two structural funds, the European Regional Development Fund (ERDF) and the European Social Fund (ESF), as well as the European Cohesion Fund (ECF).¹ In the current planning period 2014-2020 an amount of €352bn, 32.5% of the overall EU budget of €1082bn, is spend on EU regional policy with the help of these three funds (European Commission 2014a).

Depending on the regional policy objective between 13.5% and 61% of the total population of the EU is supported by the structural funds of the EU (European Commission 2014b, pp. 182-187). More specifically, 25.4% of the population of the EU is covered by the “less developed” objective according to which a region receives regional policy support when its GDP per capita in purchasing power standards (PPS) is less than 75% of the EU member states’ average. With 53.3% of the total budget for the planning period 2014-2020, it is the largest regional policy objective in terms of the money spend on it.

Applying the 75% GDP-criteria to the internal market of the United States (US) and its federal states, only 4.5% of the total population of the US would be eligible for regional policy support.² In other words, the income gap in the US internal market is much smaller compared to the EU, although “regional or spatial planning policies has never become as significant an issue as it is in Europe” (Martin 2003, p. 20).

One possible explanation for this finding given in the economic literature is that US citizens are much more internally mobile between the different US federal states than EU citizens are across EU member countries (see, e.g., Martin 2003, pp. 20-21). As Ester and Krieger (2008) point out, in the former EU-15, before the eastern

¹ Since this clear-cut distinction is barely found in the literature, all three funds are assigned the term “structural funds” in this paper.

² The corresponding states are Arkansas, Idaho, Mississippi, South Carolina and West Virginia. The figures are own calculations on the basis of 2014 GDP data by state (in millions of current dollars) taken from Bureau of Economic Analysis (2016) and 2014 population data by state taken from Census Bureau (2016).

enlargement of 2004 and 2007, approximately 0.1% of the working age population moved to another country in a given year, while in the US about 3% of the working age population changed residence between US federal states.³ They also remark that the migration gap between the EU and the US even continues to persist, when geographical mobility within instead of between member states of the EU is analysed.

The conglomerate of regional disparities, low mobility of citizens and high relevance of regional policy in the EU compared to the US, led some authors to argue that the structural funds of the EU distort and hamper convergence promoting migration across Europe (see, e.g., Kessler and Lessmann (2010); Kessler, Hansen and Lessmann (2011); Schmidt (2013) and Sinn and Ochel (2003)). Accordingly, from a normative point of view EU regional policy is a bad thing. It would not only slow down the speed of regional convergence or consolidate regional economic disparities in the EU, but would also lead to allocative inefficiencies and welfare losses in the internal European market (Wildasin 1994). However, until today there barely exists any empirical evidence for the above hypothesis that the regional policy of the EU hampers (internal) migration across member states. To the best of my knowledge Egger, Eggert and Larch (2014) is the only exception. Their estimates for the EU-15 countries suggest “that a one percentage point increase in structural funds expenditures (measured in per cent of GDP) reduces the level of bilateral net migration flows [across EU member countries, P.S.] by about 0.4-0.8%” (Egger, Eggert and Larch 2014, p. 368).

Due to the lack of empirical research, the goal of this paper is to add to the scarce empirical literature on the relationship between migration across EU member countries and the structural funds of the EU. This article will contribute to the existing literature in several ways. First, the econometric specification of Egger, Eggert and Larch (2014) is reestimated and extended to a longer time period. Their analysis encompasses the years 1986-2004, i.e. a period in which the EU comprised 12 (1986-1995) and 15 (1995-2004) member states, respectively. In this paper the period 1985-2013 is analysed so as to include the enlargements of the EU in 2004 (EU-25), 2007 (EU-27) and 2013 (EU-28).

Second, a different estimation strategy is presented in the paper solely focusing on the relationship between EU internal migration and the structural funds. Egger, Eggert and Larch (2014) do also estimate the relationship between net bilateral mi-

³ Heinz and Ward-Warmedinger (2006, p. 7) even report a migration rate of 5.9% for the US in 1999. Dijkstra and Gáková (2008, pp. 2-3) report a share of cross-boarder mobility of working age residents in the EU of 0.14% and in the US of 1.98% for the period 2005-2006.

gration across EU member countries and the structural funds of the EU. Yet, they rather concentrate on empirically testing the new economic geography (NEG) model of international migration which underlies their paper. In contrast, the different estimation strategy employed emanates from a rather traditional neoclassical model of international migration, of which the hypothesis that EU structural funds hamper (convergence-promoting) migration across Europe is usually derived from in the literature (see the sources mentioned above). Moreover, in Model (8) of their empirical analysis, Egger, Eggert and Larch (2014) include foreign direct investments (FDIs) as an additional control variable into the regression model. They assume FDIs to be endogenous in the regression of structural funds on net migration, since the activity of multinational firms acts towards factor price equalisation. Consequently, they employ an instrumental variable regression to account for the potential endogeneity of FDIs in order to obtain unbiased estimates. However, they do not control for the potential endogeneity of the structural funds variable, although the focus of their paper lies on the migration and structural funds nexus and they themselves conjecture that FDIs mitigate “the incentive to migrate similar to structural funds expenditure” (Egger, Eggert and Larch 2014, p. 366).

That is why the third contribution of the paper will be to account for the potential endogeneity of the structural funds variable. Inspired by the political economy literature on EU decision making and the allocation of the EU budget, different apriori voting power indices⁴ for the EU Council of Ministers (CM) are employed as instrumental variables. As, for instance, Kauppi and Widgrén (2004) among many other authors have shown, the national and regional allocation of the structural funds budget does seldom follow the economic needs of a member state or region.⁵ The structural funds are rather a subject of negotiation between EU member states. Hence, their allocation to a large extent depends on political bargaining power of national and regional politicians in the respective decision making bodies responsible for the budget and its allocation across the EU, namely the CM, the EU Parliament (EP) and the European Commission (EC). Although the determination and allocation of the EU

⁴ I employ the three most common apriori voting power indices, namely the Shapley-Shubik index, the Banzhaf index and the Nucleolus. More detailed information on the concept of apriori voting power and the respective indices can be found, for instance, in Felsenthal and Machover (1998), Felsenthal and Machover (2004), Antonakakis, Badinger and Reuter (2014) and Garcia-Valiña, Zaporozhets and Kurz (2015).

⁵ On this issue see also Bodenstein and Kemmerling (2011), Bouvet and Dall’erba (2010), Dellmuth (2011), Dotti (2010), Kauppi and Widgrén (2007), Kauppi and Widgrén (2008), Kemmerling and Bodenstein (2006), Garcia-Valiña, Zaporozhets and Kurz (2015) and Vedrine (2012).

budget is a complex process involving more than the three bodies just mentioned, it turns out that the CM (i.e. the member states) is the key decision maker in terms of this subject.⁶ The CM determines the ceiling of the budget for the seven year planning period in the so-called “Multiannual Financial Framework” (MFF), formerly known as “Financial Perspective”. Thus, it sets narrow financial restrictions for how much structural payments each member state will later receive from the EC according to the “European Structural and Investment Funds Regulations” and the annual EU budget jointly adopted by the CM and the EP.⁷ That is why it seems reasonable to employ apriori voting power indices for the CM as instrumental variables for the structural funds, since the political bargaining power of the member states in the CM is a major determinant of how much structural funds payments a member country receives.⁸

The remainder of this paper is structured as follows. The second section of the paper is devoted to reconstruct the empirical model, data and results of Egger, Eggert and Larch (2014) for the period 1985-2013, including 27 EU member countries. Contrary to Egger, Eggert and Larch (2014), I find that on average a one percentage point increase of structural funds expenditures in per cent of GDP leads to an increase in the measure of net bilateral migration by about 0.3-0.5%. In the subsequent third section, I describe and present my own estimation strategy, the collected data as well as the empirical results obtained. In contrast to Egger, Eggert and Larch (2014), a neoclassical model of the migration and regional policy nexus is estimated which confirms the formerly obtained results. On average, a ten percent increase in structural funds expenditures leads to an increase in the measure of bilateral migration by about 0.015-0.17 emigrants per 100,000 individuals in the origin country’s population. In the final section, the paper draws its conclusion.

⁶ This holds true although the EP formally gained decision making power in the EU budget procedure over the last three decades. In fact, however, the EP’s power in EU budget allocation on the member states is still quite small (Kauppi and Widgrén 2008).

⁷ As Schöndorf-Haubold (2003, pp. 129-158) remarks, the Commission would never have the scope to allocate the structural funds to the member states on its own according to the vaguely formulated structural funds regulations. Hence, it can be assumed that the member states already know how much structural spending each member state will approximately receive when they decide on the MFF.

⁸ Moreover, there is no need to believe that migration and the purely theoretical concept of apriori voting power are correlated. These indices should only effect migration through their effect on the allocation of the structural funds and should thus be qualified to be not only relevant but also exogenous instrumental variables (see also the discussion in section 3).

2 Replicating Egger, Eggert and Larch (2014)

The article by Egger, Eggert and Larch (2014) is divided into two parts. In the first part, they present a simplified and analytical solvable core-periphery NEG model à la Krugman (1991). More specifically, they adapt the framework proposed by Pflüger (2004) and include “common pool financed infrastructure investments” (2014, p. 353) to derive the following three testable hypotheses (pp. 361-362) from it:

- *Result 1. Migration flows should be larger the bigger the endowment differences with the immobile factor(s).*
- *Result 2. The incentive to migrate is stronger at very low/high trade costs than at intermediate levels of trade costs.*
- *Result 3. Common pool financed public infrastructure investments mitigate the incentives to migrate.*

2.1 Empirical model and data

In the second part of their paper, Egger, Eggert and Larch (2014) present the data used and the empirical results they obtained for the EU-15 member states⁹ over the years 1986-2004. They estimated *ten*¹⁰ different versions of the following empirical model:

$$\begin{aligned}
 Mig_{ijt} = & \beta + \beta_0 EndowDiff_{ijt} + \beta_1 TC_{ijt} + \beta_2 TCsquared_{ijt} + \beta_3 SfGDP_{ijt} \\
 & + \beta_4 EndowDiffSfGDP_{ijt} + \beta_5 FDI_{ijt-1} + \beta_6 CL_{ijt} + \beta_7 ADCCL_{ijt} \quad (1) \\
 & + \beta_8 ADEWSS_{ijt} + \beta_9 IvC_{ijt} + \beta_{10} ADIvC_{ijt} + \delta_i I_i + \delta_j I_j + \delta_t I_t + \epsilon_{ijt}
 \end{aligned}$$

The dependent variable Mig_{ijt} is net bilateral migration between countries i and j in year t . It is calculated as the absolute difference between two countries’ bilateral immigration flows in logs. The independent variables in Equation 1 are defined as follows. $EndowDiff_{ijt}$ is the absolute difference in (log) labour endowments ($|\ln L_{it} - \ln L_{jt}|$) or difference in population size of country i and j . TC_{ijt} and $TCsquared_{ijt}$ are measures of trade costs between two countries. The former term is approximated by the log of geographical distance between two countries ($\ln dist_{ij}$). The latter term are the squared and demeaned trade costs ($[\ln dist_{ij} - \text{mean}(\ln dist_{ij})]^2$) and control

⁹ Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, United Kingdom.

¹⁰ See Table 2 on page 14 for the respective specifications of Models (1)-(10).

whether trade costs affect net migration in a nonmonotonical way. $SfGDP_{ijt}$ is the main variable of interest and contains the structural funds expenditures as per cent of GDP in countries i and j in year t . $EndowDiffSfGDP_{ijt}$ is an interaction term between the absolute difference in labour endowments and the structural funds expenditures as per cent of GDP. This variable is included in the equation to test whether the effect of structural funds expenditures on net migration is driven by population size differences between two countries. To account for multinational firm activity, foreign direct investments (FDIs) are included in the model as an additional control variable. Egger, Eggert and Larch (2014, p. 366) hypothesise that FDIs act “as an additional force towards factor price equalisation ... [which mitigate, P.S.] the incentive to migrate similar to structural funds expenditures”. FDI_{ijt-1} is once-lagged and defined as the sum of FDI inflows of countries i and j . Since FDIs are assumed to be endogenous, in their Model (8) Egger, Eggert and Larch (2014, pp. 366-368) employ two-stage least squares with instrumental variables to obtain consistent estimates. As instruments they include the log capital-labour ratio of countries i and j in t (CL_{ijt}), the absolute difference in log capital-labour ratio in two countries ($ADCL_{ijt}$), the absolute difference in the endowment with workers of at least secondary schooling of two countries ($ADEWSS_{ijt}$), the log average of and the absolute difference in log investment costs in two countries (IvC_{ijt} and $ADIVC_{ijt}$). In Model (9) and (10) Egger, Eggert and Larch (2014) estimate a reduced form of Model (8) and replace FDI_{ijt-1} by the instruments used in Model (8). I_i , I_j and I_t are country and year fixed effects. The former account for time-invariant effects such as culture and geographical characteristics of the countries, while the latter absorb common shocks to EU internal migration such as changes in the legislature as a result of the introduction of the single European market and the Euro.

