Speaking the Same Language: Analysing the Impact of Language Requirements on Migration Flows

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Abstract

This thesis investigates the impact of language requirements on migration flows into the European Union (EU). The primary focus is on whether stricter language requirements deter immigrants. Amid rising anti-immigrant sentiment and persistent labour shortages in many European countries, understanding the determinants of migration is crucial for effective policymaking. Using panel data analysis, this study explores the overall relationship between language requirements and migration inflows. A sub-question addresses the differential effects on EU citizens compared to third-country nationals (TCNs). The research finds no significant overall relationship between language requirements and migration inflows, suggesting that other factors may play more critical roles. However, some models indicate a positive correlation between stricter language requirements and increased migration inflows, challenging conventional assumptions. These findings contribute to the broader discourse on migration policy, highlighting the complex interplay between integration policies and migration patterns. The results have important implications for policymakers aiming to balance labour market needs with integration goals.

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Introduction

In multiple European countries, far-right political parties promoting anti-immigrant policies have recently won elections, reflecting a surge in anti-immigrant sentiment. This rising anti-immigrant sentiment is driven by different factors, including cultural and religious differences. A significant argument promoted by far-right parties is that immigrants deprive native workers of employment opportunities, drive down wages, and fail to integrate well in their destination country (Kevins & Lightman, 2020). Contrary to these claims, many European countries face persistent labour market shortages, which are expected to increase even further in certain sectors such as manufacturing, construction, healthcare, and service (European Commission, 2023). Structural labour shortages pose several negative effects on the economy and could impede social and economic developments, including the digital and green transition (European Labour Authority, 2024).

Demographic changes in the EU are a contributing factor to these labour market shortages. The working-age population as a share of the total population is decreasing, which has a twofold effect. On one hand, there are fewer available workers, which also decreases contributions to the pension system. On the other hand, the ageing population demands more healthcare and services, leading to a further increase in demand for labour (Cristea et al., 2019). A proposed solution to mitigate the shortages is to attract immigrants from outside and within the EU to fill the gaps in the labour market.

To design effective policy focused on attracting labour immigrants, it is crucial to understand the factors influencing migrants' decisions regarding migration and their choice of destination. These determinants of migration have been the subject of a large body of research. One of the factors which has been found to affect migrants' decisions regarding migration and the choice of the destination country is language, which is also an important factor in integration, as it allows migrants to transfer their skills and participate in the labour market (Chiswick and Miller, 2015). Another factor which has been found to negatively affect migration decisions is the strictness of migration and integration requirements (Mayda, 2010; Ortega & Peri, 2009). Combining these two factors would imply that strict language requirements for immigrants could make a destination less attractive. Consequently, these requirements could decrease the inflows of immigrants, indirectly hindering the reduction of labour market shortages. The relationship between language requirements and migration inflows is crucial to understand,

because whether the relationship is positive or negative could have important policy implications.

In this thesis, I will address the puzzle described above by answering the following research question: Do language requirements affect migration inflows into the EU and is there a difference in effect for EU-citizens and third-country nationals? The puzzle represents a part of the relationship between integration policy and migration inflows. Considering the scope of the thesis, this research objective is appropriate and contributes to the understanding of the relationship between policy and migration flows. I will explore the relationship between language requirements and migration inflows in the EU for both EU citizens and third-country nationals (TCNs), as the requirements differ for these two groups. Because of existing differences in policies between EU countries and changes in policy over time, I am able to use panel data to analyse the relationship between policy on language requirements and migration inflows in the EU.

Exploring the relationship between language integration requirements and migration flows within and outside the EU can be valuable for both scholars and policymakers. This research contributes to existing research on the drivers of migration and especially on the effect of migration and integration policies, with a focus on the dimension of language. There is an extensive body of literature on the determinants of migration flows, but not with a focus on the effect of language requirements and the possible directions of this relationship. For policymakers, knowledge of the relationship between these policies and migration inflows can contribute to creating efficient policies that will attract more migrants to mitigate the current issue of labour shortages. It is also useful to reflect on the importance of language requirements for immigrants in general, as policies related to this might facilitate better and swifter integration.

The thesis will be structured as follows. First, I will provide an overview of existing relevant literature. Based on this, I will lay down the theoretical framework and hypotheses. Next, I will explain the methodology for the research and provide and interpret the results of the analyses. To conclude, the limitations and implications of the research will be discussed.

Literature Review

In this part, I will discuss existing literature on the research puzzle. First, findings on the general relationship between integration policy and labour market integration will be explored. Second, important literature on the determinants of migration flows will be summarized and gaps in existing research will be discussed. The role of language as a determinant of migration will be highlighted. Finally, the small body of research on the relationship between language policy and migration inflows will be discussed.

