International migration and government policies: Immigration vs. emigration restrictions*

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Abstract

This paper studies the relationship between migration policies and migration flows. The analysis collects information on immigration and emigration policies from the World Population Policies database in order to obtain a measure on migration restrictions of 41 destination and 195 origin countries. It codes government policies on migration according to their restrictiveness and combines this information with biannual data on migration flows between 41 destination and 228 origin territories for the period 2001-2012. It then uses a gravity framework in order to determine the potential impact of immigration and emigration policies on bilateral migration flows. The paper finds that immigration restrictions seem to crucially impact on bilateral migration flows. Emigration restrictions, however, do not seem to play a similar important role. This suggests that policies targeting immigrants rather than emigrants have a stronger impact on the shape and size of international migration flows.

JEL codes: F22, J68

Keywords: international migration, gravity model, migration policies

1 Introduction

The recent acceleration of global development goes hand in hand with increased international migration. The stock of international migrants grew from 153 million in 1990 to 258 million in 2017. This corresponds to an increase in the share of international migrants as a percentage of the global population from 2.9 per cent in 1990 to 3.4 per cent in 2017 (United Nations, 2017). The current rise in international migration has sparked public debates and fostered interest about the role of governments in shaping global mobility patterns. International migration policies and the attitude of governments towards emigration and immigration underwent important changes over the past decades (United Nations, 2013).

The United Nations Population Division (UNPD) recently published a previously unavailable extended database which contains information on bilateral migration flows

*The views expressed in this paper are those of the author and do not necessarily reflect the views of the United Nations.

for a set of 45 destination countries (United Nations, 2015a). This database combines time series data collected systematically by UN member states. In addition, UNPD collects data on migration policies since 1976 as part of the United Nations Inquiry among Governments on Population and Development (United Nations, 2015b). For a large set of countries, this data gives a broad overview of emigration and immigration policies of UN member states. The improved availability of data and methodological advancements for the analysis of international migration allow reinvestigating the relationship between global migration policies and the number of migrating individuals.

Given the limitations of existing analyses and the previously available data, there is no clear answer as to whether and how migration policies impact on international migration flows. Based on an empirical analysis drawing upon a panel data set and based on a micro-founded theoretical model, the following paper aims at giving an overview of the potential links between migration policies and the number of individuals that decide to migrate. In particular, the paper intends to focus on the relationship between international migration policies and the size of bilateral international migration flows. The paper addresses questions such as: What is the measurable impact of international migration policies on global migration flows? Do international migration policies shape or curb international migration? Is there a difference between the impact of emigration and immigration policies?

In terms of methodology, the paper focuses on the gravity model of international migration. The gravity model is an important methodological innovation for the analysis of international migration and it has been applied by numerous analyses in recent years (Beine et al., 2016). It proved to be an efficient tool for analyzing the effects of diverse factors and elements on international migration. This paper builds on the gravity model of international migration in order to assess the potential links between migration policies and migration flows. In order to do so, the empirical analysis can draw upon new and previously unavailable data for a large set of countries. As will be shown in the following, this is in line with and closely related to several contributions to the literature on migration.

Moreover, the data set used in this paper allows to focus on immigration as well as emigration policies. As opposed to many existing studies, this paper also assesses the potential impact of emigration policies on migration flows. In general, the focus of the studies analyzing the effect of migration policies has been traditionally on immigration restrictions. To the best of the author's knowledge, the paper uses for the first time a gravity framework in order to analyze the relationship between migration and immigration as well as emigration policies. Therefore, the paper makes a contribution to the literature on the determinant of international migration flows by jointly analyzing the effect of immigration and emigration restrictions. At the same time, the analysis builds on a larger set of origin and destination countries than most of the previous studies using a gravity framework.[1]

The rest of this paper is organized as follows. Section 2 provides a summary of the related literature. This section includes a methodological review, a thematic review, and a subsection comparing the variable on migration policies used by this paper to the variable used by previous analyses. Section 3 describes the gravity model in some detail. This section includes the description of the theoretical framework behind the gravity model, the empirical specification, and the data sources of the panel data set

[1]See table A1 in the appendix for an overview of the number of destination and origin countries analyzed by previous studies.

that is used by this paper. Section 4 then presents the results of the empirical analysis, including the baseline results and the results of some robustness checks. Finally, section 5 concludes.

2 Related literature

The review of the related literature first describes the several studies that are based on the gravity model of international migration. This methodological review outlines the questions this innovative approach allowed to address and discusses the commonalities and differences of existing analyses. The second part focuses on the studies that explicitly analyze the connection between migration policies and migration flows. This thematic review discusses the numerous papers attempting to assess the effects of general migration policies. In addition, a third part compares the data on migration policies that are used by the empirical analysis of this paper and the data used by other researchers. This comparison serves as a proof of concept and illustrates that an analysis exploiting UNPD data on migration policies is in line with previous studies on the topic.

2.1 Methodological review

In simple terms, the gravity model of migration relates certain independent variables to bilateral migration flows (the dependent variable). Anderson (2011) argues that already as early as by the end of the 19th century, Ravenstein (1889) pioneered the use of a gravity approach for the analysis of migration patterns. More recently, it were particularly the improvements with respect to data availability that led to a surge of studies using a gravity model of migration. In a comprehensive review paper, Beine et al. (2016) describe many of these studies. They show that wage payments in destination and origin countries are among the core independent variables of the gravity model of migration. This is in line with most economic theories about human migration which show that economic incentives are essential drivers of migration. While almost all empirical estimations based on a gravity model include proxies for income levels in the empirical specifications, Ortega and Peri (2013) and Llull (2011) explicitly address the impact of income. They provide strong evidence for statistically significant effects of wage differentials on migration patterns. Furthermore, core independent variables of the gravity model of migration are the geographic distance and cultural similarity between countries. This reflects the idea that countries which are closer to each other (in cultural terms or by geographic distance) have more people migrating between them. It is fairly standard to include measures of distance between the geographic centers or capitals of countries and measures of cultural proximity in an empirical specification based on the gravity model. Kim and Cohen (2010) explicitly address geographic elements and find that distance is among the most influential factors shaping migration patterns. Adsera and Plytikova (2012) show that the proximity in terms of language influences migration flows between countries, while Mayda (2010) does not find evidence for strong effects of other cultural measures.

Besides these core independent variables that are included in most empirical specifications derived from the gravity model of migration, there are numerous other factors and drivers of migration that were analyzed by making use of this model. For instance, researchers used a gravity approach to study the relationship between migration and population size (Kim and Cohen, 2010), the size of networks (Beine et al., 2011), visa requirements (Bertoli and Fernandez-Huertas Moraga, 2012), unemployment (Beine et al. 2013), climatic conditions (Beine and Parsons, 2015; Backhaus et al., 2015), infant mortality (Kim and Cohen, 2010) or foreign aid (Lanati and Thiele, 2017). As discussed in detail in the next section, some researchers also took the approach of this paper and employed the gravity concept to analyze the impact of migration policies (Mayda, 2010; Ortega and Peri, 2013). In addition, Ramos and Surinach (2016) used a gravity approach to characterize past and future trends in migration flows. While this list of studies is by no means comprehensive and complete, it shows the versatility of the gravity model of migration.