In a first step, I reestimated the above model with the dataset kindly provided by Peter Egger and obtained the same results that Egger, Eggert and Larch (2014) present in their paper.¹¹ However, the following problems occurred during the replication, which is why I contacted Mario Larch and Peter Egger and asked for clarification. First, I was not able to rebuild the dataset of Egger, Eggert and Larch (2014) from the original sources. This holds especially true for the migration data, the population data, the data on secondary school enrolment ratios as well as the GDP and structural funds data. I will further elaborate on this issue in more detail below, when I describe

¹¹ As remarked by Peter Egger himself, the only exception is Model (8), where one obtains slightly different results due to a change in the *ivreg2* command of Stata.

the data I use in the augmented reestimation of Equation 1. Differences in data are probably due to data revisions in the respective databases. This has also been remarked by Peter Egger, who had similar problems in other studies in which the data were used. Second, the overall number of observations is only 1008 and not 1009, as indicated by Egger, Eggert and Larch (2014). One country-pair, namely Finland and Austria in 1996, entered into the regression twice, which is also confirmed by Peter Egger. Moreover, Egger, Eggert and Larch (2014) did not estimate their panel for the period 1986-2004 as they indicate, but the period 1985-2004. Third, I found minor differences between the estimation strategies indicated in the text of the paper and the estimations actually conducted. The reported coefficients in Model (7) and Model (10) have been estimated with the complete data matrix and not only with the lower triangular matrix, i.e. with 2018 and 1942 instead of 1009 and 971 observations. Although the basic results remain the same, the significance levels of some coefficients do change such that some of them even become insignificant. Again, this problem was confirmed by Peter Egger. Fourth, in their Table 4 Egger, Eggert and Larch (2014, p. 367) indicate that they used once-lagged FDIs as an additional control variable in Model (8). Yet, the coefficients they report are obtained without using lagged values of FDIs. This does not influence the results very much. Only the levels of significance do change for some of the coefficients. Fifth, the results obtained in Model (8) of Egger, Eggert and Larch (2014) are driven by the fact that they replace the missing values of their FDI variable by zero.¹² In this vein, the four instrumental variables used for FDIs are able to pass Sargan's over-identification test at a p -value of 0.2111. This indicates that the instrumental variables were correctly excluded, i.e. that they only indirectly influence net migration through FDI flows. When the missing values of the FDI variable are not replaced by zero, the null hypothesis of Sargan's over-identification test must be rejected. Thus, the excluded instrumental variables are in some way explanatory variables of net migration in their own right and might not be correctly excluded from the structural equation. All in all, however, the important result that EU structural funds reduce net migration on average remains the same, which is why I augmented the dataset of Egger, Eggert and Larch (2014) as a further check of robustness concerning the migration and regional policy nexus.¹³

¹² According to Peter Egger, this is a common procedure in research on international economics. Concerning this issue, he also points out the paper of Helpman, Melitz and Rubinstein (2008).

¹³ Controlling for the five problems just mentioned, though, changes the range of the effect of structural funds on net migration. Hence, on average a one percentage point increase in structural funds expenditures in per cent of GDP reduces net bilateral migration by about 0.3-0.7%.

To estimate the ten different versions of Equation 1 for the period 1985-2013 and 27 EU member states¹⁴, I consulted the same data sources as Egger, Eggert and Larch (2014) indicate in their paper. The only exceptions are the data on structural funds and GDP, which they somewhat imprecisely indicated as taken from the European Commission and which I thus was not able to specify any further.

To calculate the dependent variable Mig_{ijt} in Equation 1, I employ data on net bilateral immigration as published by the Organisation for Economic Co-operation and Development (OECD) in their “*International Migration Database*” (OECD 2016b).¹⁵ Net bilateral migration is defined as absolute difference of log immigration of i (from j) and log immigration of j (from i). Thus, my overall data matrix consists of $27 \cdot 26 \cdot 29 = 20358$ observations. Since the overall matrix is symmetric by design, only data of one triangular matrix are used, i.e. theoretically I end up with $20358 \div 2 = 10179$ observations. Unfortunately, the OECD dataset just contains $3110 \div 2 = 1555$ observations on net migration across 21 EU member countries.¹⁶ That is why I also gathered immigration data from Eurostat (2016b). In the OECD dataset an immigrant is defined by its country of birth and its nationality, respectively. In contrast, in the Eurostat database a broader concept of immigration is employed. Here, an immigrant is defined by its country of previous residence. For 1985-2013, the Eurostat (2016b) database delivers $4820 \div 2 = 2410$ observations on net bilateral migration across 25 EU member countries.¹⁷

The data on the independent variables of Equation 1 are taken from the following respective sources. Descriptive statistics for all the variables I used are provided in Table 1 on page 11 for OECD migration data and in Table 6 in the appendix on page 35 for Eurostat migration data. The population figures for $EndowDiff_{ijt}$ are taken from Eurostat (2015).¹⁸ The data for TC_{ijt} and $TCsquared_{ijt}$ are taken from the Centre

¹⁴ Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, United Kingdom. The only EU-28 country missing is Romania due to unavailable net migration data.

¹⁵ The data contained in this database is equivalent to the data published in the OECD series “Trends in International Migration” and its continuing series “International Migration Outlook”. Both series rest upon the OECD’s “Continuous Reporting System on Migration” (known by its French acronym SOPEMI - Système d’Observation Permanente sur les Migrations).

¹⁶ The countries missing from the list in footnote 14 in the OECD dataset are Bulgaria, Croatia, Cyprus, Latvia, Lithuania and Malta.

¹⁷ The countries missing from the list in footnote 14 in the Eurostat dataset are France and Hungary.

¹⁸ Egger, Eggert and Larch (2014) take population data from the World Bank’s “*World Development Indicators*”. However, the data in World Bank (2015) must have been revised, such that the data

d'Etudes Prospectives et d'Informations Internationales (CEPII) (2011) “*GeoDist*” database, which provides several geographical variables for 225 countries. In Model (5) Egger, Eggert and Larch (2014) substitute $\ln \text{dist}_{ij}$ and $[\ln \text{dist}_{ij} - \text{mean}(\ln \text{dist}_{ij})]^2$ by a survey-based trade cost index of the World Economic Forum (WEF). They use the log average of trade costs between countries i and j as well as the squared and demeaned values of this term. The WEF data in Egger, Eggert and Larch (2014) for the period 1986-2000 were provided by Keith Maskus and have been used in Carr, Markusen and Maskus (2001) and Markusen and Maskus (2002). For 2001-2004 Egger, Eggert and Larch (2014) augmented the data from the original source themselves. I contacted Keith Maskus and he kindly provided updated trade cost data for the period 1985-2004, which I updated myself from the original source for the period 2005-2013. For $SfGDP_{ijt}$ and $EndowDiffSfGDP_{ijt}$ the data on EU structural funds have been taken from two sources. First, structural funds payment data by member states (for 1976-2009) were kindly provided by the Directorate General for Regional Policy (DG Regio) of the EC. These data do largely correspond to the data reported in the 2008 Financial Report on the EU budget (European Commission 2009), which itself refers to the European Court of Auditors (ECA) as source of the figures. Second, regional policy payment data (for 1993-2013) have also been taken from the Excel-file on the Inforegio “data for research” webpage of the European Commission (2016). To compute the structural funds variable used in my sample, I take the data for research and replace missing values by DG Regio data. GDP (in current prices) data is taken from Eurostat (2016a).

Data on FDI_{ijt-1} are taken from the OECD’s “*International Direct Investment Statistics Database*” (OECD 2016a). Data on the capital-labour ratio CL_{ijt} , which Egger, Eggert and Larch (2014) used and which have been originally employed in Baier, Dwyer and Tamura (2006), were kindly provided to me in an updated form by Gerald P. Dwyer and Robert Tamura.

The endowment with workers of at least secondary schooling $ADEWSS_{ijt}$ is proxied by gross secondary school enrolment ratios taken from the World Bank’s “*World Development Indicators*” (World Bank 2015). Data on investment costs (IvC_{ijt} and $ADIVC_{ijt}$) are also taken from a survey-based investment cost index of the WEF. As the trade cost index mentioned above, the investment cost index for 1985-2004 was kindly provided by Keith Maskus. For the period 2005-2013 I updated the investment

do not coincide any longer. Since the World Bank (2015) population data series has missing values, I decided to take (complete) Eurostat migration data.

Table 1: Descriptive statistics OECD migration data

<i>Variables</i>	<i>Obs.</i>	<i>Mean</i>	<i>Std. dev.</i>	<i>Minimum</i>	<i>Maximum</i>
Absolute net log migration from i to j OECD, (Mig_{ijt})	1555	1.6674	1.2395	0.0000	5.9915
(a) Absolute difference in labour endowments: $ \ln L_{it} - \ln L_{jt} $, ($EndowDiff_{ijt}$)	1555	1.5136	1.1189	0.0006	5.3033
(b) Bilateral distance as a proxy for trade costs: $\ln \text{dist}_{ij}$, (TC_{ijt})	1555	6.7628	0.7040	4.0879	7.9903
(c) Squared demeaned trade costs: $[\ln \text{dist}_{ij} - \text{mean}(\ln \text{dist}_{ij})]^2$, ($TCsquared_{ijt}$)	1555	0.5904	1.1681	0.0000	8.8995
(d) Structural funds expenditures as % of GDP in countries i and j , ($SfGDP_{ijt}$)	1551	0.3362	0.4489	0.0000	3.0546
(e) Interaction with $ \ln L_{it} - \ln L_{jt} $, ($EndowDiffSfGDP_{ijt}$)	1551	0.5203	0.9683	0.0000	10.5718
(f) Linear trade costs WEF, (TC_{ijt})	1288	3.1512	0.3203	1.7422	3.7147
(g) Quadratic trade costs WEF, ($TCsquared_{ijt}$)	1288	1326899	3460.279	1319254	1337376
(h) Once-lagged net FDI inflows between i and j , (FDI_{ijt-1})	1555	1.7065	7.1551	-87.1355	130.5139
(i) Log capital-labour ratio of countries i and j in t , (CL_{ijt})	1168	23.7405	0.3090	21.7958	25.3610
(j) Absolute difference in log capital-labour ratio of countries i and j in t , ($ADCL_{ijt}$)	1168	0.0749	0.2429	0.0000	1.7667
(k) Absolute difference in endowment with workers of at least secondary schooling of countries i and j in t , ($ADEWSS_{ijt}$)	1360	3031229	2462893	637.4359	8270869
(l) Log investment costs of countries i and j in t , (IvC_{ijt})	1288	3.6519	0.2089	2.8623	4.0523
(m) Absolute log difference in investment costs of countries i and j in t , ($ADIVC_{ijt}$)	1288	0.2335	0.1692	0.0000	1.0255

cost index by myself from the original source.

2.2 Results

As mentioned earlier, Egger, Eggert and Larch (2014) estimate ten different versions of Equation 1. I reestimated the ten models with the data described in subsection 2.1 above. The results for OECD migration data are reported in Table 2 on page 14 and for Eurostat migration data in Table 5 on page 33 in the appendix.

In the simplest regression in Model (1), *Result 1* of the NEG model is tested. Egger, Eggert and Larch (2014, pp. 363-364) find that trade costs and population size differences between two countries do positively effect net migration on average. The two coefficients are highly significant on the 1%-level. “To the extend that L differences

capture differences in endowments with immobile workers, this finding may support Result 1” (Egger, Eggert and Larch 2014, pp. 363-364). In contrast to that, my reestimation shows the opposite result. With OECD data, labour endowment differences and trade costs between two countries do significantly hamper net migration on average. With Eurostat data, which are far more similar to the migration data used by Egger, Eggert and Larch (2014), the effect of the two variables on migration is still negative but not significantly different from zero anymore.