Effect of Language on Labour Market Integration

Different studies have examined the relationship between language proficiency and labour market success and found a positive effect on earnings (Chiswick and Miller, 2015) and on employment opportunities in general, especially for TCNs (Kossoudji, 1988; Dustmann & Fabbri, 2003). Other studies focus on the effect of language training on labour market integration. Recent studies have found that participating in language training has a positive effect on the labour force participation of immigrants (Lochmann et al., 2019) and that it can significantly increase immigrant's employment probability (Lang, 2022). Another recent study using Twitter data assessed the actual effect of language integration policies on language acquisition and found that the strictness of integration requirements is negatively associated with the pace at which immigrants learn a new language (Gil-Clavel et al., 2023).

These studies all find that language is an important part of immigrant integration in general and in the labour market. While language integration policies can facilitate faster integration, strict policies might have the opposite effect, delaying integration and deterring potential immigrants. These findings suggest that the existence of language integration policies could have ambivalent effects on migration inflows. They can attract immigrants through enhanced integration prospects yet deter them if perceived as overly burdensome.

Determinants of Migration

An extensive body of literature has focused on the determinants of international migration, examining both migration flows and the desires of possible migrants. These studies discuss various factors influencing an individual's decision to emigrate or immigrate and the choice of destination. Multiple factors that create incentives to emigrate and immigrate from and to certain countries have been identified, typically divided into two categories: push-factors, which are related to the origin and imply whether individuals would like to leave a certain country, and pull-factors, which are attached to the destination country and indicate reasons for individuals to choose a certain country to migrate to (Beverelli, 2022).

Income and employment opportunities are often considered as the main determinants of labour migration, as a primary pull-factor. Grogger and Hanson (2011) find that wage differences impact the decision on the destination country, especially for higher skilled migrants. Pedersen et al. (2008), Mayda (2010) and Ortega & Peri (2009) provide extensive overviews of determinants of international migration. They find that income opportunities and low unemployment rates are important pull factors, which increase emigration rates significantly. Particularly, the differences in the level of income per capita between the destination and the origin country have a significant effect on migration flows. This would imply that the EU countries are attractive destinations, due to low unemployment rates, ample employment opportunities and generally high wage levels.

Since the focus of this study is on the link between labour market opportunities, integration policies and immigration inflows, the existing work discussed above explains how job opportunities and integration requirements shape the decision to migrate. These determinants are often considered as the main drivers of migration. However, an extensive body of research has investigated other complementary push and pull factors, which has shown that welfare state generosity and benefit levels (Borjas, 1999; De Giorgi & Pellizzari, 2009), network effects (Hatton & Williamson, 2005; Pedersen et al., 2008) and cultural and ethnic similarities (Pedersen et al., 2008) are also important pull-factors. Some significant push factors include climate change, natural disasters, and political conflicts (Beine & Parsons, 2015). Most studies also include negative determinants of migration, which increase the cost of migration and thus decrease migration flows (Pedersen et al., 2008; Mayda, 2010; Ortega & Peri, 2009). There are thus multiple determinants of migration flows, and while the primary drivers are economic factors, social and cultural factors have been found to play a role as well.

Immigration and integration policies in the destination country are key determinants of migration. The effect of these policies in destination countries is ambivalent. Some studies assess the effect of immigration policy on migration flows by looking at changes in the strictness of immigration policy, specifically entry laws, in destination countries. They find that stricter immigration policies and the tightening of entry laws discourage migration significantly (Ortega & Peri, 2009, 2013; Mayda, 2010). Stricter immigration policies may also lead to more selective immigration and a stronger network effect for immigrants from high income origin countries (Pedersen et al. 2008). Other studies specifically focus on skill-selective immigration

policies and find that these increasingly popular policies can increase the number of high skilled immigrants (Czaika & Parsons, 2017) While these studies focus on the strictness of entry laws and find that increased strictness leads to a decrease in migration flows, they do not examine the impact of specific immigration policies.

The effect of integration policies, which affect the immigrant after arrival in a destination country, is less widely studied. Beverelli (2022) examined integration policies as pull-factors, considering dimensions other than the entry laws. He found that less restrictive migration integration policies have a positive effect on migration from foreign countries relative to domestic migration within the country. This effect is primarily driven by the impact of policies on family reunion and permanent residence. Beine et al. (2020) investigate the effect of immigrants' integration and rights on emigration desires. They find that generous regulations in terms of labour market access, access to permanent residence and nationality positively affect emigration desires to certain countries. Thus, strict immigration policy is found to have a negative effect on immigration, and generous integration policy is found to have a positive effect on immigration. This implies that generous and non-restrictive language integration policies could be expected to have a positive effect on immigration, and in the same vein strict language requirements before arrival could be expected to have a negative effect on immigration.

Whether policy on language requirements is considered as integration or immigration policy is dependent on interpretation. Bjerre et al. (2015) conceptualise immigration policies as the rights that enable an immigrant to sustain a living in the host country. While some of these rights are also part of integration policies, they conceptualise integration policies as determining also how immigrants live in a destination country. This is a broad definition of immigration policies, which is much further narrowed down to entry laws by others (Mayda, 2010; Ortega & Peri, 2009; 2013). Language requirements fall within a grey area: language requirements are used to determine whether an immigrant can enter a country, but also whether they can stay or receive citizenship. Additionally, language is a very important part of integration, so even language requirements before entry could be considered as integration policies.