In addition, many of the studies described above use different data sources for the empirical analyses. This is partly attributable to the advances in the availability of comprehensive migration data over the past years. In general, the key dependent variable in any empirical specification based on the gravity model is the bilateral flow of migrants. This dependence on migration flow data posed challenges particularly for the earlier studies using a gravity approach. Until today, complete and comprehensive data on dyadic migration flows over time are not available. Depending on the question that each analysis attempts to address, different methods were applied to overcome this shortcoming.

On the one hand, several studies draw upon data on migration stocks or differences in migration stocks over time to proxy migration flows over time (Llull, 2011; Beine et al., 2011; Bertoli and Fernandez-Huertas Moraga, 2012; Beine and Parsons, 2015; Ramos and Surinach, 2016). This approach has the advantage that data on stocks are available for a longer time period and for a larger number of countries. This might be especially important for analyses focusing on South-South migration (Beine and Parsons, 2015). On the other hand, many studies use data on migration flows or inflows computed or obtained from several data sources (Mayda, 2010; Kim and Cohen, 2010; Adsera and Plytikova, 2012; Beine et al., 2013; Ortega and Peri, 2013; Lanati and Thiele, 2017). Relatively good data on migration flows are available for studies predominantly addressing migration patterns between developing and developed countries. In particular, many studies use data provided by the OECD. The main advantage of this second approach is that it is more precise. Overall, improvements in the availability of data over the past decades helped overcoming the methodological challenge of choosing the appropriate measure or proxy for bilateral migration flows.

Finally, many of the empirical studies described above are characterized by different estimation approaches and techniques. Almost all of the studies conduct an Ordinary Least Squares regression analysis. However, several researchers simply resort to this estimator to generate a point of reference for other empirical approaches. These (partly more advanced) estimation methods are usually applied to correct for biases, inconsistency and limitations of the data. Among the different methods is the use of the Heckman estimator (Beine et al., 2011), the use of the Poisson Pseudo-maximum Likelihood estimator (Bertoli and Fernandez-Huertas Moraga, 2012; Beine and Parsons, 2015) or the use of Generalized Estimating Equation (Kim and Cohen, 2010). These studies show that the determination of an appropriate estimator proves to be highly context-specific.

In sum, many of the studies described above differ in terms of the main variables of interest, the data sources and the estimation method. Table A1 in the Appendix summarizes these differences for some of the analyses that are based on a gravity model of migration.

2.2 Thematic review

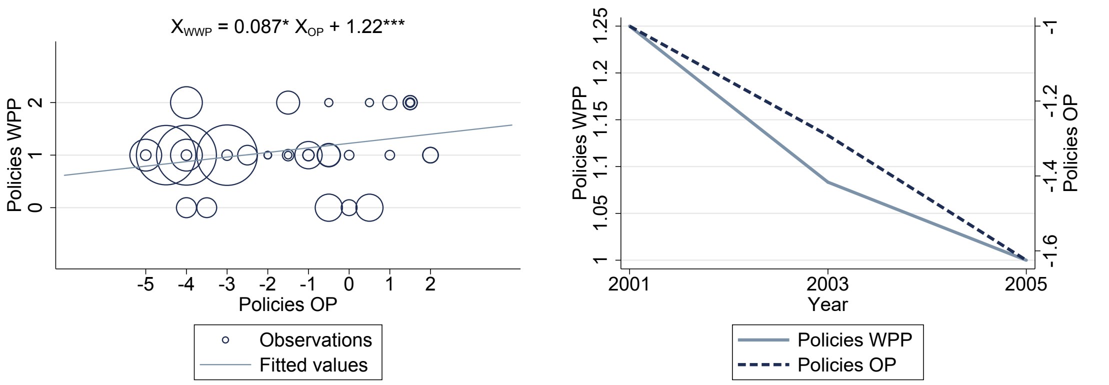
It has been repeatedly stressed that the unavailability of comprehensive and comparable data limited the studies attempting to address the impact of migration policies (Ortega and Peri, 2013). Probably motivated by the assumption that rather entry than exit of migrants is regulated, the literature on migration policies traditionally only focused on immigration restrictions imposed by destination countries. Given that policies governing immigration restrictions are usually very complex, early studies analyzed the impact of policies regulating immigration in only one specific destination country. For instance, Greenwood and McDowell (1999) provide a historical overview of immigration policies and immigration data over the 21st century in the United States. They analyze the effect of immigration laws and assess the implications for new laws. Similarly, Clark et al. (2007) investigate the impact of policies on immigration in the United States since 1970 by means of counterfactual simulations. They compare changes in the immigrant stocks by simulating and analyzing alternative levels of immigrants under different immigration policies. In their empirical analysis of the determinants of migration to Germany, Vogler and Rotte (2000) include three (separate) dummy variables that capture a change in immigration laws in Germany. They assess how these changes in German immigration laws are linked with migration inflows from 86 countries and find statistically significant impacts of these changes.

More recently, several studies examined migration policies in more than one destination country. De Haas et al. (2014) characterize the evolution of migration policies of 45 countries since 1945. Burgoon et al. (2013) describe the IMPALA project which is a cross-disciplinary attempt to construct comparable measures of immigration policies for 26 destination countries over time. This ongoing project demonstrates the difficulty of creating comprehensive proxies for immigration policies that are comparable across countries and time. Furthermore, most of the studies described above assume that migration restrictions of destination countries equally apply to all origin countries. Nevertheless, it appears more realistic to assume that destination countries have different policies for different origin countries. In this case, bilateral migration policies between two specific countries rather than general policies shape migration patterns (Bertoli and Fernandez-Huertas Moraga, 2012). This additionally illustrates the difficulty of constructing comprehensive and comparable measures or proxies for migration policies in a framework of several destination countries.

Notwithstanding these difficulties and limitations, some researchers attempted to investigate the link between migration policies and the number of migrants in several destination countries. Mayda (2010) analyzes the effect of immigration policies of 14 OECD countries. The specification of her empirical analysis builds on the gravity model and assesses the impact of policies on immigration flows. Her approach is closely related to the approach applied in this paper. The data set used by Mayda (2010) contains a variable that captures changes in immigration policies between 1980 and 1995. Her analysis provides mixed evidence for an impact of changes in immigration policies. Similarly, Ortega and Peri (2013) analyze the impact of changes in immigration policies between 1980 and 2006. Their study is based on a gravity model of migration and is conceptually closely related to the empirical analysis applied by this paper. They construct a variable that assigns for each point in time a numerical value to 12 OECD destination countries reflecting the "changes in tightness of immigration entry laws". If the immigration policies changed between two time periods for a specific country, the numerical value of the associated variable changes. By applying this general coding strategy, Ortega and Peri (2013) find evidence for a statistically negative impact of tightness of immigration laws on immigration flows.[2]

2.3 Measures of migration policies

Section 3.3 describes in detail how variables capturing immigration and emigration restrictions are obtained and constructed from the World Population Policies database (WPP) (United Nations, 2015b). It has been argued above that using information on migration policies in a gravity model requires a coding strategy for policies. This is always subject to some degree of discretion. Hence, it is imperative to check the validity of the coding approach. The following analysis attempts to perform such a check by showing that the variable on immigration restrictions constructed from the WPP aligns with the approach taken by Ortega and Peri (2013) (OP).