To test a typical implication of core-periphery NEG models à la Krugman (1991), Model (2) tests *Result 2*, i.e. whether trade costs have a nonlinear effect on migration. Similar to Egger, Eggert and Larch (2014) I find that squared demeaned trade costs do not exhibit a significant effect on migration.¹⁹ This holds true for OECD as well as Eurostat migration data. With OECD data, however, the inclusion of quadratic trade costs leads to a smaller (in absolute terms) and insignificant coefficient for the main effect of trade costs.

In order to test *Result 3* of the NEG model, Egger, Eggert and Larch (2014) include structural fund expenditures in two countries in per cent of GDP in a given year into the regression. They find that a one percentage point increase in the measure of regional policy efforts reduces EU internal migration by 0.7% on average. The authors interpret this as a sizeable effect given the fact that EU regional policy expenditures via the structural funds vary between 0% and around 3% in their sample. In my two samples EU structural funds expenditures vary between 0% and 3% (OECD migration data) and 0% and around 4% (Eurostat migration data). Hence, I would also conclude that the structural funds variable in my reestimations of Model (3) exhibit a substantial effect on net migration in the EU. Yet, contrary to Egger, Eggert and Larch (2014), on average structural funds expenditures in per cent of GDP in two countries have a positive and highly significant effect on net migration by about 0.3%. Moreover, the negative effect of endowment differences becomes even larger, though it is only significant with OECD migration data. The inclusion of an interaction term between structural funds in per cent of GDP of two countries and population size differences in Model (4) does not influence the results very much. The interaction term’s effect

¹⁹ As Egger, Eggert and Larch (2014, p. 364) suggest, this could imply “that the variance in empirical trade costs is not large enough between country-pairs to display a nonlinear effect”. Since an alternative and time-variant survey-based measure of trade costs in Model (5) yields a significant effect on migration for OECD as well as Eurostat data, “the result [could, P.S.] partly be driven by the measurement of trade frictions through distance” (Egger, Eggert and Larch 2014, p. 378, footnote 27).

on migration is not significantly different from zero. This basically corresponds to the findings of Egger, Eggert and Larch (2014). Using Eurostat migration data, though, the positive coefficient of structural funds even increases to about 0.4%.

After the basic estimations in Model (1) - (4), Egger, Eggert and Larch (2014) conduct a sensitivity analysis in Model (5) - (10). To do this, they use alternative measures of trade costs, include additional control variables and control for outliers. In Model (5), instead of $\ln \text{dist}_{ij}$ and $[\ln \text{dist}_{ij} - \text{mean}(\ln \text{dist}_{ij})]^2$ a survey-based measure for trade costs, taken from the WEF, is employed for the two variables TC_{ijt} and $TCsquared_{ijt}$ in Equation 1. In contrast to Egger, Eggert and Larch (2014, pp. 365-366), the coefficients of the survey-based trade costs (main effect and quadratic term) are negative, i.e. a one percentage point increase in these costs reduces net migration on average. The coefficients are also significant, except for the trade costs' main effect

Table 2: Reestimation of Egger, Eggert and Larch (2014) for 1986-2013 across 21 EU member countries (OECD)

<i>Explanatory variables</i>	(1)		(2)		(3)		(4)		(5)		(6)	
	β	<i>std</i>	β	<i>std</i>	β	<i>std</i>	β	<i>std</i>	β	<i>std</i>	β	<i>std</i>
(a) Absolute difference in labour endowments: $ \ln L_{it} - \ln L_{jt} $	-0.2141	0.0366***	-0.2115	0.0366***	-0.2238	0.0368***	-0.2277	0.0391***	-0.1809	0.0381***	-0.2439	0.0336***
(b) Bilateral distance as a proxy for trade costs: $\ln \text{dist}_{ij}$	-0.2190	0.0669***	-0.1395	0.1083	-0.1666	0.1079	-0.1662	0.1079	—	—	-0.0879	0.1037
(c) Squared demeaned trade costs: $[\ln \text{dist}_{ij} - \text{mean}(\ln \text{dist}_{ij})]^2$	—	—	0.0474	0.0511	0.0371	0.0513	0.0376	0.0513	—	—	0.0530	0.0453
(d) Structural funds expenditures as % of GDP in countries i and j	—	—	—	—	0.2892	0.0725***	0.2682	0.1190 **	0.0972	0.0904	0.3321	0.0689***
(e) Interaction with $ \ln L_{it} - \ln L_{jt} $	—	—	—	—	—	—	0.0116	0.0494	—	—	—	—
(f) Linear trade costs WEF	—	—	—	—	—	—	—	—	-1.2454	0.6355 *	—	—
(g) Quadratic trade costs WEF	—	—	—	—	—	—	—	—	-0.0002	0.0001***	—	—
R^2	0.5312		0.5315		0.5370		0.5370		0.5701		0.5817	
Estimation Approach	FE		FE		FE		FE		FE		FE	
Country FE (p-value of F-test)	0.0000		0.0000		0.0000		0.0000		0.0000		0.0000	
Time FE (p-value of F-test)	0.0000		0.0000		0.0000		0.0000		0.0001		0.0968	
Observations (country pairs across years)	1555		1555		1551		1551		1284		1488	

Notes: Dependent variable is net bilateral migration between countries i and j in year t . Net bilateral migration is defined as absolute difference of log immigration of i (from j) and log immigration of j (from i). Immigration data are taken from OECD (2016b). Reported standard errors are robust to heteroskedasticity. Fixed effects (FE) are not reported for the sake of brevity. *, **, *** indicates that coefficients are significant at 10%, 5% and 1%, respectively. (5) as Model (3) but using a survey-based annual trade cost index (in logs) from World Economic Forum (WEF) for trade costs instead of log distance. (6) as Model (3) but excluding influential observations according to Hadi (1992). For the countries included in the estimation, see footnote 16.

Table 2 continued...

<i>Explanatory variables</i>	(7)		(8)		(9)		(10)	
	β	<i>std</i>	β	<i>std</i>	β	<i>std</i>	β	<i>std</i>
(a) Absolute difference in labour endowments: $ \ln L_{it} - \ln L_{jt} $	-0.2088	0.0504***	-0.1929	0.0481***	-0.2740	0.1276**	-0.1104	0.2264
(b) Bilateral distance as a proxy for trade costs: $\ln \text{dist}_{ij}$	0.0558	0.2057	0.0685	0.2254	0.1038	0.1157	0.1934	0.3428
(c) Squared demeaned trade costs: $[\ln \text{dist}_{ij} - \text{mean}(\ln \text{dist}_{ij})]^2$	0.1216	0.0787	0.0846	0.0685	0.1077	0.0434**	0.1031	0.1094
(d) Structural funds expenditures as % of GDP in countries i and j	0.2898	0.1062***	0.1587	0.1580	0.1625	0.1352	0.2619	0.2453
(h) Once-lagged net FDI inflows between i and j	—	—	0.0208	0.0618	—	—	—	—
(i) Log capital-labour ratio of countries i and j in t	—	—	—	—	0.1396	0.1311	0.2596	0.1609
(j) Absolute difference in log capital-labour ratio of countries i and j in t	—	—	—	—	0.0958	0.1823	0.2019	0.2428
(k) Absolute difference in endowment with workers of at least secondary schooling of countries i and j in t	—	—	—	—	0.0043	0.0052	-0.0018	0.0094
(l) Log investment costs of countries i and j in t	—	—	—	—	-0.0834	0.3897	0.0309	0.5946
(m) Absolute log difference in investment costs of countries i and j in t	—	—	—	—	0.2765	0.1531 *	0.1154	0.2689
R^2	0.5137		0.8618		0.7613		0.5758	
Estimation Approach	FE		FE		FE		FE	
Country FE (p-value of F-test)	0.0000		0.0000		0.0000		0.0000	
Time FE (p-value of F-test)	0.4174		0.0003		0.2430		0.8936	
Observations (country pairs across years)	1551		799		691		799	

Notes: Dependent variable is net bilateral migration between countries i and j in year t . Net bilateral migration is defined as absolute difference of log immigration of i (from j) and log immigration of j (from i). Immigration data are taken from OECD (2016b). Reported standard errors are robust to heteroskedasticity. Fixed effects (FE) are not reported for the sake of brevity. *, **, *** indicates that coefficients are significant at 10%, 5% and 1%, respectively. Model (7) contains estimates for estimating Model (3) by least absolute deviations (median regression). Model (8) as Model (3) but including instrumented, once-lagged net foreign direct investment inflows. Instruments are the variables included in Models (9) and (10). The Hausman-Wu F -statistic of testing the exogeneity of FDIs yields a p -value of 0.7240. The instruments pass Sargan's test of over-identifying restrictions at a p -value of 0.4753. The F -statistic of testing the joint relevance of the instruments exhibits a p -value of 0.2535. Model (9) shows the result from estimating the reduced-form version of Model (8) but excluding influential observations according to Hadi (1992). Model (10) contains the results from estimating Model (9) by least absolute deviations (median regression). For the countries included in the estimation, see footnote 16.

on EU internal migration when Eurostat migration data is used. Notice that the coefficient of the structural funds variable becomes insignificant and remarkably decreases in comparison to former model specifications. This holds true for either of the two migration datasets and could partly be driven by the comparatively sharp drop in the number of observations due to limited data availability of the survey-based trade costs. Using Eurostat migration data in Model (5) casts doubt on the overall model specification of the migration and regional policy nexus, since none of the coefficients, except the quadratic trade cost term which is very close to zero, is significant. Hence, *Result 2* of the NEG model cannot be confirmed with the help of the data and the model specification used.

In Model (6) outliers are excluded following a method proposed by Hadi (1992). This reduces the number of observations. Nevertheless, the results do not change very much in comparison to Model (3) with OECD as well as Eurostat migration data. Rather than excluding outliers from the data, in Model (7) a median regression is estimated. Observations with extreme values are given less weight in such an estimation. Again, the results are similar to those obtained in Model (3). The endowment differences parameter is still negative and the coefficient of the structural funds variable is positive. Both are statistically significant at 1%, while linear and quadratic trade costs remain insignificant. Interestingly, the sign of the linear trade cost coefficient changes, but the parameter is still not significantly different from zero. Similar to Egger, Eggert and Larch (2014, p. 366), I can thus conclude that the former results are not driven by outliers.

In Model (8) once-lagged FDI are included as an additional control variable in order to account for multinational firm activity and its effects on factor prices or migration, respectively. As outlined in subsection 2.1 above, Egger, Eggert and Larch (2014, p. 366-367) use an instrumental variable (IV) estimation, since they assume that FDIs are endogenous. It turns out, that contrary to the finding of Egger, Eggert and Larch (2014, p. 368), I do obtain a positive parameter estimate of once-lagged FDIs on internal migration. This holds true for OECD and Eurostat migration data. However, the coefficients are not statistically different from zero. Notice also that the structural funds parameter estimates stay positive but become insignificant and smaller in absolute value than before. Taking a look at the Hausman-Wu test for both types of migration data, the exogeneity of FDIs cannot be rejected given the chosen specification of the model (p -values (OECD / Eurostat): 0.7240 / 0.9160).

The F -test that the excluded instruments are not jointly relevant in the first-stage can also not be rejected in both cases at p -values of 0.2535 (OECD migration data) and 0.3675 (Eurostat migration data). Moreover, Sargan's test of over-identifying restrictions, which indicates *inter alia* that the excluded instruments do only indirectly affect migration through FDIs, is only passed with OECD migration data (at a p -value of 0.4753). With Eurostat migration data and the given specification, Sargan's test exhibits a p -value of 0.0413, i.e. the excluded instruments are not adequate. Taken together, the results in Model (8) might be driven by a misspecification of the model given the underlying data.

In Model (9) a reduced form of Model (8) is estimated to mitigate concerns about weak instruments (see also Angrist and Krueger 2001, pp. 79-80). Once-lagged FDIs are replaced by the identifying instruments and outliers are again excluded according to the procedure proposed by Hadi (1992). With OECD migration data the parameter estimate of structural funds remains positive but insignificant, while the results for endowment differences are similar to the former models. Surprisingly, quadratic trade costs exhibit a positive and significant (5%-level) coefficient. With Eurostat migration data changes in results are more substantial. The parameter for endowment differences becomes positive and significant at 10% which is in line with *Result 1* derived from the NEG model. Linear and quadratic trade costs do also exhibit a positive and significant coefficient. The estimate for the structural funds variable is still not significantly different from zero but has a negative sign. The latter two results correspond to the predictions of the NEG model.