The Role of Language

In many of the studies discussed in this review, language is mentioned as factor which contributes to shaping migration flows and desires. The studies include common language as a

control factor and find that this positively affects migration flows and desires (Pedersen et al.,2008; Grogger & Hanson, 2011; Ortega & Peri, 2013; Beine et al., 2020; Beverelli, 2022). A common language is often included in the function for migration costs, as a representation of cultural distance. If two countries share a common or similar language, migration costs are expected to be lower, because an immigrant does not have to invest in learning a new language and it is easier to connect to the native population in the destination country.

While there is a research gap in research on the effect of immigration and integration policies focused on language, several studies have examined language proficiency as a determinant of migration flows and integration success. Chiswick & Miller (2015) review language factors included in the studies discussed in the previous sections. One important finding is that a widely spoken language in the destination country may have a positive effect on migration flows to this country. Widely spoken languages are more often taught in schools in source countries and language proficiency might be valued in the destination country's labour market (Adsera & Pytlikova, 2015). If a destination country has a widely spoken first language, such as English, immigrants who have knowledge of this language might be more likely to migrate to these countries, as it will be easier for them to participate in the labour market, and they are more likely to receive higher earnings (Chiswick & Miller, 2015). These findings imply that if a country has a widely spoken language or a language that is easy to learn, it might attract more immigrants. While these factors are not included in this thesis, it is important to understand the effects of language proficiency on migration in order to create fitting language requirements.

Adsera & Pytlikova (2015) conducted one of the few studies focusing on the role of language in international migration, examining linguistic proximity, the effect of a widely spoken language, linguistic communities, and language policy requirements. They find that migration rates are higher among countries with more similar languages, that the effect of linguistic proximity is higher for non-English speaking destinations and that a larger linguistic network can act as a pull-factor. Furthermore, they find that English proficiency in the destination country increases immigration. This paper is the only extensive study which explicitly considers language policy requirements as a determinant of immigration flows, finding that stricter language requirements for naturalisation have a negative effect on migration flows. While the independent variables in this thesis do not include language requirements for naturalisation, I expect that the effect will be similar.

EU-citizens and TCNs

The sub question in this thesis aims to distinguish between EU-citizens and TCNs, because their migration motives and regulations differ significantly (Kanas & Steinmetz, 2021). EU-citizens have the right of free movement between EU countries, which means that they have the right to move and reside freely within the EU (TFEU, 2008, Art. 21). Many policies and restrictions which apply for TCNs do not apply for EU citizens, which affects their motives for migration and their choice of destination. Consequently, immigration and integration policies are expected to have a different effect on the inflow of EU citizens into an EU country than on the inflow of TCNs into an EU country. As many of the studies on migration flows discussed before do not specifically focus on EU countries but on OECD countries, they do not distinguish between EU-citizens and TCNs. Only Ortega & Peri (2013) include policy variables accounting for the Maastricht Treaty and the Schengen Treaty. They find that the adoption of the Maastricht Treaty has a positive effect on intra-EU migration flows, and no significant effect on TCN inflows, as the treaty consolidated the intra-EU free movement without tightening regulations from outside the EU. Conversely, the adoption of the Schengen Treaty negatively affects the inflows of TCNs into EU countries, but has no significant effect on intra-EU flows, because this treaty did enforce stricter borders for the EU vis-à-vis the rest of the world without easing regulation within the EU. Furthermore, this study found that stricter entry laws have a negligible effect on intra-EU immigration flows, but a significant negative effect on flows from outside the EU. Beverelli (2022) finds that migrant integration policies have a more substantial impact on migration flows from outside the EU than within the EU, suggesting that it might be easier for an EU migrant to integrate in an EU country than for a non-EU migrant to integrate in an EU country. In this thesis, the inflows of EU citizens and TCNs will be assessed apart from each other, to examine whether language requirements affect the inflow of EU citizens differently than the inflow of TCNs. This distinction has not been clearly addressed in the relevant literature, so this study will fill an existing research gap.

Theoretical framework

Most of the literature which analyses determinants of migration flows uses a version of a gravity model framework (Beverelli, 2022; Grogger & Hanson, 2011; Mayda, 2010; Ortega & Peri, 2009, 2013; Pedersen et al., 2008). This framework originally stems from international trade theory but can be applied to international migration as well, especially for bilateral flows (Beine et al., 2016). A classic migration gravity model suggests that the flow of migrants between two

countries is positively related to the population size of both countries and negatively related to the distance between them, as a larger distance leads to higher migration costs. In most applications, population and distance are merely two of the explanatory factors in the model, which usually also include the factors discussed in the literature review, such as income differences, employment opportunities, network effects and a common language.