(a) Pooled correlation

(b) Average restrictions 2001-2005

Notes: In figure 1a, the immigration policy variable obtained from Ortega and Peri (2013) (Policies OP) is measured on the x-axis and the immigration policy variable obtained from the World Population Policies database (Policies WPP) is measured on the y-axis. Bubble sizes are proportional to the population for the respective year. The figure includes the equation of the linear regression line. X_{WPP} denotes Policies WPP and X_{OP} denotes Policies OP. The stars indicate the typical statistical significance at the ten and one per cent level. In figure 1b, the immigration policy variable obtained from Ortega and Peri (2013) (Policies OP) is measured on the right y-axis and the immigration policy variable obtained from the World Population Policies database (Policies WPP) is measured on the left y-axis.

Figure 1: Correlation between immigration policies

Figure 1 depicts the correlation between the coded variables reflecting the time-varying immigration restrictions from WPP and the coded variables used by OP. Figure

[2]Finally, the idea to include a measure of migration policies in a gravity framework is also discussed by Kim and Cohen (2010). They considered to use the very same database this paper builds on (i.e. the World Population Policies database) for their application of the gravity model. However, they refrained from including a measure derived from this database because its observations do not match the time frame of their analysis.

1a illustrates the pooled observations for the years for which observations overlap. These are the years between 2001 and 2005.[3] The bubble sizes reflect the population size of the countries displayed in the graph. The values of the immigration restrictions derived from WPP are depicted on the y-axis, whereas the values for the change in the immigration restrictions derived from OP are depicted on the x-axis. For both variables, a lower numerical value reflects immigration restrictions that are less tight. The trend line is depicted in figure 1a illustrating that its slope has a positive value. This suggests that the variables capturing immigration restrictions used by Ortega and Peri (2013) and the ones used in the following analysis are positively correlated. Figure 1b illustrates the average values for all observations over time for the two variables. The figure shows that the average values of the variable on the immigration restrictions in WPP (solid line) and in OP (dashed line) move in the same direction. Although the number of observations that can be compared is very small, this may indicate that the coding strategy applied in the following section is somewhat in line with the approach applied previously by other researchers.

3 Methodology

In the recent past, improved availability of bilateral migration data enabled researchers to conduct methodologically advanced analyses of the factors driving international migration. Among the models that draw upon bilateral migration data is the gravity model of international migration. This model is described in detail by Beine et al. (2016). It proved to be a useful tool for assessing the determinants of migration, as outlined in the previous section. Given the improved availability of bilateral migration flow data, the following paper allows to apply the gravity model of migration in order to analyze the relationship between migration policies and numbers of migrating individuals. The first part of this section contains a detailed outline of the theoretical concept behind the gravity model. The second part provides the specification of the empirical estimation. Finally, the last part of this section describes the data used in the empirical section and reports some summary statistics.

3.1 Theoretical framework

The gravity model of migration was derived from the utility maximization approach introduced by Roy (1951) and Bojas (1987) and was further developed by Grogger and Hanson (2011) and Beine et al. (2011). This paper builds on the model and assumptions of Beine and Parsons (2015). The following description of the theoretical framework outlines the standard assumptions of their model and closely follows their exposition of the model.

The framework assumes a world with n different countries populated by agents who are the only decision makers. They decide on whether they want to move from their

[3] Ortega and Peri (2013) analyze only 15 OECD destination countries over the time period between 1980 and 2005. This paper focuses on 41 destination countries over the time period between 2001 and 2012. Therefore, the number of destination countries for which the variables on the restrictiveness of immigration policies can be compared is rather small. Note, that a similar comparison and proof of concept for the variable on the restrictiveness of emigration policies is not possible. To the best of the author's knowledge, no empirical analysis analyzing the impact of emigration policies and using a gravity framework exists.

country of birth i to any foreign country j. Agents make this decision by maximizing their individual utility. The utility of an individual born in country i and moving to country j at time t is given by:

$$U_{ij,t} = \ln(w_{j,t}) + A_{j,t} - C_{ij,t} + \epsilon_{j,t} \quad \forall i, j, t, \tag{1}$$

where $w_{j,t}$ denotes the wage payment in period t at destination j, $A_{j,t}$ is a parameter denoting the characteristics of country j in period t, $C_{ij,t}$ describes the cost of moving from country i to country j in period t, and $\epsilon_{j,t}$ is an independent and identically distributed random term. Hence, the individual utility of each agent consists of the utility derived from income, the utility derived from the amenities in destination countries (such as social or living conditions), the disutility derived from the migration process, and a random component. The cost of moving from country i to i (the staying decision) is normalized to zero (i.e. $C_{ii,t} = 0$).

Based on the above assumption on the distribution of the random term, the results of McFadden (1984) can be applied. The probability that an agent born in country i moves to country j is given by:

$$Pr\left[U_{ij,t} = \max_k U_{ik,t}\right] = \frac{N_{ij,t}}{N_{i,t}} = \frac{\exp\left[\ln(w_{j,t}) + A_{j,t} - C_{ij,t}\right]}{\sum_k \exp\left[\ln(w_{k,t}) + A_{k,t} - C_{ik,t}\right]} \quad \forall i, j, t, \tag{2}$$

where $N_{ij,t}$ denotes the number of agents moving from county i to country j in period t, and $N_{i,t}$ denotes the size of the native population in country i in period t.