Model (10) contains the results from estimating Model (9) by a median regression approach as in Model (7). Recall that outliers are not excluded, but get less weight in the estimation. With OECD migration data I obtain only insignificant results. The point estimates for endowment differences and the structural funds remain similar to those in Model (3), while the coefficient of linear trade costs becomes positive. With Eurostat migration data the estimate for endowment differences and linear trade costs becomes positive and significant at the 5%-level for trade costs. The structural funds parameter is still insignificant, but has a negative sign now.

To sum up, with the augmented dataset I am not able to find strong empirical support for the hypotheses derived from the NEG model proposed by Egger, Eggert and Larch (2014). More specifically, my results even contradict most of these hypotheses and this is independent of the migration data used. Net EU internal migration is not

larger but smaller the bigger the population size differences between two countries (strongly supported). The second hypothesis that trade costs influence net migration in a non-linear way is weakly supported. This is also found by Egger, Eggert and Larch (2014). However, the coefficient of quadratic survey-based trade costs is negative and not positive. Most importantly, I cannot find empirical support for the hypothesis that structural funds do hamper internal European migration. With the given datasets and specification, I find that on average a one percentage point increase in structural funds in per cent of GDP fosters net bilateral migration between two EU member countries by about 0.3-0.5%.

Yet, the latter statement has to be qualified. I also restricted my dataset in several ways in order to better compare my results to the findings of Egger, Eggert and Larch (2014) and to account for specific shocks to EU internal migration such as the enlargements of the EU in 2004, 2007 and 2013, the subsequent impediments to the free mobility of people within the internal European market known as the “2+3+2” rules and the European financial crisis in 2009.²⁰ First, I analysed the EU-15 countries for the period 1985-2013 (a) and 1985-2004 (b). With a maximum of 878 (a) / 422 (b) OECD migration data, the effect of EU structural funds on migration remains positive, but becomes insignificant in most of the models estimated. With a maximum of 953 (a) / 618 (b) Eurostat migration data, I find a negative and mostly significant effect of regional policy on net bilateral migration by about 0.33-0.62%. However, this effect seems to be mainly driven by differences in countrysize, because in Model (4) the structural funds coefficient becomes positive and insignificant while the coefficient of the interaction term is negative and significant in both cases (a) and (b). The latter results may indicate that the positive effect of EU structural funds on net migration I found in the previous estimations is partly driven by the three enlargements of the EU in 2004, 2007 and 2013. Second, against the background of the “2+3+2” rules, the free mobility of labour after 2004 was only in force for EU citizens of EU-15 member states. Only Ireland, the United Kingdom and Sweden allowed free mobility for citizens of new member countries after 2004. The 12 other EU member countries walled off their labour markets for a maximum of 7 years. Hence, I also obtained results for EU-12 member countries for the period 1985-2013. With OECD migration data, the coefficient for EU structural funds remains positive, but is insignificant in all ten models. With Eurostat migration data, the evidence

²⁰I do not report the detailed results of these estimations in this paper, but they are available from the author upon request.

is mixed, i.e. EU structural funds exhibit a positive and negative effect on internal EU migration. Yet, the coefficients are never significant. Notice that the restriction of the dataset in this case left a maximum of 610 observations for OECD migration data and 675 observations for Eurostat migration data. Third, to account for EU internal migration related to the European financial crisis, I restricted the dataset to the period 1985-2008. With OECD migration data (maximum of 1009 observations), EU structural funds still exhibit a positive and mostly significant effect on migration. With Eurostat migration data (maximum of 2001 observations), evidence is again mixed, but only the positive structural funds' coefficients are significant.

All in all, the different restrictions of my datasets indicate that my initial results do not necessarily contradict the findings of Egger, Eggert and Larch (2014). Especially, the analysis for EU-15 member states, in which free mobility was always in force after a country became member of the EU, suggests that EU structural funds do indeed hamper migration in a market regime of unrestricted labour mobility.²¹ This empirical result, though, is still highly dependent on the period and countries analysed as well as the migration data used.²²

3 A neoclassical approach to the migration and regional policy nexus

To further investigate the question whether EU structural funds do hamper European internal migration, I estimate a neoclassical migration model in this section of the paper. This is due to two reasons.

First, Egger, Eggert and Larch (2014) build their empirical specification on a new economic geography model. The dominant paradigm in the literature to theoretically and empirically explain migration, however, is neoclassical migration theory. Moreover, the hypotheses that EU structural funds hamper (convergence-promoting) migration is usually derived within neoclassical models (see, e.g. Schmidt 2013 and Sinn and Ochel 2003). Hence, it is worthwhile to analyse the relationship between

²¹However, adding Malta and Cyprus to the estimation (EU-17), for which mobility was unrestricted immediately after entering the EU in 2004, further diminishes the negative effect of EU structural funds on migration found with the Eurostat migration data.

²²Moreover, free bilateral movement of labour between EU-15 member states was differently regulated in the analysed period 1985-2013. For example, free movement for citizens from Finland and Sweden to Denmark (and vice versa) is already allowed since 1954, although Finland and Sweden not entered the EU until 1995. Hence, even those results should be cautiously interpreted.

EU structural funds and migration also from a neoclassical perspective. In neoclassical theory, migration between two countries is usually explained by (economic, social, political, geographical, cultural, etc.) differences between these two entities. The decision of an individual to migrate depends on so-called “push-” and “pull-factors” in the country of origin and country of destination, such as income, (un)employment and language, which have an effect on a migrants’ utility and costs of migration. Moreover, intervening impediments like legal regulations, distance between two countries, institutions and regional policy have also an effect on the utility and the costs of migration (Schmidt 2013, pp. 83-85). The potential migrant compares the utility and the costs arising from intervening impediments, push- and pull-factors at a certain point in time. As long as the utility to migrate outweighs the costs, migration from the host to the destination country takes place.²³

Second, the conventional dependent variable in empirical neoclassical migration models is defined as a migration rate: Mig_{ijt}/Pop_{it} , i.e. as (e)migration from the origin country i to the destination country j in year t divided by the population of the origin country in year t (Faini and Venturini 1994, p. 79). In comparison to Egger, Eggert and Larch (2014), who used net migration as the dependent variable, the emigration rate has the advantage to yield much more observations which can be used to analyse the effect of EU structural funds on internal European migration.²⁴

3.1 Empirical model and data

The following empirical model basically builds on Mayda (2010), who partly estimated a similar specification. It is defined as follows:

$$\begin{aligned} \frac{Mig_{ijt}}{Pop_{it}} = & \beta + \beta_0 \left(\frac{pwGDP_{jt-1}}{pwGDP_{it-1}} \right) + \beta_1 pwGDP_{it-1} + \beta_2 SF_{it} + \beta_3 dist_{ij} \\ & + \beta_4 border_{ij} + \beta_5 comlang_{ij} + \beta_6 unempl_{it-1} + \beta_7 unempl_{jt-1} \\ & + \beta_8 vPower_{it} + \delta_i I_i + \delta_j I_j + \delta_t I_t + \epsilon_{ijt} \end{aligned} \quad (2)$$

²³I do not further elaborate on the neoclassical theory of migration, since it has been extensively discussed in the migration literature. See, e.g., the seminal paper of Massey et al. (1993), which combines and discusses different migration theories.

²⁴In Egger, Eggert and Larch (2014) net migration is calculated as the absolute difference between two countries’ bilateral immigration flows. Hence, as soon as one of these two flow values per country-pair is missing, net migration cannot be calculated, which immensely reduces the number of available observations. Using the emigration rate as the dependent variable, an observation is only “lost” when it is indeed missing.

where the dependent variable $\frac{Mig_{ijt}}{Pop_{it}}$ is the emigration rate from origin country i to destination country j in year t (Mig_{ijt} is the inflow into country j from country i at time t , Pop_{it} is the population of the origin country at time t). As in section 2 above, I estimate Equation 2 twice with two different dependent variables, because I gathered migration data from two different sources. One source is the “*International Migration Database*” of the OECD (2016b) and the other is Eurostat (2016b).²⁵ Population data is taken from Eurostat (2015). For the period 1985-2013 and 28 EU member countries I theoretically have a total of $28 \cdot 27 \cdot 29 = 21924$ observations for OECD and Eurostat migration data each.²⁶ However, due to missing values of the dependent and independent variables, I end up with a maximum of 5070 observations for OECD migration data and 5375 for Eurostat migration data. For further details on descriptive statistics for all the variables I use in the estimations, see Table 3 on page 23 for OECD migration data and Table 10 in the appendix on page 42 for Eurostat migration data.

As a proxy for wages or income, respectively, I include the quotient $\frac{pwGDP_{jt-1}}{pwGDP_{it-1}}$, which is calculated by the (log) per worker GDPs in purchasing power standards (PPS) (current prices) in the destination and origin country. The term $pwGDP_{it-1}$ is the (log) per worker GDP in purchasing power standards (PPS) (current prices) in the origin country. The quotient as well as the level of GDP are lagged by one year.²⁷ I include the destination countries’ relative per worker GDP and not simply its level ($pwGDP_{jt-1}$), because this yields more reliable results for the income variables in terms of the coefficients’ signs (see elaborations below). This is in line with previous empirical research which found that “the linearity relationship in the wages-migration tandem does not hold and that both the degree of wage differential and the level of

²⁵Recall, that in the OECD dataset an immigrant is defined by its country of birth and its nationality, respectively. In contrast, in the Eurostat database a broader concept of immigration is employed and an immigrant is defined by its country of previous residence.

²⁶The countries included are Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, United Kingdom.

²⁷As Mayda (2010, pp. 1262-1263) outlines in more detail, I include lagged values of per worker GDP in order to address the (potential) problems “of reverse causality and, more in general, of endogeneity in the time series dimension of the analysis” (p. 1262). On the one hand, a negative β_1 and a positive β_0 may reflect reverse causality, i.e. immigration into a country is not only driven by income differences, but may influence the income level in a country itself. On the other hand, unobservable and omitted factors nested in the error term ϵ_{ijt} may drive contemporaneous wages and migration, which results in biased estimates. That is why, although “it is unrealistic to claim that wages at home and abroad are strictly exogenous, it is plausible to assume that they are predetermined, in the sense that immigrant inflows—and third factors in the error term—can only affect contemporaneous and future wages” (Mayda 2010, p. 1263).

the country income matter” (Kureková 2011, p. 5). Data on GDP in PPS (current prices) is taken from Eurostat (2016a). Labour force data is collected from the World Bank’s “*World Development Indicators*” (World Bank 2015).

The parameter SF_{it} is the main variable of interest in this setting. It measures the amount of EU structural funds money in logs, which is transferred to the origin country in year t . As in section 2 above, data on EU structural funds have been taken from two sources. First, structural funds payment data by member states (for 1976-2009) were kindly provided by the Directorate General for Regional Policy (DG Regio) of the EC. These data do largely correspond to the data reported in the 2008 Financial Report on the EU budget (European Commission 2009), which itself refers to the European Court of Auditors (ECA) as source of the figures. Second, regional policy payment data (for 1993-2013) have also been taken from the Excel-file on the Inforegio “data for research” webpage of the European Commission (2016). To compute the structural funds variable used in my sample, I take DG Regio data and replace missing values by the data for research. Notice, that initially I do not include lagged values of SF_{it} , although the structural funds may be treated as endogenous in Equation 2. This is due to two reasons. First, EU structural funds distribution on the member states is more or less predetermined within the Multiannual Financial Framework for the seven year planning period. Thus, migration in general should not have any influence on how much structural funds money a member country will receive, although the structural funds might be politically intended to hamper (EU internal) migration. Second, I address the problem of endogeneity of the structural funds variable with the help of an instrumental variable estimation in Model (7) (see also elaborations below).

The three variables $dist_{ij}$, $border_{ij}$ and $comlang_{ij}$ are taken from the Centre d’Etudes Prospectives et d’Informations Internationales (CEPII) (2011) “*GeoDist*” database, which provides several geographical variables for 225 countries. $dist_{ij}$ is the (log) great circle distance between origin and destination country. $border_{ij}$ and $comlang_{ij}$ are dummy variables which are equal to 1, if origin and destination country share a land border and if the same language is spoken in both locations, respectively.

I also control for (once-lagged) unemployment in the origin and destination country ($unempl_{it-1}$ and $unempl_{jt-1}$). Unemployment data is taken from the World Bank’s “*World Development Indicators*” (World Bank 2015).