Most models that make up the theoretical base in the relevant literature are a version of a gravity model, where it is assumed that a potential migrant maximises his utility and chooses to locate to the country where his utility is the highest among all available destinations. The probability of migration depends on the difference between income in the destination and source countries and the migration costs, which include different factors, and other destination or origin specific factors. Pedersen et al. (2008) analyse migration flows to multiple countries instead of a single country and hypothesise that a higher level of economic development in a country leads to higher immigration rates, because potential immigrants expect better income opportunities. Grogger & Hanson (2011) use the Roy model of income maximisation as a theoretical framework, which posits that possible migrants base their decision on the potential to maximise their income. They focus on the differences in income between two countries for low and high skilled immigrants. Ortega & Peri (2009) use a similar model but focus on the total size of bilateral migration flows rather than the selection of immigrants according to skill. They hypothesise that increased wage differentials between origin and destination increase migration flows, but that an increase in restrictiveness of entry laws reduces migration. Mayda (2010) conceptualises international migration flows according to supply and demand: the supply side is shaped by migrants' decision to migrate according to different incentives, the demand side is shaped by the destination country's immigration policy. The study focuses on the effect of stricter immigration policy on pull factors and hypothesises that if the migration policy, expressed as immigration quotas, becomes less restrictive, the effect of pull factors should turn more positive. Ortega & Peri (2013) use a similar model but extend it by allowing for unobserved individual heterogeneity between migrants and non-migrants. They add a variable which stands for the tightness of entry laws and presume that when entry requirements for a destination country become tighter, the costs of choosing the destination increase and the destination becomes less attractive. Following Sjastaad (1962) and the articles previously discussed, Adsera & Pytlikova (2015) use a human capital investment theoretical framework. This framework posits that migrants make their decisions based on the expected utility maximisation as well. They find that stricter language requirements for naturalisation decrease

migration flows. However, not considering the strictness, Beverelli (2022) presumes that integration policies reduce migration costs, because they promote a quicker integration and thus provide more benefit from immigration. He hypothesises that the existence of integration policies increases migration inflows. This follows Beine et al. (2020), who hypothesise that immigrants favour countries with more generous and extensive integration policies.

In brief, the theoretical base for the hypothesis and research in all studies mentioned is a model of individual utility maximisation of a potential immigrant, where certain factors contribute to an increased expected utility of migration, and others diminish the expected utility of migration. These models for utility maximisation are operationalized to models which measure bilateral migration flows or migration stocks. The individual expected utility is translated into migration flows: if a factor would increase the expected utility of a possible migrant, it would increase the utility of migrating and thus the likelihood of migration. Thus, such a factor is hypothesised to increase migration flows. On the other hand, if a factor decreases the expected utility of migration by increasing migration costs, this will reduce the likelihood of migration and have a negative effect on migration flows. Finally, some factors could reduce the negative or positive effect of migration costs or benefits, and thus reduce or increase migration flows as well. In the relevant literature, immigration policies are considered as factors which affect migration costs. The stricter the policies are, the higher migration costs will be, which will decrease migration flows. However, integration policies which benefit the integration of immigrants could reduce migration costs and increase migration flows as a result. The effect of these policies thus depends on their nature: if they are strict, they might negatively affect migration flows, but if they assist immigrants in integrating quicker, they might have a positive effect on migration flows.

Hypotheses

The models used in the theoretical frameworks of previous studies typically consider bilateral migration flows, incorporating pair-specific factors such as a shared language or a shared border. Since this thesis uses macro data and does not analyse bilateral flows, these specific factors related to individuals and origin countries cannot be included. The theoretical framework for this thesis is thus not the same, but the same line of reasoning used in these studies is applied. While generous integration policies could positively affect migration flows, strict migration policies and even language requirements have been found to have a negative effect on migration flows. Additionally, the measures for language requirements used in this

research have been classified as migration policies by the makers of the database from which they are sourced. Hence, the first hypothesis of this thesis is:

I. *Stricter language requirements in destination countries have a negative effect on migration inflows.*

The second hypothesis follows both from Ortega & Peri (2013) and Beverelli (2022). Ortega & Peri (2013) control for the effect of intra-EU migration by restricting the analysis to European country-pairs only and find that a decrease in migration policy restrictions for intra-EU migration has a positive effect on migration inflows, while an increase in migration restrictions for TCNs has a negative effect on migration inflows. They also identify a negative effect of the tightness of entry regulations on migration inflows from outside the EU, while they find negligible effects of the tightness of regulations on intra-EU migration flows when adding a control for EU origin country. Therefore, it is expected that the strictness of language integration requirements has a stronger negative effect on migration inflows of TCNs than on migration inflows of EU-citizens. Beverelli (2022) also finds that integration policies matter more for extra-EU migration flows. Thus, it could be expected that language requirements also affect TCNs more than EU-citizens. Based on this, the second hypothesis tested in this thesis is:

II. *Stricter language requirements in destination countries have a stronger effect on migration inflows of TCNs than inflows of EU-citizens*

To test the two hypotheses, a dependent and independent variable are conceptualised and operationalized. Additionally, multiple control variables are introduced to control for factors other than language requirements which could affect migration inflows. These variables and the method of analysis will be discussed in the following section.