The share of agents moving from country i to j as a fraction of stayers in i (denoted as the bilateral migration rate) can then be expressed as:

$$\frac{N_{ij,t}}{N_{ii,t}} = \frac{\exp\left[\ln(w_{j,t}) + A_{j,t} - C_{ij,t}\right]}{\exp\left[\ln(w_{i,t}) + A_{i,t}\right]} \quad \forall i, j, t. \tag{3}$$

This simplifies to the following logarithmic expression:

$$\ln\left(\frac{N_{ij,t}}{N_{ii,t}}\right) = \ln\left(\frac{w_{j,t}}{w_{i,t}}\right) + A_{j,t} - A_{i,t} - C_{ij,t} \quad \forall i, j, t. \tag{4}$$

It is further assumed that the migration costs can be expressed as a function of several elements. Beine and Parsons (2015) postulate separability in costs. It is assumed that costs of migrating from country i to j are a function of the distance between i and j denoted by d_{ij}, contiguity denoted by b_{ij}, linguistic proximity denoted by l_{ij}, common colonial ties denoted by co_{ij}, and a common currency cu_{ij}.[4] Furthermore, migration policies shape migration costs. Immigration policies applied in the destination country j in period t denoted by $X_{j,t}$ as well as emigration policies applied in the origin country i in period t denoted by $X_{i,t}$ both impact on the costs of migration. The migration costs of moving between country i and j can be described by:

$$C_{ij,t} = C(d_{ij}, b_{ij}, l_{ij}, co_{ij}, cu_{ij}, X_{j,t}, X_{i,t}) \quad \forall i, j, t. \tag{5}$$

[4]The assumption that these elements affect migration costs is a crucial component of the gravity model of international migration. For instance, Ortega and Peri (2013) use the very same list of elements in their analysis of the relationship between migration and policies. Since this paper is most closely related to their analysis, it also attempts to most closely follow the specification of their analysis.

Combining equations (4) and (5) gives the following final expression:

$$\ln\left(\frac{N_{ij,t}}{N_{ii,t}}\right) = \ln\left(\frac{w_{j,t}}{w_{i,t}}\right) + A_{j,t} - A_{i,t} - C(d_{ij}, b_{ij}, l_{ij}, co_{ij}, cu_{ij}, X_{j,t}, X_{i,t}) \ \ \forall i, j, t. \quad (6)$$

Equation (6) shows that log of the ratio of the bilateral migrants and stayers is determined by the log of the wage ratio between the country of destination and origin, the amenities at origin and destination, and the bilateral migration costs.

3.2 Estimation

Under the assumption that the factors shaping migration costs are separable, the following estimable equation can be derived from equation (6):

$$\begin{aligned} \ln\left(\frac{N_{ij,t}}{N_{ii,t}}\right) =& \beta_1 \ln\left(\frac{w_{j,t}}{w_{i,t}}\right) + \beta_2 \alpha_{j,(t)} + \beta_3 \alpha_{i,(t)} + \beta_4 d_{ij} + \beta_5 b_{ij} + \beta_6 l_{ij} \\ & + \beta_7 co_{ij} + \beta_8 cu_{ij} + \beta_9 X_{j,t} + \beta_{10} X_{i,t} + \varepsilon_{ij,t}, \end{aligned} \quad (7)$$

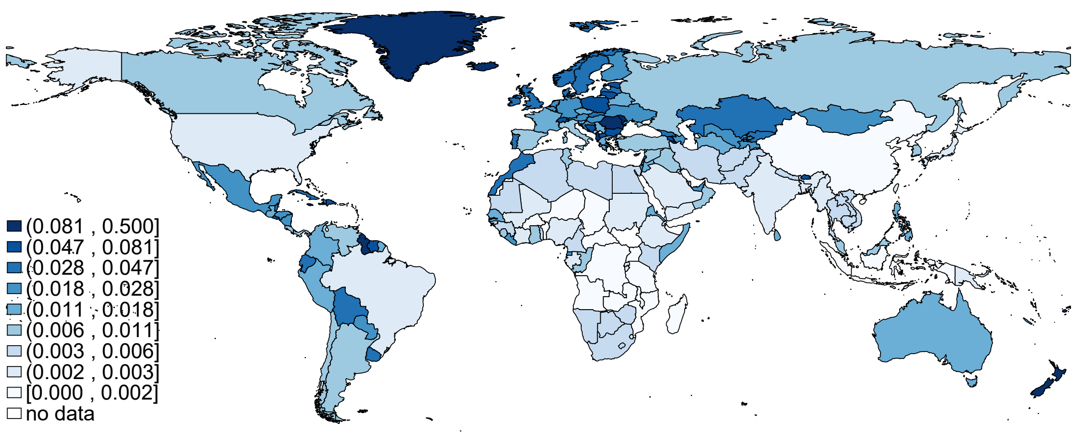
where $(N_{ij,t}/N_{ii,t})$ is the bilateral migration rate between country i and j at time t, $(w_{j,t}/w_{i,t})$ the wage ratio, $\alpha_{j,(t)}$ a destination fixed effect, $\alpha_{i,(t)}$ an origin fixed effect, d_{ij} the geographic bilateral distance, b_{ij} contiguity, l_{ij} linguistic proximity, co_{ij} common colonial ties, cu_{ij} common currency, and $\varepsilon_{ij,t}$ is the error term. Depending on the specification, the fixed effects can be country-period specific (indicated by the subscript t in brackets). This will be further discussed in section 4. The key parameters of interest are β_9 and β_{10}. These parameters capture the impact of immigration and emigration policies.

3.3 Data

For equation (7), the dependent variable is the bilateral migration rate from country i to country j. Data on bilateral migration flows are extracted from United Nations (2015a). This data set contains information on annual immigration flows reported by 45 countries. Given that countries do not apply a common definition of a migrant, for most of the destination countries the reported flows are defined as the immigrants based on their country of previous residence. This category is purely chosen for consistency reasons, since the information on immigrants based on their country of previous residence is available for the largest group of countries. For a few exceptions, the definition differs from this convention by defining immigrants based on their citizenship or country of birth.[5]

Figure 2 illustrates the sum of the emigration flows between 2001 and 2012 as a share of the total population in 2005 for each of the origin countries contained in the data set used by this paper. The total population data is extracted from

[5] In addition, the list of 45 countries is not completed and does not cover all countries worldwide. Therefore, data on the stayers $N_{ii,t}$ cannot be computed by subtracting the migration flows from population data. Hence, a strategy similar to the one used by Beine and Parsons (2015) cannot be applied in this paper. Nevertheless, as argued by Beine et al. (2011), the use of appropriate fixed effects allows to control for $N_{ii,t}$.



Notes: The designations employed and the presentation of material on this map do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

Figure 2: Shares of emigration flows 2001-2012

United Nations (2017). The map illustrates the wide coverage of origin countries and categorizes origin countries by the size of their shares of emigrants according to ten categories. The emigration flows as percentage of the total population vary between 0.002% and 50%.[6]

Annual data on the wage payments for each country are derived from the World Development Indicators (WDI) provided by the World Bank. Following a standard approach of the literature, the wage payments are proxied by the GDP per capita levels measured in constant US dollars of 2010.[7] Data on the distance, contiguity (i.e. shared borders), linguistic proximity, common currency and colonial ties between i and j are taken from Head et al. (2010).