In Model (7) presented in the following results section, I also address the potential endogeneity of the structural funds variable in Equation 2. To do this, I use instru-

mental variable (IV) estimation. As already outlined in the introduction of the paper, I employ a priori voting power indices, such as the Shapley-Shubik index (SSI), the Banzhaf index (NBI) and the Nucleolus (NUCL), for the origin country ($vPower_{it}$) as IVs. Since I also want to mitigate concerns about weak instruments, in Model (8) I also estimate the reduced form equation of Model (7), which is why the term $vPower_{it}$ also appears in Specification (2). Data on the SSI and NBI are taken from Antonakakis, Badinger and Reuter (2014, pp. 15-16), while data on the NUCL is collected from Garcia-Valiña, Zaporozhets and Kurz (2015, pp. 27-28).

Finally, I also introduce origin and destination countries' (I_i and I_j) as well as year fixed effects (I_t). The former account for time-invariant effects such as culture and geographical characteristics of the countries, while the latter absorb common shocks to EU internal migration such as changes in the legislature as a result of the introduction of the single European market and the Euro. According to neoclassical migration theory, I expect that $\beta_0 \geq 0$, $\beta_1 \leq 0$, $\beta_2 \leq 0$, $\beta_3 \leq 0$, $\beta_4 \geq 0$, $\beta_5 \geq 0$, $\beta_6 \geq 0$ and $\beta_7 \leq 0$.

Table 3: Descriptive statistics OECD migration data

<i>Variables</i>	<i>Obs.</i>	<i>Mean</i>	<i>Std. dev.</i>	<i>Minimum</i>	<i>Maximum</i>
Emigration rate of country i to country j OECD, ($\frac{Mig_{ijt}}{Pop_{it}}$)	5070	18.7516	62.1513	0.0000	1284.603
(a) Relative log per worker GDP (destination to origin country), ($\frac{pwGDP_{jt-1}}{pwGDP_{it-1}}$)	5070	13.9407	0.5220	12.1498	16.1277
(b) Log per worker GDP (origin country), ($pwGDP_{it-1}$)	5070	-3.1426	0.3709	-4.5385	-1.8840
(c) Log structural funds expenditure (origin country), (SF_{it})	5070	19.7712	2.8732	5.3962	23.0713
(d) Log distance, ($dist_{ij}$)	5070	6.9290	0.6855	4.0879	8.1206
(e) Land border, ($border_{ij}$)	5070	0.1509	0.3580	0	1
(f) Common language, ($comlang_{ij}$)	5070	0.0637	0.2443	0	1
(g) Unemployment rate (destination country), ($unempl_{jt}$)	4931	8.1651	3.8518	1.8000	24.8000
(h) Unemployment rate (origin country), ($unempl_{it}$)	4916	8.5510	3.9757	1.8000	24.8000
(i) Log structural funds expenditure (origin country) alternative, (SF_{it})	5070	19.8922	1.9666	7.0632	23.0713
(j) SSI (origin country), ($vPower_{it}$)	4822	4.7369	3.3126	0.8200	17.3800
(k) NBI (origin country), ($vPower_{it}$)	4822	4.7115	2.9854	0.9400	15.7700
(l) NUCL (origin country), ($vPower_{it}$)	4822	4.7249	3.2231	0.0000	25.0000
(m) population (destination)	5070	25107028	25598353	411600	82500849
(n) population (origin)	5070	21349341	24402211	402668	82500849

3.2 Results

Table 4 on the next page presents the results from the estimation of Equation 2 using OECD migration data. The results for Eurostat migration data are reported in Table 9 on page 40 in the appendix.

The simplest regression that only involves the relative income gap between the two countries j and i , the income level of the origin country as well as EU structural funds is reported in Model (1). With OECD migration data the corresponding results indicate that the relative income gap and the structural funds matter on average. However, both coefficients show an unexpected sign. For instance, a 10% increase in the relative income gap between two countries reduces the emigration rate by 2.9 emigrants per 100,000 individuals of the origin countries' population. The parameter is significantly different from zero at the 1%-level. The lower the relative income in the origin country relative to the destination country the lesser it may be affordable for potential migrants to move to the economically more advanced country. In terms of the structural funds variable, the results show that EU regional policy does not hamper but foster internal European migration. On average, a 10% increase in EU structural transfer payments increases the emigration rate by 0.13 emigrants per 100,000 individuals of the origin countries' population. The parameter is statistically significant at the 5%-level. With Eurostat migration data, the results are similar to the OECD results. The sign of the income level of the origin country is also negative as expected. Beyond that, however, it is significantly different from zero at the 1%-level.

In Model (2) and (3) I add additional control variables. Controlling for the distance between two countries, a common border and a common language in Model (2), the results in terms of the parameter estimates for the variables of Model (1) remain almost the same.²⁸ The only exception is that the income level of the origin country becomes significant at 10% with OECD migration data and that the level of statistical significance of the structural funds variable rises to the 5%-level with Eurostat migration data. Adding once-lagged unemployment rates in the origin and destination country to the regression, the coefficients of both variables are significantly different

²⁸With OECD as well as Eurostat migration data, the parameter estimates of Model (2) are not significantly different from those of Model (1). The 95% confidence intervals of the respective parameters are overlapping between the two models.

Table 4: Determinants of bilateral immigrant flows for 1985-2013 across EU-28 member countries (OECD)

<i>Explanatory variables</i>	(1)		(2)		(3)		(4)		(5)	
	β	<i>std</i>	β	<i>std</i>	β	<i>std</i>	β	<i>std</i>	β	<i>std</i>
(a) Relative log per worker GDP (destination to origin country)	-29.05	9.04***	-35.25	9.24***	-72.10	9.72***	-71.15	9.65***	-40.90	6.48***
(b) Log per worker GDP (origin country)	-32.60	21.48	-37.73	21.57 *	-62.49	22.68***	-19.42	14.18	-47.94	10.32***
(c) Log structural funds expenditure (origin country)	1.28	0.56 **	1.23	0.55 **	1.60	0.64 **	—	—	0.56	0.32 *
(d) Log distance	—	—	-8.86	3.12***	-8.95	3.19***	-9.39	3.01***	-5.47	1.86***
(e) Land border	—	—	0.53	3.98	-0.52	4.45	-0.93	4.29	2.40	2.61
(f) Common language	—	—	16.81	3.53***	17.74	3.66***	18.16	3.64***	14.24	2.64***
(g) Unemployment rate (destination country)	—	—	—	—	-2.94	0.53***	-3.04	0.53***	-1.00	0.25***
(h) Unemployment rate (origin country)	—	—	—	—	1.33	0.34***	1.28	0.33***	0.47	0.21 **
(i) Log structural funds expenditure (origin country) alternative	—	—	—	—	—	—	0.63	0.58	—	—
R^2	0.3203		0.3321		0.3466		0.3437		0.4461	
Estimation Approach	FE		FE		FE		FE		FE	
Country FE (p-value of F-test)	0.0000		0.0000		0.0000		0.0000		0.0000	
Time FE (p-value of F-test)	0.0004		0.0000		0.0000		0.0002		0.0000	
Observations	5070		5070		4777		4943		4732	

Notes: Dependent variable is the emigration rate of origin country i to destination country j in year t . The emigration rate is defined as the immigrant inflow from origin to destination country [multiplied by 100,000] divided by origin country's population. Thus, it gives the number of incoming immigrants per 100,000 individuals in the origin country's population. Immigration data are taken from OECD (2016b). The explanatory variables are described in detail in subsection 3.1. Reported standard errors are robust to heteroskedasticity. The constant and the fixed effects (FE) are not reported for the sake of brevity. *, **, *** indicates that coefficients are significant at 10%, 5% and 1%, respectively. (4) as Model (3) but using an alternative measure for EU structural funds. (5) as Model (3) but excluding influential observations according to Hadi (1992). For the countries included in the estimation, see footnote 26.

Table 4 continued...

<i>Explanatory variables</i>	(6)		(7)		(8)		(9)		(10)	
	β	<i>std</i>	β	<i>std</i>	β	<i>std</i>	β	<i>std</i>	β	<i>std</i>
(a) Relative log per worker GDP (destination to origin country)	-3.49	0.75***	-69.58	9.88***	-69.91	9.91***	-72.10	17.64***	-21.30	6.98***
(b) Log per worker GDP (origin country)	-4.62	1.47***	-36.64	32.27	-76.43	33.59 **	-62.49	23.60***	2.03	17.12
(c) Log structural funds expenditure (origin country)	0.26	0.05***	-9.77	9.02	—	—	1.60	0.61***	1.70	0.58***
(d) Log distance	-1.05	0.19***	-8.42	3.40 **	-8.53	3.41 **	-8.95	8.90	-3.46	0.06***
(e) Land border	0.92	0.24***	0.09	4.63	-0.05	4.65	-0.52	13.02	17.05	14.21
(f) Common language	4.91	1.18***	18.05	3.66***	18.04	3.69***	17.74	11.05	32.35	30.24
(g) Unemployment rate (destination country)	-0.01	0.02	-2.59	0.51***	-2.59	0.52***	-2.94	0.74***	-2.52	0.35***
(h) Unemployment rate (origin country)	0.08	0.02***	1.28	0.34***	1.23	0.34***	1.33	0.40***	1.23	0.21***
(j) SSI (origin country)	—	—	—	—	1.97	1.81	—	—	—	—
R^2	0.2724		0.3336		0.3422		0.3466		0.7866	
Estimation Approach	FE		FE		FE		FE		FE	
Country FE (p-value of F-test)	0.0000		0.0000		0.0000		0.0000		0.0000	
Time FE (p-value of F-test)	0.0000		0.0002		0.0053		0.0006		0.0088	
Observations	4777		4563		4563		4777		4777	

Notes: Dependent variable is the emigration rate of origin country i to destination country j in year t . The emigration rate is defined as the immigrant inflow from origin to destination country [multiplied by 100,000] divided by origin country's population. Thus, it gives the number of incoming immigrants per 100,000 individuals in the origin country's population. Immigration data are taken from OECD (2016b). The explanatory variables are described in detail in section 3.1. Reported standard errors are robust to heteroskedasticity. The constant and the fixed effects (FE) are not reported for the sake of brevity. *, **, *** indicates that coefficients are significant at 10%, 5% and 1%, respectively. Model (6) contains estimates for estimating Model (3) by least absolute deviations (median regression). Model (7) as Model (3) but including instrumented log structural funds expenditures in the origin country. The Durbin-Wu-Hausman χ^2 -statistic of testing the exogeneity of structural funds yields a p -value of 0.1501. Instruments are the variables included in Model (8). Sargan's test of over-identifying restrictions cannot be reported, since the model is exactly identified. The F -statistic of testing the relevance of the instrument exhibits a p -value of 0.0000. Model (8) shows the result from estimating the reduced-form version of Model (7). Model (9) [(10)] contains the results from estimating Model (3) with standard errors clustered by country-pairs [with country-pair fixed effects instead of individual country fixed effects]. For the countries included in the estimation, see footnote 26.

from zero at 1% and show the expected sign. This holds true for OECD and Eurostat migration data. Accordingly, on average, an increase in the destination countries' unemployment rate reduces emigration from the origin country, while an increase in the origin countries' unemployment rate spurs out-migration from the origin country.

In Model (4) I replace the structural funds variable by an alternative measure. Instead of using the combination of payment data from the 2008 Financial Report on the EU budget (European Commission 2009) and filling missing values with Inforegio's "data for research" (European Commission 2016), I employ the inverted combination of the two data sources. With both types of migration data, it becomes clear that the results on the effect of EU structural funds on migration do heavily depend on the data used in the regression. The obtained parameter estimates for the alternative measure of EU structural funds are both insignificant. This has to be kept in mind and the obtained results should therefore be taken with a pinch of salt.

In Model (5) and (6) I continue with robustness checks and test whether the results of the former estimations are driven by influential observations and outliers, respectively. Model (5) excludes outliers following a procedure proposed by Hadi (1992) for multivariate models. Hence, the number of observations decreases. In Model (6), I estimate Model (3) using median regression, i.e. influential observations of the dependent variable are not dropped but given less weight. Taken the results of Model (5) and (6) together, I may conclude that my original findings are not driven by outliers. With OECD as well as Eurostat migration data, the results of Model (3), though the parameter estimates of all variables are smaller in absolute value in Model (5) and (6), remain stable.