Methodology

Dependent Variable

The dependent variable in the literature on migration flows is either annual bilateral migration flows, annual migration rates or the migration decision, sometimes including domestic migration flows and emigration rates (Adsera & Pytlikova 2015; Beine et al., 2020; Beverelli,

2022; Mayda, 2010; Ortega & Peri, 2013; Pedersen et al., 2008). These studies compare flows and rates relative to the size of the population in the origin country.

In this thesis, I will use annual immigration flows into the European Union as the dependent variable. To test the first hypothesis, the total migration into the EU will be analysed. For the second hypothesis, I will use both migration inflows of EU citizens and of TCNs.
The primary data source is Eurostat's migration database, which provides information on migration into all EU Member States and allows to differentiate between immigration of EU-citizens and non-EU citizens. Eurostat defines immigration according to Regulation No 862/2007, as "*the action by which a person established his or her usual residence in the territory of a Member State for a period that is, or is expected to be, of at least 12 months, having previously been usually resident in another Member State or a third country*". The data in Eurostat is collected from national statistical institutes, which are listed in the metadata annex. However. the specific measure of migration flow data is not specified for each country (Eurostat, 2024). Data on migration inflows divided by EU-citizenship or TCN status is available from 2007 onwards, so analyses for the second hypothesis use data from this point. Immigrants with citizenship of the reporting country are excluded from the groups of EU citizens and TCNs, due to their likely proficiency in the destination country's language. They are included in the total migration flows used to test the first hypothesis, because it is not possible to exclude them. The dependent variable for total migration inflows is labelled *totmiginflow*, for EU-citizens as *eumiginflow*, and for TCNs as *tcnmiginflow*.

For some countries, missing data on total migration inflows from Eurostat was supplemented with data from the OECD Migration Database. This includes Belgium for 2007 and 2008; France for 1998-2005 and the UK for 2005 (OECD, 2024). While Eurostat includes migration inflows from citizens of the reporting country and the OECD does not, the differences in numbers are quite small, so these observations were included to increase the number of observations and thus maintain reliability.

Independent Variable

The literature review indicates various drivers of migration flows, with studies using multiple independent variables to explain migration. All studies include earnings in some way, either at destination or the difference between earnings in the source and destination country (Ortega & Peri, 2013; Mayda, 2010; Czaika & Parsons, 2017; Adsera & Pytlikova, 2015). Furthermore,

the studies add migration costs as an independent variable, which include factors such as geographical distance, cultural distance, the existence of immigrant networks, language and immigration or integration policies. Because this thesis uses country-year as its unit of analysis, it is not possible to account for variables that relate to the country of origin-country of destination dyad, such as the geographical distance.

In the main analysis I will use two measures of language requirements as independent variables, sourced from the IMPIC database. As a robustness check, I will use a variable for language requirements for permanent residency from the MIPEX database, which can be found in the appendix.

The Immigration Policies in Comparison (IMPIC) database offers indicators to assess immigration policies on restrictiveness across different policy fields, covering 33 OECD countries from 1980 until 2018. The input for the database is acquired through a questionnaire, filled out by migration experts from the included countries. All variables range from 0 (open) to 1 (restrictive) and have a raw and a scored form. The raw variables are the unscored variables extracted from the questionnaire, and the scored variables are the variables after they have been scored according to the questionnaire responses and the scale (Berger et al., 2024). For this thesis, I will use the variables which measure the language requirements for labour migration and family reunification. I will use both to increase variation in the independent variable and to measure language requirements from a broader perspective.

For labour migration, the policy on language requirements for entry is assessed through the independent variable *impiclabour*. The values range from 0 to 1, where a value of 0 indicates that knowledge is not beneficial or required for the decision on whether someone could immigrate, and a value of 1 indicates that there is no policy at all allowing for labour migration (Berger et al., 2024). However, in the sample for this research, none of the countries take on this value, as there exists some form of labour migration policy in all of them. The possible values and the corresponding labels are summarised in the table below.

Table 1

Values and labels for variable B5 on language requirements for labour migration

Values	Label

0	No
0.5	Yes, beneficial
0.75	Yes, required
1	No labour migration policy

For family reunification, language skills are assessed through variable *impicfamily*. The values range from a value of 0, which indicates that minimum language skills were not required, to a value of 1, which indicates that there is no policy to facilitate family reunification. In this sample, only Ireland and Poland take on the value of 1 for some years. The possible values and their corresponding labels are summarized in the table below (Berger et al., 2024).