Finally, the key variables of interest are the emigration and immigration policies. The paper uses updated information on these variables derived from the World Population Policies database (United Nations, 2015b). The data contained in this database are collected by UNPD by means of a biannual inquiry among governments. The WPP provides an overview over the government views and policies on international migration. From the beginning of 2001, information on migration policies is collected in two-year intervals. Two categories of the WPP contain explicit information on migration policies: (1) policy on immigration and (2) policy on emigration

The structure of the database makes coding of variables inevitable.[8] The variables capturing the character of the policies on immigration and on emigration can be coded according to the restrictiveness of these policies. A country that reports the government policy is to "raise" immigration is assigned a value of zero. A country that

[6]The outliers with very high emigration flow shares correspond to countries or territories with very small populations, such as Tokelau, Greenland, Niue, Cook Islands or Faeroe Islands.

[7]Small adjustments are made for missing data. For instance, the data set is complemented by information from the Maddison Project described in Bolt and Zanden (2014). Furthermore, for a few missing observations in some countries, data are imputed based on the growth trend of neighboring countries.

[8]Probably due to missing alternatives, this seems to be the standard approach within the literature. As outlined in detail above, Ortega and Peri (2013) use a similar coding strategy.

reports “maintain” or “no intervention” to this category is assigned a value of one. If a country reports the policy is to “lower” immigration, it is assigned a value of two. In this case the country is considered as more restrictive towards future immigration. Consequently, the constructed variable on the policy on immigration $X_{j,t}$ of destination country j in period t takes the following form:

$$X_{j,t} = \begin{cases} 2 & \textit{if} \text{ policy is to “lower” immigration} \\ 1 & \textit{if} \text{ policy is to “maintain” immigration or “no intervention”} \\ 0 & \textit{if} \text{ policy is to “raise” immigration} \end{cases}$$

The policy on emigration can be coded in a similar manner. The constructed variable on the policy on emigration $X_{i,t}$ of origin country i in period t takes the following form:

$$X_{i,t} = \begin{cases} 2 & \textit{if} \text{ policy is to “lower” emigration} \\ 1 & \textit{if} \text{ policy is to “maintain” emigration or “no intervention”} \\ 0 & \textit{if} \text{ policy is to “raise” emigration} \end{cases}$$

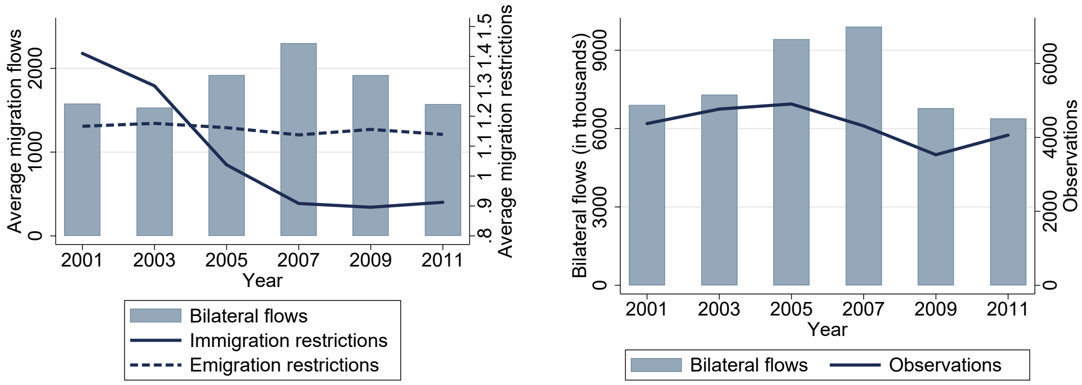
This coding strategy intends to reflect the restrictiveness of immigration or emigration policies by reporting a higher value for a higher level of restrictiveness.[9]

Figure 3a depicts the average global evolution of immigration and emigration policies of the destination and origin countries included in the data set used by this paper. The solid line in figure 3a illustrates the evolution of immigration policies for 41 destination countries that are analyzed. The figure reports the average of the constructed variable capturing immigration restrictions for the destination countries from 2001 to 2011. According to the data extracted from United Nations (2015b) and the coding strategy described above, immigration restrictions became less binding on average in the 41 destination countries over the last decade. The dashed line in figure 3a depicts the evolution of emigration restrictions for 195 origin countries or territories. The average emigration restrictiveness for these countries remained relatively stable over the decade analyzed in this paper.

Data on the policy variables are available in two-year intervals from the beginning of 2001. Therefore, the values of the other annually collected variables have to be matched with the policy data. For the dependent variable, this is done by simply summing the migration flows for the two years corresponding to the measured policy variable.[10] For instance, when the policy variable is measured in 2001, it is matched with the sum of the bilateral migration flows reported for 2001 and 2002. Data on the GDP per capita is matched without any readjustment. For example, when the policy variable is measured in 2001, it is matched with the GDP per capita reported for 2001. In addition, the migration flows that are measured for a certain time period are usually expected to be affected by the specific conditions that were observed a few years before. Reported policies could take some time for being actually dispersed throughout the institutional system, so that there might be a lagged impact on flows. Therefore, the following empirical analysis contains also specifications with lagged policy variables. In

[9] The view of governments on their migration policies could essentially be interpreted as the desire to change existing migration policies. In this light, this variable may reflect changes in migration policies and fully aligns with the studies that focus on a change in migration policies outlined above.

[10] For simplicity, this approach does not account for returning migrants and considers the biannual inflow as simply equal to the sum of two annually reported inflows.



(a) Observations and sum of migration flows (b) Average migration flows and restrictions

Notes: In figure 3a, the size of the average bilateral migration flows is measured on the left y-axis and the size of the average migration restrictions is measured on the right y-axis. In figure 3b, the size of sum of all migration flows worldwide is measured on the left y-axis and the number of observations of bilateral migration flows is measured on the right y-axis.

Figure 3: Summary of key variables 2001-2012

this case, the policy variable measured in 2001 is matched with the sum of the flows observed in 2003 and 2004.[11]

Table 1 reports the summary statistics for the main variables used by the analysis. The data set contains information on 41 destination and 228 origin countries or territories.[12] Information on 6,238 combinations of country flows is collected. Six data periods in two-year intervals between 2001 and 2011 are covered. In total, information for 25,948 flows is reported. For 4,005 of these flows a zero value is recorded, so that the proportion of zero observations is relatively small and accounts for only 15% of the observations.[13] The following analysis will use Ordinary Least Squares (OLS) estimation (including the appropriate dummies) to estimate equation (7).[14] Consequently, the estimation is done in logs and closely related to the micro-foundations of the gravity model outlined above.

Figure 3 provides an additional summary of the data set used by the following empirical analysis. The bars in figure 3b report the number of bilateral flows for which data is collected in each of the periods. The number of observations range from 4,904 for the flows in period 2005-2006 and 3,531 for the flows in period 2009-2010. This indicates a relative balance of the number of observations over time. The line in the figure reports the size of global migration flows for each period. The sum of flows vary between 6,394,095 for the period 2011-2012 and 9,909,368 for the period 2007-2008. No apparent trend seems to characterize he depicted flows.

[11] Ortega and Peri (2013) use a similar strategy.