Next, I address the potential endogeneity of the structural funds variable in Equation 2. Since EU structural funds intervene in the political, economic, social, cultural as well as natural and ecological environment of potential migrants, I hypothesise that they also indirectly affect migration flows through these factors (still partly) nested in the error term. As already mentioned in the introduction to this paper, I employ different a priori voting power indices as identifying instrument in Model (7) to account for the issue of endogeneity. However, I only report the results for the Shapley-Shubik index, which is the most common voting power index employed in distributive contexts such as EU regional policy (Garcia-Valiña, Zaporozhets and Kurz 2015, p. 6). Interestingly, with OECD and Eurostat migration data the instrumental variable estimation in Model (7) yields a comparatively large negative parameter estimate of structural

funds expenditures on migration (-9.77 with OECD data and -18.38 with Eurostat data). This implies that a 10% increase in EU regional policy transfer payments to the origin country reduces this countries' emigration by about 1.0 or 1.8 emigrants per 100,000 individuals of the origin countries' population. Recall, that this effect can be interpreted as a local average treatment effect ("LATE"), i.e. this result is only valid for those countries which received EU structural funds due to their power in the European Council of Ministers. At the same time, this implies that a positive relationship between migration and EU regional policy is valid for those countries which received structural funds money due to "other factors" than political power in the CM. As already elucidated in the introduction, those "other factors" are usually located in the "economic needs" of EU member states in the literature (see, e.g., Kauppi and Widgrén 2004). This is an interesting result which may indicates that EU structural funds money ends up in the wrong channels, provided that it is politically intended to hamper migration from comparatively poorer to richer EU member states.²⁹

With OECD and Eurostat migration data, the F -statistic of testing the relevance of the instrument in the first-stage regression exhibits a p -value of 0.0000. Notice, however, that given the chosen specification, the exogeneity of EU structural funds can only be rejected with Eurostat migration data by means of a Durbin-Wu-Hausman χ^2 -test at a p -value of 0.0330. Since the model is exactly identified, Sargan's test of over-identifying restrictions cannot be reported. Nevertheless, I would argue that a priori voting power indices are exogenous and do only indirectly affect migration through EU structural funds, since they are derived "from abstract game theoretical considerations that are by no means related to [EU internal migration, P.S.] " (Kauppi and Widgrén 2007, p. 698). To mitigate concerns about a weak instrument, in Model (8) I also estimate a reduced form of Model (7) substituting the structural funds variable by the employed instrumental variable. Only with OECD data, the parameter estimate of the SSI variable of the origin country is insignificant, which indicates that the instrument

²⁹ Another explanation for the detected negative effect in Model (7) can be the fact that EU member countries are contained in the sample, which entered the EU during the analysed observation period. Those countries not only become eligible for structural funds payments for the first time when they enter the EU, but their citizens can also freely migrate to another EU member country (besides the exceptions enacted with the "2+3+2" rules). I included several different dummy variables ("first year in the EU after 1985", "first five years in the EU after 1985", dummies for the number of EU member countries: "EU-12", "EU-15", "EU-25", "EU-27") to account for this explanation. However, the results remain unchanged so as to conclude, at least provisionally, that political power may drive the negative parameter estimate of EU structural funds.

is either too weak or the effect of interest is absent.³⁰ With Eurostat migration data, concerns about SSI being a weak instrument can be declined.

In Model (9), I estimate the same specification as in Model (3), but employ cluster-robust standard errors clustered by country-pairs instead of just using standard errors robust to heteroskedasticity. As Stock and Watson (2008) show, in fixed-effects regression, conventional heteroskedasticity-robust standard errors are inconsistent if the number of time periods is fixed. Standard errors are too small and can lead to over-rejection of standard Wald tests, i.e. the parameter estimates can become significant too fast. The results in Model (9), however, are mixed. With OECD migration data, the two parameters for distance and common language indeed become insignificant. The significance levels for all the other parameters remain the same and for EU structural funds the level of significance even increases from 5% to 1%. With Eurostat migration data, only the parameter estimate for distance becomes insignificant. Moreover, the significance levels of the unemployment rate in the destination and origin country decline. All other estimates do not change their level of significance. Taken together, I would conclude that the positive relationship between EU structural funds expenditures and migration found in the former models is robust.

In the final Model (10), I substitute individual country fixed effects by country-pair fixed effects for each combination of origin and destination country. In this way, I can account for time-invariant aspects attached to specific combinations of two countries such as the destination country's immigration policy which is specific for each origin country (Mayda 2010, p. 1266). With OECD migration data, the results of the original Model (3) remain stable. The effect of EU structural funds even increases to a highly significant parameter estimate of 1.7. The same holds true with Eurostat migration data. However, in the latter case the estimate of the common language variable heavily increases, indicating that a common language spoken in the two countries is a major determinant of migration between them.

To sum up the results of subsection 3.2, also the neoclassical migration model substantiates that EU structural funds have a positive effect on EU internal migration across EU-28 member countries. On average, a ten percent increase in structural funds expenditures leads to an increase in the measure of bilateral migration by about 0.026-0.17 (OECD) [0.015-0.11(Eurostat)] emigrants per 100,000 individuals in the

³⁰This was already indicated in Model (7) by the usual test statistics (Kleibergen-Paap Wald rk stats, Anderson-Rubin Wald tests, etc.) reported by *ivreg2* in Stata.

origin country's population.³¹ Evaluated at the respective mean of the origin countries' population in the sample, this translates into the finding that 6-36 (OECD) [3-23 (Eurostat)] emigrants per year are incentivised to emigrate due to EU structural funds expenditures. Given that many different factors do influence the decision to migrate, I would conclude that this is a fairly sizeable yearly effect.

Considering the results for the other explanatory variables of Equation 2, the parameter estimates do usually show the expected signs and the relevant variables of the neoclassical migration model are also highly significant (unemployment rates, distance, language, income level in the origin country). Whether two countries share a common land border or not, seems not to influence bilateral migration between them. The negative coefficients for the relative income between the origin and destination country are unexpected. However, this finding could also be in line with the hypothesis of a hump-shaped relationship between income and migration (Kureková 2011, p. 5). Accordingly, migration is an increasing function of the income in the origin country. Since I do not find this relationship in the data, because the estimate of the origin country's income mostly yield a negative sign, this issue might need to be considered from the other side of the coin. The lower the relative income in the origin country relative to the destination country the lesser it may be affordable for potential migrants to move to the economically more advanced country.

4 Conclusion

This paper tests the hypothesis that EU structural funds payments do hamper internal migration across the EU. The only empirical paper analysing this issue until today is Egger, Eggert and Larch (2014). This paper is replicated for EU-15 member countries and the time period 1985-2004. The obtained result that EU structural funds expenditures do hamper internal migration in the EU could be basically confirmed. Moreover, the specification of Egger, Eggert and Larch (2014) is extended to 27 EU member countries for the period 1985-2013 using migration data from two different sources. Contrary to these authors, with OECD as well as Eurostat migration data a stable and significant positive effect of EU regional policy transfer payments on net bilateral migration across EU member countries is obtained. This was done with the

³¹I also restricted my two samples to EU-15 member states for the period 1985-2013. The obtained results are mixed, but I mostly find negative parameter estimates for the structural funds variable. However, almost all the estimates are insignificant.

same empirical specification, which Egger, Eggert and Larch have derived from a new economic geography model.

Estimating a rather neoclassical migration model in the second part of the paper, confirms the positive results obtained for the migration and structural funds nexus. However, this does not mean that the results of this article do necessarily contradict the findings of Egger, Eggert and Larch (2014). They rather complement them in the sense that the overall empirical evidence on the migration and regional policy nexus is not unambiguous.

As the paper also shows, whether one finds a positive or negative relationship between EU structural funds does heavily depend on the estimated empirical specification, on the migration and structural funds data used as well as the analysed period and number of EU member countries included in the estimation. In several cases, for example, a negative relationship between migration and EU regional policy could be identified for EU-15 member countries. This may indicate that the eastern enlargement of the EU is the reason for the change in the sign of the investigated relationship between EU transfer payments and migration.

Beyond that, other authors argue “that pro-mobility policies and the rise of non-labour migration have countered the diminishing appeal of intra-EU mobility that might be expected on the basis of purely economic conditions” (Recchi 2008, abstract). Hence, the outcomes of this paper would imply that EU structural funds spending is not large enough to counter the mobility induced by these policies and non-labour market effects on migration. Further research in this direction as well as on more disaggregated NUTS³² levels is needed to answer these questions. Until then, the results of this paper indicate that the current regime of EU structural funds fosters instead of hampers EU internal migration. In light of Egger, Eggert and Larch (2014), however, the provisional quintessence must be that the overall empirical evidence on the migration and EU structural funds nexus is not unambiguous.

³²NUTS stands for the “Nomenclature of Territorial Units for Statistics”. It is a geocode standard for referencing the subdivisions of countries and regions in the member states of the EU developed and regulated by the European Union.

Appendix

A.1

Table 5: Reestimation of Egger, Eggert and Larch (2014) for 1985-2013 across 25 EU member countries (Eurostat)

<i>Explanatory variables</i>	(1)		(2)		(3)		(4)		(5)		(6)	
	β	<i>std</i>	β	<i>std</i>	β	<i>std</i>	β	<i>std</i>	β	<i>std</i>	β	<i>std</i>
(a) Absolute difference in labour endowments: $ \ln L_{it} - \ln L_{jt} $	-0.0052	0.0322	-0.0052	0.0322	-0.0199	0.0332	0.0049	0.0444	-0.0242	0.0347	-0.0116	0.0284
(b) Bilateral distance as a proxy for trade costs: $\ln \text{dist}_{ij}$	-0.0355	0.0377	-0.0170	0.0569	-0.0337	0.0626	-0.0411	0.0631	—	—	-0.0275	0.0594
(c) Squared demeaned trade costs: $[\ln \text{dist}_{ij} - \text{mean}(\ln \text{dist}_{ij})]^2$	—	—	0.0121	0.0289	0.0070	0.0299	0.0055	0.0300	—	—	0.0198	0.0282
(d) Structural funds expenditures as % of GDP in countries i and j	—	—	—	—	0.3347	0.0955***	0.4413	0.1427***	-0.0064	0.1502	0.4501	0.0797***
(e) Interaction with $ \ln L_{it} - \ln L_{jt} $	—	—	—	—	—	—	-0.0898	0.1093	—	—	—	—
(f) Linear trade costs WEF	—	—	—	—	—	—	—	—	-0.3317	0.4832	—	—
(g) Quadratic trade costs WEF	—	—	—	—	—	—	—	—	-0.0001	0.0000**	—	—
R^2	0.4844		0.4844		0.4903		0.4907		0.5128		0.5725	
Estimation Approach	FE		FE		FE		FE		FE		FE	
Country FE (p-value of F-test)	0.0000		0.0000		0.0000		0.0000		0.0000		0.0000	
Time FE (p-value of F-test)	0.0000		0.0000		0.0000		0.0000		0.0000		0.0000	
Observations (country pairs across years)	2410		2410		2215		2215		1496		2162	

Notes: Dependent variable is net bilateral migration between countries i and j in year t . Net bilateral migration is defined as absolute difference of log immigration of i (from j) and log immigration of j (from i). Immigration data are taken from Eurostat (2016b). Reported standard errors are robust to heteroskedasticity. Fixed effects (FE) are not reported for the sake of brevity. *, **, *** indicates that coefficients are significant at 10%, 5% and 1%, respectively. (5) as Model (3) but using a survey-based annual trade cost index (in logs) from World Economic Forum (WEF) for trade costs instead of log distance. (6) as Model (3) but excluding influential observations according to Hadi (1992). For the countries included in the estimation, see footnote 17.

Table 5 continued...