Table 2

Values and labels for variable A6 on language requirements for family reunification

Values	**Label**
0	No
0.5	Yes, required but not specified
0.6	Yes, required but not tested
0.7	Yes, required and tested after arrival
0.8	Yes, required and tested before arrival
0.9	Yes, required and tested before and after arrival
1	No family reunification policy

The units of analysis in the questionnaire are entry routes, so for each observation, there is a variable which indicates the type of entry route, called the track. In the main dataset which does contain data up to 2018, the variables which measure language requirements represent the arithmetic mean, thus the average across all tracks (Berger et al., 2024). These averages are also used in this thesis, to best fit the panel data structure and because the analysis does not distinguish between entry routes. Consequently, the assigned values are different from the values specified in the tables above, but still range from 0 to 1, where 0 represents the least restrictive and 1 represents the most restrictive policy on language requirements.

Control Variables

As discussed in the literature review, immigration flows and the decision to migrate which initiates these flows are dependent on a variety of factors such as wage differences between origin and destination country, income level and employment opportunities (Adsera & Pytlikova, 2015; Beverelli, 2022; Czaika & Parsons, 2017; Grogger & Hanson, 2011; Mayda, 2010; Ortega & Peri, 2009; 2013; Pedersen et al., 2008), social and cultural factors, such as existing migrant networks (Adsera & Pytlikova, 2015; Pedersen et al., 2008), political stability (Pedersen et al, 2008), cultural and historical ties (Grogger & Hanson, 2011; Mayda, 2010; Pedersen et al, 2008), language proximity (Adsera & Pytlikova, 2015; Grogger & Hanson, 2011), the prevalence of a widely spoken language (Adsera & Pytlikova, 2015; Grogger & Hanson, 2011) and the generosity of welfare arrangements in the destination country (Adsera & Pytlikova, 2015, Pedersen et al., 2008). However, as this study does not examine bilateral migration flows, many of these control variables could not be included, apart from income and employment opportunities, existing migrant networks and a welfare state magnet. In this thesis, I will also control for the size of the total population in the destination country. While this is not included in most studies in the literature review, it is relevant as other studies control for population size in the origin country. I expect that a country with a larger population also has a higher inflow of migrants, because the country is often larger.

The income level in destination countries is measured as GDP per capita in euros and labeled *gdpcapita* (Eurostat, 2024) and the employment opportunities are measured as the unemployment rates as a share of the total labour force in the destination country and labeled *unemployment* (Eurostat, 2024). The existing migrant networks are measured as the foreign population as a share of the total population in the destination country and labelled *mig_pop* (Eurostat, 2024). The effect of a possible welfare magnet is measured as the government spending on social protection as a share of the national GDP and labelled *socexp* (Eurostat, 2024). The size of the total population in a destination country is measured in absolute numbers and denominated *totpop* (Eurostat, 2024).

Dataset

I have created a panel dataset which combines data from different sources on the dependent, independent and control variables for the sample, with observations for 30 countries and 21 years. The use of panel data allows to control for unobserved heterogeneity and allows to control for common trends or shocks which are experienced by all the countries in the sample.

Additionally, panel data allows to analyse the effect of policy changes and the effects of policies on language requirements for immigration over time. Panel data can also mitigate multicollinearity. This is relevant because language requirement policies could be implemented simultaneously across countries, as EU countries often follow each other when implementing policies (Kvist, 2004). Finally, the use of panel data for this study ensures a larger number of observations, which improves the precision of the estimates and increases the statistical power of the analysis.

Sample

The sample includes current and former EU Member States that are also OECD members, plus Switzerland and Norway, totalling 22 countries. Switzerland and Norway are included because they participate in the single market, which includes the free movement of people and lifts immigration and integration requirements. Iceland and Liechtenstein are not included in the sample, because they have small populations and migration inflows and limited data availability. The EU countries which do not hold OECD membership could not be included in the main analysis, as IMPIC only covers OECD countries, but they are included in the robustness check using the MIPEX variable, which creates a sample of 30 countries.

Table 3 provides an overview of the timeframe and policy variables for each country. For data availability reasons, the period starts in 1998 for EU-15 countries. The observed period ends in 2018 due to data availability and to eliminate distorted results following the shocks of Brexit and the COVID-19 pandemic. For the countries which joined the EU after 1998, the observed period starts from the year of accession. After accession to the EU, these countries became a part of the single market including the free movement of people, which can be expected to change migration patterns and requirements. Because data on the citizenship of immigrants is only available up from 2008, the analysis for the second hypothesis using these dependent variables will run from 2008 until 2018.

Table 3

Countries and periods included in the sample

Country	Period	Main sample or MIPEX
Austria (AT)	1998 - 2018	Main
Belgium (BE)	1998 - 2018	Main
Bulgaria (BG)	2007 - 2018	MIPEX