[12] For the four missing destination countries of the set of 45 countries, no data was reported for the time period analyzed in this paper. All destination countries and origin territories are listed in table A2 and table A3 in the Appendix, respectively.

[13] As discussed by Beine and Parsons (2015), this has important implications for the estimator that can be used.

[14] Beine and Parsons (2015) argue that due to their very high proportion of zero observations, a standard OLS estimation potentially creates severe biases. However, the share of observations with zero flows is markedly higher than 15% in their analysis.

Table 1: Summary statistics for the main variables

Variables	Observations	Mean	Std. Dev.	Min.	Max.
Bilateral migration flows	25,948	1,800.50	10,384.14	0.0	449,914.0
GDP per capita in destination	37,428	36,071.86	25,874.99	682.6	142,183.0
GDP per capita in origin	36,066	14,665.12	22,371.31	193.9	147,766.6
Immigration restrictions	37,428	1.07	0.60	0	2
Emigration restrictions	35,151	1.15	0.51	0	2
Distance	36,198	6,453.66	4,300.62	110.9	19,647.7
Contingency	36,198	0.02	0.16	0	1
Common language	36,198	0.09	0.29	0	1
Common colonial ties	36,198	0.03	0.17	0	1
Common currency	36,198	0.03	0.17	0	1

Notes: The text describes the sources for each variable. The table contains information on the number of observations, the mean, the standard deviation, the minimum, and the maximum for 41 destination and 228 origin countries or territories for the years between 2001 and 2011.

Figure 3a provides an overview of the average size of the emigration flows and the migration restrictions in each time period. The bars in the figure illustrate that the global average size of migration flows varies between 1,530 and 2,300 over the six periods. The figure shows that the average size of the emigration flows and the average immigration and emigration restrictions (depicted by the solid and dashed line) do not follow similar trends over time. This may indicate that the observations on migration flows and migration restrictions included in the data set are not simply positively correlated. It shows that the results of the analysis are not simply driven by a pure size effect of increasing migration flows over time.

4 Results

This section first describes the baseline results of the estimation of equation (7). It compares the role of immigration and emigration policies. The second part of the section then discusses a number of additional specifications of equation (7) in order to determine the robustness of the baseline results.

4.1 Baseline results

Table 2 depicts the baseline results of the empirical analysis of this paper. The dependent variable is the log of the biannual bilateral migration flows between origin and destination countries.

Column (1) illustrates the results for the OLS estimation in which the immigration restrictions in country j are analyzed. Destination and origin-year fixed effects are included in this specification.[15] The table indicates that even with the very demanding specification including a large set of fixed-effects immigration restrictions have a statistically significant negative impact on bilateral migration flows.[16]

[15]Note that the inclusion of destination-year fixed effects would eliminate the variation in the variable of interest, namely the entry restrictions applied by the destination country.

[16]The size and the range of the estimated coefficients closely resemble the coefficients estimated by Ortega and Peri (2013). This may be an additional proof of concept of the coding strategy applied by this paper.

Table 2: The role of immigration and emigration policies - baseline results

	(1)	(2)	(3)	(4)	(5)	(6)
Variables	Log of bilateral migration flows					
Immigration restrictions	-0.0371*		-0.0395**			
	(0.0191)		(0.0195)			
Emigration restrictions		0.0127	0.0102			
		(0.0237)	(0.0246)			
Lagged immigr. restrictions				-0.136***		-0.140***
				(0.0214)		(0.0218)
Lagged emigr. restrictions					-0.00936	-0.0101
					(0.0257)	(0.0263)
Log ratio of GDP per capita	0.390**	0.138*	0.283***	0.363**	0.285***	0.361***
	(0.131)	(0.0791)	(0.0714)	(0.154)	(0.0884)	(0.0798)
Log distance	-1.202***	-1.213***	-1.204***	-1.235***	-1.240***	-1.233***
	(0.0573)	(0.0566)	(0.0567)	(0.0571)	(0.0563)	(0.0564)
Contingency	0.443***	0.388***	0.441***	0.356**	0.327**	0.365**
	(0.157)	(0.154)	(0.156)	(0.155)	(0.153)	(0.154)
Common language	0.908***	0.897***	0.889***	0.910***	0.899***	0.891***
	(0.0931)	(0.0917)	(0.0922)	(0.0917)	(0.0903)	(0.0907)
Common colonial ties	2.047***	1.879***	1.998***	2.043***	1.855***	1.969***
	(0.177)	(0.166)	(0.174)	(0.185)	(0.174)	(0.181)
Common currency	-0.0609	-0.0593	-0.0056	-0.0987	-0.0926	-0.0545
	(0.153)	(0.142)	(0.141)	(0.145)	(0.134)	(0.134)
Constant	9.179***	11.97***	10.71***	11.26***	12.40***	6.981***
	(1.497)	(0.570)	(0.615)	(0.487)	(0.578)	(0.648)
Observations	21,076	20,614	20,614	17,801	17,367	17,367
R-squared	0.793	0.792	0.786	0.798	0.798	0.792
Fixed effects:						
Origin	No	Yes	Yes	No	Yes	Yes
Origin-year	Yes	No	No	Yes	No	No
Destination	Yes	No	Yes	Yes	No	Yes
Destination-year	No	Yes	No	No	Yes	No
Year	No	No	Yes	No	No	Yes

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Notes: The specifications include different types of fixed effects. Robust standard errors in parenthesis are clustered by country-pair.

Column (2) contains the results for the equivalent estimation focusing on the emigration policies. Origin and destination-year fixed effects are included in this specification. The table illustrates that emigration restrictions and immigration restrictions do not seem to play a similar important role. Somewhat unexpectedly, the sign of the coefficient related to the emigration restrictions is positive, albeit it does not display statistical significance. The number of destination countries in the data set is markedly lower than the number of origin countries. In addition, most of the destination countries are characterized by a high level of development, which may distort the results. However, in light of the limited availability of data, it is hard to eliminate these potential biases.

Column (3) provides the result for the estimation in which immigration and emigration policies are analyzed jointly. In this specification only destination, origin and year fixed effects but no destination-year or origin-year fixed effects can be included. For this reason, the estimation is less precise and conclusions drawn from the estimation based on this specification may be less accurate. Compared to the previous specifications, the signs of the coefficients related to the migration restrictions remain unchanged when this specification is used. In addition, the coefficient related to the immigration restrictions is statistically significant at the ten per cent level.

Columns (4)-(6) of table 2 contain the equivalent results to the ones depicted in columns (1)-(3) for the analysis using lagged immigration and lagged emigration policies. In general, the results do not markedly change when the lagged variables are used. In terms of size, the effect of the lagged immigration restrictions is stronger than the effect depicted in column (1). In addition, the estimated coefficient exhibits stronger statistical significance. This may support the supposition that it takes some time until governmental views on the policy of immigration finally impact on immigration. In general, this indicates that the specification including lagged variables may be the more accurate baseline specification. The sign of the coefficient related to the emigration restrictions is negative but does not display statistical significance. This additionally suggests that emigration restrictions play a less important role than immigration restrictions.