<i>Explanatory variables</i>	(7)		(8)		(9)		(10)	
	β	<i>std</i>	β	<i>std</i>	β	<i>std</i>	β	<i>std</i>
(a) Absolute difference in labour endowments: $ \ln L_{it} - \ln L_{jt} $	-0.0094	0.0380	0.0094	0.0516	0.1570	0.0871 *	0.1212	0.1321
(b) Bilateral distance as a proxy for trade costs: $\ln \text{dist}_{ij}$	0.0420	0.0860	0.3186	0.1358**	0.2239	0.0691***	0.2595	0.1087**
(c) Squared demeaned trade costs: $[\ln \text{dist}_{ij} - \text{mean}(\ln \text{dist}_{ij})]^2$	0.0188	0.0410	0.0762	0.0578	0.0664	0.0287 **	0.0813	0.0410**
(d) Structural funds expenditures as % of GDP in countries i and j	0.2875	0.0798***	0.0235	0.2248	-0.0102	0.1574	-0.0365	0.2144
(h) Once-lagged net FDI inflows between i and j	—	—	0.0137	0.0727	—	—	—	—
(i) Log capital-labour ratio of countries i and j in t	—	—	—	—	0.3443	0.2458	0.0378	0.5246
(j) Absolute difference in log capital-labour ratio of countries i and j in t	—	—	—	—	0.5540	0.3105 *	0.5885	0.6048
(k) Absolute difference in endowment with workers of at least secondary schooling of countries i and j in t	—	—	—	—	-0.0062	0.0037 *	-0.0045	0.0055
(l) Log investment costs of countries i and j in t	—	—	—	—	0.8792	0.2785***	0.8298	0.4130**
(m) Absolute log difference in investment costs of countries i and j in t	—	—	—	—	0.1952	0.1054 *	0.1940	0.1656
R^2	0.4588		0.8010		0.7586		0.5485	
Estimation Approach	FE		FE		FE		FE	
Country FE (p-value of F-test)	0.0000		0.0000		0.0000		0.0000	
Time FE (p-value of F-test)	0.0000		0.0091		0.0000		0.2316	
Observations (country pairs across years)	2215		1016		930		1016	

Notes: Dependent variable is net bilateral migration between countries i and j in year t . Net bilateral migration is defined as absolute difference of log immigration of i (from j) and log immigration of j (from i). Immigration data are taken from Eurostat (2016b). Reported standard errors are robust to heteroskedasticity. Fixed effects (FE) are not reported for the sake of brevity. *, **, *** indicates that coefficients are significant at 10%, 5% and 1%, respectively. Model (7) contains estimates for estimating Model (3) by least absolute deviations (median regression). Model (8) as Model (3) but including instrumented, once-lagged net foreign direct investment inflows. Instruments are the variables included in Models (9) and (10). The Hausman-Wu F -statistic of testing the exogeneity of FDIs yields a p -value of 0.9160. The instruments do not pass Sargan's test of over-identifying restrictions at a p -value of 0.0413. The F -statistic of testing the joint relevance of the instruments exhibits a p -value of 0.3675. Model (9) shows the result from estimating the reduced-form version of Model (8) but excluding influential observations according to Hadi (1992). Model (10) contains the results from estimating Model (9) by least absolute deviations (median regression).

A.2

Table 6: Descriptive statistics Eurostat migration data

<i>Variables</i>	<i>Obs.</i>	<i>Mean</i>	<i>Std. dev.</i>	<i>Minimum</i>	<i>Maximum</i>
Absolute net log migration from i to j Eurostat, (Mig_{ijt})	2410	1.4425	1.2398	0.0000	7.0978
(a) Absolute difference in labour endowments: $ \ln L_{it} - \ln L_{jt} $, ($EndowDiff_{ijt}$)	2410	1.4579	1.0732	0.0004	5.2007
(b) Bilateral distance as a proxy for trade costs: $\ln \text{dist}_{ij}$, (TC_{ijt})	2410	6.9467	0.7274	4.0879	8.2108
(c) Squared demeaned trade costs: $[\ln \text{dist}_{ij} - \text{mean}(\ln \text{dist}_{ij})]^2$, ($TCsquared_{ijt}$)	2410	0.5444	1.1517	0.0000	8.8995
(d) Structural funds expenditures as % of GDP in countries i and j , ($SfGDP_{ijt}$)	2215	0.2361	0.3308	0.0000	4.1487
(e) Interaction with $ \ln L_{it} - \ln L_{jt} $, ($EndowDiffSfGDP_{ijt}$)	2215	0.3723	0.5867	0.0000	6.0094
(f) Linear trade costs WEF, (TC_{ijt})	1669	3.1862	0.3235	1.7422	3.8748
(g) Quadratic trade costs WEF, ($TCsquared_{ijt}$)	1669	1326469	3644.426	1316160	1337376
(h) Once-lagged net FDI inflows between i and j , (FDI_{ijt-1})	2410	0.7496	3.7439	-19.1946	67.4534
(i) Log capital-labour ratio of countries i and j in t , (CL_{ijt})	1951	23.6264	0.2907	22.2385	24.8513
(j) Absolute difference in log capital-labour ratio of countries i and j in t , ($ADCL_{ijt}$)	1951	0.0346	0.1544	0.0000	1.3965
(k) Absolute difference in endowment with workers of at least secondary schooling of countries i and j in t , ($ADEWSS_{ijt}$)	1982	2424089	2390115	1327.443	8212937
(l) Log investment costs of countries i and j in t , (IvC_{ijt})	1669	3.6355	0.2183	2.8623	4.0804
(m) Absolute log difference in investment costs of countries i and j in t , ($ADIVC_{ijt}$)	1669	0.2839	0.2112	0.0000	1.3055

A.3

Table 7: Reestimation of Egger, Eggert and Larch (2014) for 1985-2013 across EU-15 member countries (OECD)

<i>Explanatory variables</i>	(1)		(2)		(3)		(4)		(5)		(6)	
	β	<i>std</i>	β	<i>std</i>	β	<i>std</i>	β	<i>std</i>	β	<i>std</i>	β	<i>std</i>
(a) Absolute difference in labour endowments: $ \ln L_{it} - \ln L_{jt} $	-0.2656	0.0403***	-0.2896	0.0416***	-0.2952	0.0417***	-0.2324	0.0412***	-0.2234	0.0414***	-0.2943	0.0329***
(b) Bilateral distance as a proxy for trade costs: $\ln \text{dist}_{ij}$	0.3090	0.1215 **	0.5403	0.1481***	0.4951	0.1479***	0.4758	0.1472***	—	—	0.7041	0.1297***
(c) Squared demeaned trade costs: $[\ln \text{dist}_{ij} - \text{mean}(\ln \text{dist}_{ij})]^2$	—	—	0.3669	0.1121***	0.3597	0.1123***	0.3775	0.1144***	—	—	0.6783	0.0935***
(d) Structural funds expenditures as % of GDP in countries i and j	—	—	—	—	0.1456	0.2162	0.7518	0.3253 **	0.3332	0.2397	0.1720	0.1817
(e) Interaction with $ \ln L_{it} - \ln L_{jt} $	—	—	—	—	—	—	-0.2834	0.1089***	—	—	—	—
(f) Linear trade costs WEF	—	—	—	—	—	—	—	—	-1.1436	0.6719 *	—	—
(g) Quadratic trade costs WEF	—	—	—	—	—	—	—	—	-0.0001	0.0001 *	—	—
R^2	0.5189		0.5245		0.5255		0.5287		0.4977		0.6629	
Estimation Approach	FE		FE		FE		FE		FE		FE	
Country FE (p-value of F-test)	0.0000		0.0000		0.0000		0.0000		0.0000		0.0000	
Time FE (p-value of F-test)	0.0000		0.0000		0.0000		0.0000		0.0070		0.1451	
Observations (country pairs across years)	882		882		878		878		828		804	

Notes: Dependent variable is net bilateral migration between countries i and j in year t . Net bilateral migration is defined as absolute difference of log immigration of i (from j) and log immigration of j (from i). Immigration data are taken from OECD (2016b). Reported standard errors are robust to heteroskedasticity. Fixed effects (FE) are not reported for the sake of brevity. *, **, *** indicates that coefficients are significant at 10%, 5% and 1%, respectively. (5) as Model (3) but using a survey-based annual trade cost index (in logs) from World Economic Forum (WEF) for trade costs instead of log distance. (6) as Model (3) but excluding influential observations according to Hadi (1992). For the countries included in the estimation, see footnote 16 (missing EU-15 countries: France).

Table 7 continued...

<i>Explanatory variables</i>	(7)		(8)		(9)		(10)	
	β	<i>std</i>	β	<i>std</i>	β	<i>std</i>	β	<i>std</i>
(a) Absolute difference in labour endowments: $ \ln L_{it} - \ln L_{jt} $	-0.3060	0.0545***	-0.2724	0.0580***	-0.5934	0.1506***	-0.6790	0.2993 **
(b) Bilateral distance as a proxy for trade costs: $\ln \text{dist}_{ij} / \text{dist}$	0.8843	0.1923***	0.5557	0.2619 **	1.0439	0.1530***	1.0792	0.2520***
(c) Squared demeaned trade costs: $[\ln \text{dist}_{ij} - \text{mean}(\ln \text{dist}_{ij})]^2$	0.6899	0.1489***	0.3684	0.1682 **	0.7723	0.1189***	0.7454	0.2608***
(d) Structural funds expenditures as % of GDP in countries i and j	0.3000	0.2878	0.3583	0.3608	0.1824	0.2279	0.4450	0.4343
(h) Once-lagged net FDI inflows between i and j	—	—	0.0158	0.0531	—	—	—	—
(i) Log capital-labour ratio of countries i and j in t	—	—	—	—	0.3001	0.2565	0.7250	0.4203 *
(j) Absolute difference in log capital-labour ratio of countries i and j in t	—	—	—	—	-0.4524	0.3700	-0.7318	0.6676
(k) Absolute difference in endowment with workers of at least secondary schooling of countries i and j in t	—	—	—	—	0.0123	0.0060 **	0.0017	0.0011
(l) Log investment costs of countries i and j in t	—	—	—	—	-0.7065	0.3637 *	-0.5312	0.5106
(m) Absolute log difference in investment costs of countries i and j in t	—	—	—	—	-0.0600	0.1688	-0.0280	0.3339
R^2	0.4926		0.4880		0.7375		0.4682	
Estimation Approach	FE		FE		FE		FE	
Country FE (p-value of F-test)	0.0000		0.0000		0.0000		0.0000	
Time FE (p-value of F-test)	0.1367		0.0005		0.7378		0.2693	
Observations (country pairs across years)	878		564		465		564	

Notes: Dependent variable is net bilateral migration between countries i and j in year t . Net bilateral migration is defined as absolute difference of log immigration of i (from j) and log immigration of j (from i). Immigration data are taken from OECD (2016b). Reported standard errors are robust to heteroskedasticity. Fixed effects (FE) are not reported for the sake of brevity. *, **, *** indicates that coefficients are significant at 10%, 5% and 1%, respectively. Model (7) contains estimates for estimating Model (3) by least absolute deviations (median regression). Model (8) as Model (3) but including instrumented, once-lagged net foreign direct investment inflows. Instruments are the variables included in Models (9) and (10). The Hausman-Wu F -statistic of testing the exogeneity of FDIs yields a p -value of 0.7740. The instruments do not pass Sargan's test of over-identifying restrictions at a p -value of 0.0633. The F -statistic of testing the joint relevance of the instruments exhibits a p -value of 0.2122. Model (9) shows the result from estimating the reduced-form version of Model (8) but excluding influential observations according to Hadi (1992). Model (10) contains the results from estimating Model (9) by least absolute deviations (median regression). For the countries included in the estimation, see footnote 16 (missing EU-15 countries: France).

A.4

Table 8: Reestimation of Egger, Eggert and Larch (2014) for 1985-2013 across EU-15 member countries (Eurostat)

<i>Explanatory variables</i>	(1)		(2)		(3)		(4)		(5)		(6)	
	β	<i>std</i>	β	<i>std</i>	β	<i>std</i>	β	<i>std</i>	β	<i>std</i>	β	<i>std</i>
(a) Absolute difference in labour endowments: $ \ln L_{it} - \ln L_{jt} $	0.0876	0.0289***	0.0785	0.0297***	0.0681	0.0344 **	0.1530	0.0435***	0.1185	0.0325***	0.0839	0.0249***
(b) Bilateral distance as a proxy for trade costs: $\ln \text{dist}_{ij}$	0.3479	0.0599***	0.3754	0.0629***	0.4847	0.0778***	0.4703	0.0769***	—	—	0.3463	0.0569***
(c) Squared demeaned trade costs: $[\ln \text{dist}_{ij} - \text{mean}(\ln \text{dist}_{ij})]^2$	—	—	0.0929	0.0788	0.1711	0.0857 **	0.1671	0.0860 *	—	—	0.1425	0.0678 **
(d) Structural funds expenditures as % of GDP in countries i and j	—	—	—	—	-0.6150	0.1745***	0.3006	0.3078	-0.4159	0.1820 **	-0.5146	0.1377***
(e) Interaction with $ \ln L_{it} - \ln L_{jt} $	—	—	—	—	—	—	-0.4424	0.1555***	—	—	—	—
(f) Linear trade costs WEF	—	—	—	—	—	—	—	—	-1.8346	0.4514***	—	—
(g) Quadratic trade costs WEF	—	—	—	—	—	—	—	—	-0.0002	0.0000***	—	—
R^2	0.4077		0.4083		0.4689		0.4782		0.4222		0.5300	
Estimation Approach	FE		FE		FE		FE		FE		FE	
Country FE (p-value of F-test)	0.0000		0.0000		0.0000		0.0000		0.0000		0.0000	
Time FE (p-value of F-test)	0.0000		0.0000		0.0000		0.0000		0.0000		0.0000	
Observations (country pairs across years)	1126		1126		953		953		937		890	

Notes: Dependent variable is net bilateral migration between countries i and j in year t . Net bilateral migration is defined as absolute difference of log immigration of i (from j) and log immigration of j (from i). Immigration data are taken from Eurostat (2016b). Reported standard errors are robust to heteroskedasticity. Fixed effects (FE) are not reported for the sake of brevity. *, **, *** indicates that coefficients are significant at 10%, 5% and 1%, respectively. (5) as Model (3) but using a survey-based annual trade cost index (in logs) from World Economic Forum (WEF) for trade costs instead of log distance. (6) as Model (3) but excluding influential observations according to Hadi (1992). For the countries included in the estimation, see footnote 17 (missing EU-15 countries: France).