Switzerland (CH)	1998 - 2018	Main
Cyprus (CY)	2004 - 2018	MIPEX
Czech Republic (CZ)	2004 - 2018	Main
Germany (DE)	1998 - 2018	Main
Denmark (DK)	1998 - 2018	Main
Estonia (EE)	2004 - 2018	Main
Greece (EL)	1998 - 2018	Main
Spain (ES)	1998 - 2018	Main
Finland (FI)	1998 - 2018	Main
France (FR)	1998 - 2018	Main
Croatia (HR)	2013 - 2018	MIPEX
Hungary (HU)	2004 - 2018	Main
Ireland (IE)	1998 - 2018	Main
Italy (IT)	1998 - 2018	Main
Lithuania (LT)	2004 - 2018	MIPEX
Luxembourg (LU)	1998 - 2018	Main
Latvia (LV)	2004 - 2018	MIPEX
Malta (MT)	2004 - 2018	MIPEX
Netherlands (NL)	1998 - 2018	Main
Norway (NO)	1998 - 2018	Main
Poland (PL)	2004 - 2018	Main
Portugal (PT)	1998 - 2018	Main
Romania (RO)	2007 - 2018	MIPEX
Sweden (SE)	1998 - 2018	Main
Slovenia (SI)	2004 - 2018	MIPEX
Slovakia (SK)	2004 - 2018	Main
United Kingdom (UK)	1998 - 2018	Main

Regression Models

To analyse the data, I will use both generally least squares random effects (GLS RE) and fixed effect (FE) regressions to explore a possible relationship between language requirements and migration inflows. The three independent variables, *impiclabour*, *impicfamily* and *mipex* will

be regressed on the dependent variable *totmiginflow* separately and the control variables will be introduced stepwise.
To test the second hypothesis, these regressions will all be repeated, but now on the dependent variables *eumiginflow* and *tcnmiginflow*. The difference between these coefficients will be compared to assess if there are strong differences between the effects of language requirements on the inflow of EU-citizens and TCNs. I will use three different models to analyse the relationship which are all possible models in a panel setting. The panel data yields both between country and within country over time variation.

The first regression model that is used for the analysis is a random effects GLS model with robust standard errors (SE). In this model, it is assumed that time-invariant variables are not correlated with the explanatory variables, thus that language requirements policies are not correlated with the countries. The robust standard errors are used to provide consistent estimates of the standard errors even in the occurrence of heteroscedasticity and within country correlation, which is common when using panel data.

The second model that is used for the analysis is a fixed effects model. Contrary to model 1, this model allows the unobserved effects to be correlated with the explanatory variables. Thus, all variables that do not vary over time within a country will not be estimated separately but will be captured in the FE. I expect that there are other unobserved time-invariant and country specific factors that affect the results, such as cultural factors. By including fixed effects, there characteristics are accounted for, so the effect of the policy variables within a country is isolated. To account for heteroscedasticity and autocorrelation, robust standard errors are included as well.

The third model is a two-way fixed effects model, using year fixed effects. This model adjusts for unobserved country-specific and time-specific confounders at the same time. It shifts the intercept over time for all countries uniformly. The model thus controls for common shocks or trends that affect all countries in the same way over time. Because the dataset covers a large timespan in which the world has changed quite a bit, it is important to include these time effects as a robustness check. Accelerating globalisation, rapid technological developments and the global economic crises and the following Euro crisis are expected to have affected all countries in the sample. In this model I also included robust standard errors.

I ran a Hausman test to identify whether a random effects or fixed effects model would be preferred for this research. The P-values indicated that for all the different IVs, the null hypothesis could not be rejected, indicating that there is no correlation between individual effects and the regressors. In this case, a random effects model is preferred. However, the correlations between the individual-specific error term and the predicted values of the independent variables (corr(u_i, Xb)) are moderate to strong in the FE models. This implies that there might be remained unobserved factors that are not captured by the model. It is thus difficult to define which model is preferred. I run the regressions with both RE and FE models and the differences will be discussed in the results.

The regression equations for the models without control variables are the following:

$$\text{Total Migration Inflows}_{it} = \beta_0 + \beta_1 \text{impiclabour}_{it} + \gamma_t + \epsilon_{it}$$
$$\text{Total Migration Inflows}_{it} = \beta_0 + \beta_1 \text{impicfamily}_{it} + \gamma_t + \epsilon_{it}$$

The regression equations for the models including the control variables are the following:

$$\text{Total Migration Inflows}_{it} = \beta_0 + \beta_1 \text{impiclabour}_{it} + \beta_2 \text{gdpcapita}_{it} + \beta_3 \text{unemoployment}_{it} + \beta_4 \text{migstock}_{it} + \beta_5 \text{socexp}_{it} + \beta_6 \text{totpop}_{it} + \gamma_t + \epsilon_{it}$$
$$\text{Total Migration Inflows}_{it} = \beta_0 + \beta_1 \text{impicfamily}_{it} + \beta_2 \text{gdpcapita}_{it} + \beta_3 \text{unemoployment}_{it} + \beta_4 \text{migstock}_{it} + \beta_5 \text{socexp}_{it} + \beta_6 \text{totpop}_{it} + \gamma_t + \epsilon_{it}$$

In these equations, β_0 indicates the intercept of the regression models, β_1 indicates the regression coefficient which measures the expected change in the dependent variable for each increase in either language requirements for labour migration or for family reunification. The coefficients for the control variables are indicated by β_2 to β_6. The γ_t represent the year fixed effects in the time FE analysis and ϵ_{it} denotes the error term with robust standard errors. It is important to note that all models show correlation and cannot prove a causal relationship.