The additional explanatory variables included in the specification are the log of the ratios of GDP per capita at destination and origin, the log of distance, dummy variables for neighbouring countries, for having a common language, for having common colonial ties, and for having a common currency. All the additional coefficients have the expected sign and are, with the exception of the coefficient related to the variable reporting a common currency, statistically significant. This shows that the current analysis is in line with the many analyses that include similar variables and elements in the gravity model of migration and obtain very similar results.

4.2 Robustness checks

Table 3 illustrates the results for several robustness checks. In columns (1)-(3), the dependent variable is the log of the biannual bilateral migration flows between origin and destination countries for the years 2005-2006 and 2011-2012. The three columns depict the results for the specifications based on an average of the policy measures. The key variables of interest are the mean of the immigration and emigration restrictions for the three time periods before the year 2005 and 2011. In other words, migration flows for the years 2005-2006 (respectively 2011-2012) are matched with the mean of the numerical values assigned to the migration policies for the years 2001, 2003, and 2005 (respectively 2007, 2009, and 2011). The idea behind this approach is that an estimation based on the average of the policy variables will be less confounded by short-term factors, reverse causality or other measurement errors.[17] The results obtained based on this sub-sample are robust with respect to the baseline results. Average immigration restrictions have a statistically significant negative impact on bilateral migration flows, while average emigration restrictions do not seem to play

[17] Note that this approach markedly reduces the sample size to only around 7,000 observations.

a major role. In terms of size, the effects are even stronger compared to the results depicted in table 2.

Table 3: The role of immigration and emigration policies - robustness checks

	(1)	(2)	(3)	(4)	(5)	(6)
Variables	Log of bilateral migration flows			Bilateral migration flows		
Average immigr. restrictions	-0.337***		-0.276***			
	(0.0583)		(0.0567)			
Average emigr. restrictions		0.0548	0.0632			
		(0.0607)	(0.0617)			
Lagged immigr. restrictions				-0.00508		-0.0381
				(0.0275)		(0.0359)
Lagged emigr. restrictions					0.0359	0.0207
					(0.0458)	(0.0569)
Log ratio of GDP per capita	-0.574*	0.457***	0.373***	2.476***	-0.443**	-0.311**
	(0.314)	(0.118)	(0.113)	(0.447)	(0.184)	(0.146)
Log distance	-1.204***	-1.212***	-1.207***	-1.173***	-1.168***	-1.169***
	(0.0577)	(0.0580)	(0.0579)	(0.0943)	(0.0974)	(0.0981)
Contingency	0.350**	0.359**	0.352**	-0.0486	-0.0522	-0.0543
	(0.150)	(0.150)	(0.150)	(0.169)	(0.172)	(0.172)
Common language	0.920***	0.900***	0.897***	0.969***	0.951***	0.952***
	(0.0939)	(0.0936)	(0.0935)	(0.122)	(0.125)	(0.125)
Common colonial ties	1.988***	1.927***	1.942***	1.061***	1.059***	1.077***
	(0.189)	(0.187)	(0.187)	(0.150)	(0.153)	(0.151)
Common currency	-0.0609	-0.0566	-0.0177	-0.273	-0.311	-0.301
	(0.147)	(0.134)	(0.133)	(0.234)	(0.234)	(0.232)
Constant	7.605***	7.051***	7.089***	8.133***	16.11***	12.22***
	(1.999)	(0.748)	(0.745)	(1.146)	(1.188)	(0.987)
Observations	7,465	7,312	7,312	20,376	19,783	19,783
R-squared	0.807	0.804	0.802	0.742	0.728	0.705
Fixed effects:						
Origin	No	Yes	Yes	No	Yes	Yes
Origin-year	Yes	No	No	Yes	No	No
Destination	Yes	No	Yes	Yes	No	Yes
Destination-year	No	Yes	No	No	Yes	No
Year	No	No	Yes	No	No	Yes

Robust standard errors in parentheses
*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Notes: The specifications include different types of fixed effects. Robust standard errors in parenthesis are clustered by country-pair.

As discusses in subsection 2.1, several of the existing studies relying on the gravity model of international migration apply non-linear estimation techniques, such as the use of the Poisson Pseudo-maximum Likelihood estimator. Therefore, an additional robustness check analyzes the effect of using a different estimator. The second half of table 3 contains the results obtained when the Poisson Pseudo-maximum Likelihood estimator is used for the estimation of equation (7).[18] The dependent variable in

[18] This allows to keep the zero values for the dependent variable, so that the sample size is larger

columns (4)-(6) is the biannual bilateral migration flows between origin and destination countries. The coefficients of the key variables of interest, the lagged immigration and emigration restrictions, are not statistically significant. This may indicate that the above results of the baseline estimation need to be interpreted with caution. The results are based on coarse proxies for migration policies and highly depend on the approach chosen for a coding strategy. Nevertheless, the coefficients depicted in columns (4)-(6) have the expected signs. The use of non-linear estimation techniques in this section is motivated by the attempt to avoid biased results due to the fact that a large number of zero values for the migration flows is excluded from the sample. As discussed in subsection 3.3, the proportion of zero observations is relatively small in the sample used by the baseline estimation.

The coefficients of the additional explanatory variables included in the six different estimations of the robustness check only partly have the expected sign and only partly are statistically significant. While the effects of distance, common language and colonial ties on migration seem to be quite robust to changes of the specification, the effects of income and contingency are less clear.

Overall, the results depicted in table 3 show that the baseline results are robust to some alternative specifications. However, the robustness checks also suggest that the baseline results may need to be interpreted with some caution.

5 Conclusion

Over the past decades, a large number of researchers have extensively discussed the determinants and drivers of international migration. The gravity model of international migration has been applied in numerous studies. This paper uses a gravity framework in order to determine the relationship between migration policies and international migration flows. To the best of the author's knowledge, this paper for the first time addresses and compares the effect of immigration and emigration restrictions. In addition, the paper analyzes the bilateral migration flows between a large group of 41 destination countries and 195 origin countries using a gravity framework. The empirical analysis shows that immigration policies have a statistically significant impact on migration flows. Moreover, the results indicate that immigration policies may be more important in shaping global migration flows than emigration policies. This suggests that government policies targeting immigrants have a stronger effect on international migration flows than government policies targeting emigrants.

The analysis of this paper is characterized by a number of limitations. The results of the analysis crucially depend on the coding strategy that assigns specific values to certain government policies. The information on migration policies used by this paper can only provide coarse proxies for the restrictiveness of emigration and immigration policies. A macro analysis using a gravity framework based on a large number of observations can only illustrate the very general relationship between government policies and international migration flows.