Table 8 continued...

<i>Explanatory variables</i>	(7)		(8)		(9)		(10)	
	β	<i>std</i>	β	<i>std</i>	β	<i>std</i>	β	<i>std</i>
(a) Absolute difference in labour endowments: $ \ln L_{it} - \ln L_{jt} $	0.0774	0.0425 *	0.0709	0.0415 *	0.2781	0.0708***	0.3427	0.0952***
(b) Bilateral distance as a proxy for trade costs: $\ln \text{dist}_{ij}$	0.3249	0.0852***	0.4889	0.1008***	0.3150	0.0756***	0.3398	0.1076***
(c) Squared demeaned trade costs: $[\ln \text{dist}_{ij} - \text{mean}(\ln \text{dist}_{ij})]^2$	0.1324	0.1512	0.1278	0.1100	0.0707	0.0765	0.1528	0.1088
(d) Structural funds expenditures as % of GDP in countries i and j	-0.5630	0.2472 **	-0.5510	0.2123***	-0.4312	0.1592***	-0.4498	0.2622 *
(h) Once-lagged net FDI inflows between i and j	—	—	-0.0090	0.0262	—	—	—	—
(i) Log capital-labour ratio of countries i and j in t	—	—	—	—	0.5854	0.2459 **	0.3372	0.4126
(j) Absolute difference in log capital-labour ratio of countries i and j in t	—	—	—	—	1.0233	0.3740***	0.8386	0.5936
(k) Absolute difference in endowment with workers of at least secondary schooling of countries i and j in t	—	—	—	—	-0.0086	0.0029 **	-0.0121	0.0040***
(l) Log investment costs of countries i and j in t	—	—	—	—	0.5367	0.2379 **	0.2980	0.3761
(m) Absolute log difference in investment costs of countries i and j in t	—	—	—	—	0.1519	0.1038	0.0078	0.1869
R^2	0.4335		0.4301		0.5647		0.3950	
Estimation Approach	FE		FE		FE		FE	
Country FE (p-value of F-test)	0.0000		0.0000		0.0000		0.0000	
Time FE (p-value of F-test)	0.4224		0.0017		0.0000		0.0072	
Observations (country pairs across years)	953		709		638		709	

Notes: Dependent variable is net bilateral migration between countries i and j in year t . Net bilateral migration is defined as absolute difference of log immigration of i (from j) and log immigration of j (from i). Immigration data are taken from Eurostat (2016b). Reported standard errors are robust to heteroskedasticity. Fixed effects (FE) are not reported for the sake of brevity. *, **, *** indicates that coefficients are significant at 10%, 5% and 1%, respectively. Model (7) contains estimates for estimating Model (3) by least absolute deviations (median regression). Model (8) as Model (3) but including instrumented, once-lagged net foreign direct investment inflows. Instruments are the variables included in Models (9) and (10). The Hausman-Wu F -statistic of testing the exogeneity of FDIs yields a p -value of 0.6289. The instruments pass Sargan's test of over-identifying restrictions at a p -value of 0.6016. The F -statistic of testing the joint relevance of the instruments exhibits a p -value of 0.2804. Model (9) shows the result from estimating the reduced-form version of Model (8) but excluding influential observations according to Hadi (1992). Model (10) contains the results from estimating Model (9) by least absolute deviations (median regression). For the countries included in the estimation, see footnote 17 (missing EU-15 countries: France).

A.5

Table 9: Determinants of bilateral immigrant flows for 1985-2013 across EU-28 member countries (Eurostat)

<i>Explanatory variables</i>	(1)		(2)		(3)		(4)		(5)	
	β	<i>std</i>	β	<i>std</i>	β	<i>std</i>	β	<i>std</i>	β	<i>std</i>
(a) Relative log per worker GDP (destination to origin country)	-12.84	4.54***	-17.69	4.62***	-26.89	4.73***	-27.07	4.70***	-9.97	2.40***
(b) Log per worker GDP (origin country)	-27.34	10.12***	-31.85	10.06***	-37.33	10.40***	-13.63	7.76 *	-27.88	6.16***
(c) Log structural funds expenditure (origin country)	0.77	0.42 *	0.83	0.41 **	0.99	0.48 **	—	—	0.49	0.23 **
(d) Log distance	—	—	-10.61	2.55***	-10.95	2.65***	-11.13	2.51***	-5.63	1.25***
(e) Land border	—	—	2.60	3.60	0.41	3.92	-0.21	3.77	1.74	2.00
(f) Common language	—	—	34.46	5.86***	37.28	6.16***	37.36	6.13***	23.47	3.46***
(g) Unemployment rate (destination country)	—	—	—	—	-1.00	0.30***	-1.16	0.30***	-0.44	0.14***
(h) Unemployment rate (origin country)	—	—	—	—	0.77	0.28***	0.71	0.28 **	0.05	0.13
(i) Log structural funds expenditure (origin country) alternative	—	—	—	—	—	—	0.01	0.41	—	—
R^2	0.2607		0.2983		0.3018		0.3008		0.4873	
Estimation Approach	FE		FE		FE		FE		FE	
Country FE (p-value of F-test)	0.0000		0.0000		0.0000		0.0000		0.0000	
Time FE (p-value of F-test)	0.0731		0.0119		0.0017		0.0186		0.0007	
Observations	5375		5375		4959		5143		4917	

Notes: Dependent variable is the emigration rate of origin country i to destination country j in year t . The emigration rate is defined as the immigrant inflow from origin to destination country [multiplied by 100,000] divided by origin country's population. Thus, it gives the number of incoming immigrants per 100,000 individuals in the origin country's population. Immigration data are taken from Eurostat (2016b). The explanatory variables are described in detail in subsection 3.1. Reported standard errors are robust to heteroskedasticity. The constant and the fixed effects (FE) are not reported for the sake of brevity. *, **, *** indicates that coefficients are significant at 10%, 5% and 1%, respectively. (4) as Model (3) but using an alternative measure for EU structural funds. (5) as Model (3) but excluding influential observations according to Hadi (1992). For the countries included in the estimation, see footnote 26.

Table 9 continued...

<i>Explanatory variables</i>	(6)		(7)		(8)		(9)		(10)	
	β	<i>std</i>	β	<i>std</i>	β	<i>std</i>	β	<i>std</i>	β	<i>std</i>
(a) Relative log per worker GDP (destination to origin country)	-2.11	0.47***	-25.97	4.91***	-26.40	4.83***	-26.89	7.98***	-8.50	3.49 **
(b) Log per worker GDP (origin country)	-1.73	0.85 **	-21.70	17.26	-52.68	13.82***	-37.33	9.92***	-10.07	8.75
(c) Log structural funds expenditure (origin country)	0.15	0.03***	-18.38	8.06 **	—	—	0.99	0.49 **	1.09	0.39***
(d) Log distance	-1.88	0.23***	-11.13	2.81***	-11.10	2.79***	-10.95	7.13	27.55	29.13
(e) Land border	0.24	0.28	-0.78	4.08	-0.80	4.10	0.41	10.10	25.98	25.51
(f) Common language	16.81	1.25***	38.78	6.20***	38.34	6.17***	37.28	16.46 **	352.78	23.69***
(g) Unemployment rate (destination country)	-0.07	0.02***	-0.82	0.29***	-0.83	0.29***	-1.00	0.41 **	-0.84	0.19***
(h) Unemployment rate (origin country)	0.04	0.02 **	0.66	0.28 **	0.73	0.28 **	0.77	0.36 **	0.67	0.17***
(j) SSI (origin country)	—	—	—	—	2.27	0.97 **	—	—	—	—
R^2	0.2324		0.2785		0.3034		0.3018		0.7641	
Estimation Approach	FE		FE		FE		FE		FE	
Country FE (p-value of F-test)	0.0000		0.0000		0.0000		0.0000		0.0000	
Time FE (p-value of F-test)	0.0000		0.0004		0.0140		0.0128		0.0249	
Observations	4959		4735		4735		4959		4959	

Notes: Dependent variable is the emigration rate of origin country i to destination country j in year t . The emigration rate is defined as the immigrant inflow from origin to destination country [multiplied by 100,000] divided by origin country's population. Thus, it gives the number of incoming immigrants per 100,000 individuals in the origin country's population. Immigration data are taken from Eurostat (2016b). The explanatory variables are described in detail in section 3.1. Reported standard errors are robust to heteroskedasticity. The constant and the fixed effects (FE) are not reported for the sake of brevity. *, **, *** indicates that coefficients are significant at 10%, 5% and 1%, respectively. Model (6) contains estimates for estimating Model (3) by least absolute deviations (median regression). Model (7) as Model (3) but including instrumented log structural funds expenditures in the origin country. The Durbin-Wu-Hausman χ^2 -statistic of testing the exogeneity of structural funds yields a p -value of 0.0330. Instruments are the variables included in Model (8). Sargan's test of over-identifying restrictions cannot be reported, since the model is exactly identified. The F -statistic of testing the relevance of the instrument exhibits a p -value of 0.0000. Model (8) shows the result from estimating the reduced-form version of Model (7). Model (9) [(10)] contains the results from estimating Model (3) with standard errors clustered by country-pairs [with country-pair fixed effects instead of individual country fixed effects]. For the countries included in the estimation, see footnote 26.

A.6

Table 10: Descriptive statistics Eurostat migration data

<i>Variables</i>	<i>Obs.</i>	<i>Mean</i>	<i>Std. dev.</i>	<i>Minimum</i>	<i>Maximum</i>
Emigration rate of country i to country j Eurostat, $(\frac{Mig_{ijt}}{Pop_{it}})$	5375	15.1310	49.9147	0.0000	1296.737
(a) Relative log per worker GDP (destination to origin), $(\frac{pwGDP_{jt-1}}{pwGDP_{it-1}})$	5375	13.7458	0.5569	11.7551	15.8220
(b) Log per worker GDP (origin), $(pwGDP_{it-1})$	5375	-3.1408	0.3797	-4.5385	-1.8840
(c) Log structural funds expenditure (origin), (SF_{it})	5375	19.6433	2.9778	5.3962	23.0713
(d) Log distance, $(dist_{ij})$	5375	7.0471	0.6771	4.0879	8.2339
(e) Land border, $(border_{ij})$	5375	0.0956	0.2941	0	1
(f) Common language, $(comlang_{ij})$	5375	0.0365	0.1875	0	1
(g) Unemployment rate (destination), $(unempl_{jt})$	5116	9.1405	4.6139	2.5000	27.3000
(h) Unemployment rate (origin), $(unempl_{it})$	5218	8.5151	3.9907	1.8000	24.8000
(i) Log structural funds expenditure (origin) alternative, (SF_{it})	5375	19.7677	1.9956	7.0632	23.0713
(j) SSI (origin), $(vPower_{it})$	5115	4.8529	3.4421	0.8200	17.3800
(k) NBI (origin), $(vPower_{it})$	5115	4.8440	3.1155	0.9400	15.7700
(l) NUCL (origin), $(vPower_{it})$	5115	4.8481	3.6237	0.0000	25.0000
(m) population (destination)	5375	17030259	22138610	373958	82500849
(n) population (origin)	5375	20552745	23904043	366202	82500849

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