This shows that more effort is needed in collecting precise information on the migration restrictions of destination and origin countries. In light of the lack of data on and analyses of emigration restrictions, such information should not only focus on

for this alternative estimation than for the baseline specification depicted in columns (4)-(6) of table 2.

immigration policies but also on emigration policies. This may crucially deepen the understanding of how and to what extend such policies impact on individual migration decisions.

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A Appendix

Table A1: Related literature

Authors	Variable of interest	Method	Data	Source
Mayda (2010)	Migration policies, geographic, cultural, and demographic factors	OLS	Migration flows to 14 countries for the years 1980-1995	OECD
Kim, Cohen (2010)	Population size, infant mortality, distance between capitals	OLS, GEE	Migration flows to 17 countries for the years 1950-2007	UN
Beine, Docquier, Özden (2011)	Diasporas	OLS, HEC	Migration flows to 30 countries for the years 1990-2000 (computed from stocks)	DLM
Llull (2011)	Income, income interaction	OLS	Migration stocks for 24 countries for the years 1960-2000	NSO
Adsera, Plytikova (2012)	Language	OLS	Migration flows to 30 countries for the years 1980-2009	NSO, OECD
Bertoli, Fernandez-Huertas Moraga (2012)	Visa requirements	OLS, PPML	Migration flows to 31 countries for the years 1990-2010 (computed from stocks)	DLM, OPSW
Beine, Bourgeon, Bricongne (2013)	Unemployment, Schengen area, common currency	OLS	Migration flows to 30 countries for the years 1980-2000	OECD, UN
Ortega, Peri (2013)	Income, migration policies	OLS	Migration flows to 15 countries for the years 1980-2005	OECD, UN
Beine, Parsons (2015)	Climate variables	PPML	Migration flows to 226 territories for the years 1960-2000 (computed from stocks)	OPSW
Backhaus, Martinez-Zarzoso, Muris (2015)	Climate variables	OLS	Migration flows to 19 countries for the years 1995-2006	OECD
Ramos, Surinach (2016)	Past and future trends (projections)	OLS	Migration stocks for 183 countries for the years 1960-2000	OPSW
Lanati, Thiele (2017)	Foreign Aid	OLS, 3SLS	Migration flows to 28 countries for the years 1995-2014	OECD

Notes: This table provides an overview of some of the analyses building on the gravity model of international migration (or variations thereof). The estimation methods include Ordinary Least Squares (OLS), Heckman (HEC), Poisson Pseudo-maximum Likelihood (PPML), Generalized Estimating Equation (GEE), and Three Stage Least Squares (3SLS). The OLS includes the use of pooled OLS, scaled OLS, First Difference, or Fixed Effects estimators. The data sources are Docquier et al. (2009) (DLM), national statistical offices (NSO), the Organisation for Economic Co-operation and Development (OECD) (usually from the International Migration Database), Özden et al. (2011) (OPSW), and the United Nations Population Division (UN).

Table A2: Destination countries

Armenia, Australia, Austria, Azerbaijan, Belarus, Belgium, Bulgaria, Canada, Croatia, Cyprus, Czech Republic, Germany, Denmark, Estonia, Finland, Hungary, Iceland, Ireland, Italy, Kazakhstan, Kyrgyzstan, Latvia, Liechtenstein, Lithuania, Luxembourg, Macedonia, Netherlands, New Zealand, Norway, Poland, Republic of Moldova, Romania, Russian Federation, Slovakia, Slovenia, Spain, Sweden, Switzerland, Ukraine, United Kingdom, United States of America

Table A3: Origin countries and territories

Afghanistan, Albania, Algeria, American Samoa, Andorra, Angola, Anguilla, Antigua and Barbuda, Argentina, Armenia, Aruba, Australia, Austria, Azerbaijan, Bahamas, Bahrain, Bangladesh, Barbados, Belarus, Belgium, Belize, Benin, Bermuda, Bhutan, Bolivia, Bosnia and Herzegovina, Botswana, Brazil, British Virgin Islands, Brunei Darussalam, Bulgaria, Burkina Faso, Burundi, Cabo Verde, Cambodia, Cameroon, Canada, Cayman Islands, Central African Republic, Chad, Chile, China, Colombia, Comoros, Congo, Cook Islands, Costa Rica, Croatia, Cuba, Cyprus, Czech Republic, Cote d'Ivoire, Democratic People's Republic of Korea, Democratic Republic of the Congo, Denmark, Djibouti, Dominica, Dominican Republic, Ecuador, Egypt, El Salvador, Equatorial Guinea, Eritrea, Estonia, Ethiopia, Faeroe Islands, Falkland Islands, Fiji, Finland, France, French Guiana, French Polynesia, Gabon, Gambia, Georgia, Germany, Ghana, Gibraltar, Greece, Greenland, Grenada, Guadeloupe, Guam, Guatemala, Guinea, Guinea-Bissau, Guyana, Haiti, Holy See, Honduras, Hong Kong, Hungary, Iceland, India, Indonesia, Iran, Iraq, Ireland, Isle of Man, Israel, Italy, Jamaica, Japan, Jordan, Kazakhstan, Kenya, Kiribati, Kuwait, Kyrgyzstan, Lao People's Democratic Republic, Latvia, Lebanon, Lesotho, Liberia, Libya, Liechtenstein, Lithuania, Luxembourg, Macao, Macedonia, Madagascar, Malawi, Malaysia, Maldives, Mali, Malta, Marshall Islands, Martinique, Mauritania, Mauritius, Mayotte, Mexico, Micronesia, Monaco, Mongolia, Montenegro, Montserrat, Morocco, Mozambique, Myanmar, Namibia, Nauru, Nepal, Netherlands, New Caledonia, New Zealand, Nicaragua, Niger, Nigeria, Niue, Northern Mariana Islands, Norway, Oman, Pakistan, Palau, Panama, Papua New Guinea, Paraguay, Peru, Philippines, Poland, Portugal, Puerto Rico, Qatar, Republic of Korea, Republic of Moldova, Romania, Russian Federation, Rwanda, Réunion, Saint Helena, Saint Kitts and Nevis, Saint Lucia, Saint Pierre and Miquelon, Saint Vincent and the Grenadines, Samoa, San Marino, Sao Tome and Principe, Saudi Arabia, Senegal, Serbia, Seychelles, Sierra Leone, Singapore, Slovakia, Slovenia, Solomon Islands, Somalia, South Africa, Spain, Sri Lanka, State of Palestine, Sudan, Suriname, Swaziland, Sweden, Switzerland, Syrian Arab Republic, Tajikistan, Taiwan, Thailand, Timor-Leste, Togo, Tokelau, Tonga, Trinidad and Tobago, Tunisia, Turkey, Turkmenistan, Turks and Caicos Islands, Tuvalu, Uganda, Ukraine, United Arab Emirates, United Kingdom, United Republic of Tanzania, United States Virgin Islands, United States of America, Uruguay, Uzbekistan, Vanuatu, Venezuela, Viet Nam, Wallis and Futuna Islands, Western Sahara, Yemen, Zambia, Zimbabwe