I include several robustness checks in the analysis, including the transformation of the dependent variable into its natural logarithm to address skewness of the data. Furthermore, a dummy which indicates whether a country in the sample is a 'Western' European country is included as a robustness check, including the EU-15, Norway and Switzerland to check for

differences in culture and history which could affect migration inflows. This dummy is only included in the robust SE model, because it is time-invariant and thus dropped in the FE models. I have also repeated the main analysis with two year lagged independent variables to account for possible delayed effects of policy changes.

To test for multicollinearity of the independent and control variables, I have created a correlation matrix. None of the values in this matrix exceeded 0.5, thus multicollinearity is not an issue for these predictors.

Descriptive Statistics

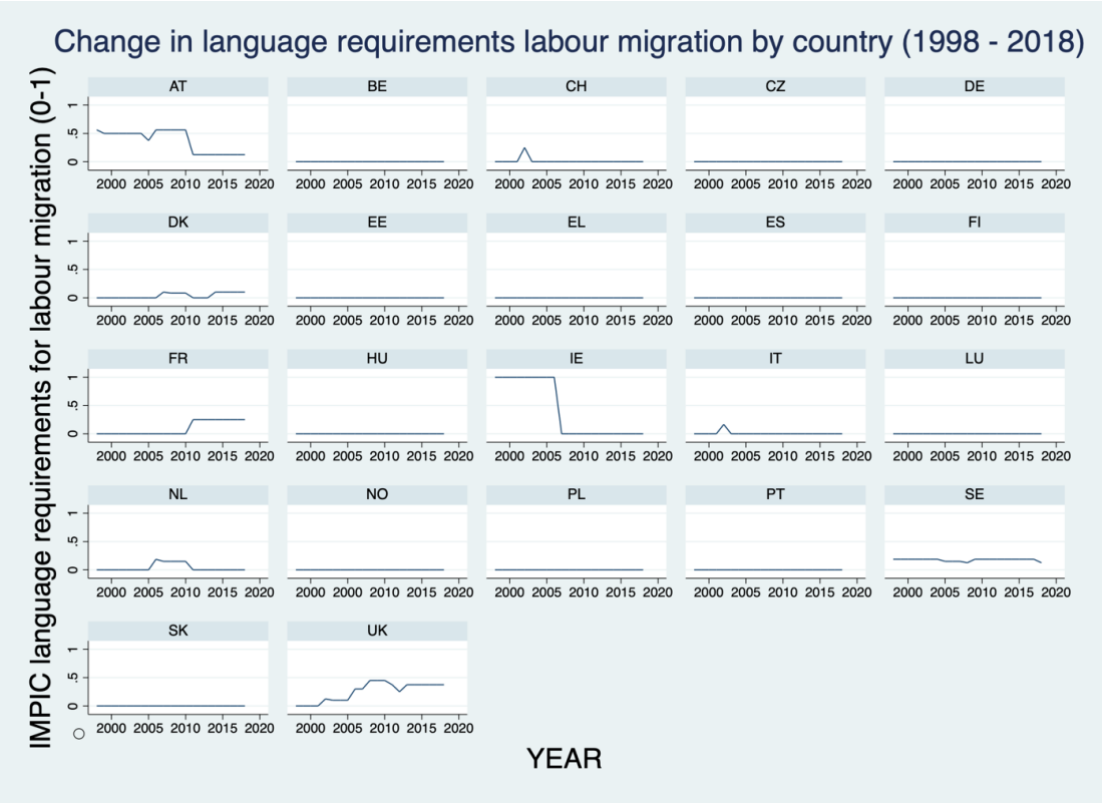
The descriptive statistics summarise all variables included in the analysis both in total (Table 4) and by country (Appendix Table 12-14). The IMPIC variable on language requirements for labour migration has a mean value of 0.064, while the IMPIC variable on language requirements for family reunification has a mean value of 0.189. This implies that while for both labour migration and family reunification, the language requirements are not very strict on average, they are stricter for family reunification.

For each independent variable, the policy change over time per country is visualised in Graphs 1 and 2. In many countries, the policies do not change significantly in the observed period. When change occurs, the language requirements for labour migration become less strict in most countries, except for the UK and Denmark. In the Netherlands and Switzerland, there seems to have been stricter regulation at some point, but this has been reversed.

The language requirements for family reunification show a more varied pattern. While most countries do not impose any language requirements for family reunification, those that do show different trends. Austria, Germany, Denmark, the Netherlands and the UK have imposed stricter language requirements. Conversely, Ireland and Poland have made these requirements less strict, and France has imposed and subsequently reversed the requirements. Overall, the descriptive analyses suggest that variation in the policy on language requirements exists both within countries over time, and across countries. This is important, because variation in both ways is necessary to analyse the effects of policy on migration flows.

Graph 1

Change in language requirements for labour migration by country (IMPIC)



Graph 2

Change in language requirements for family reunification by country (IMPIC)

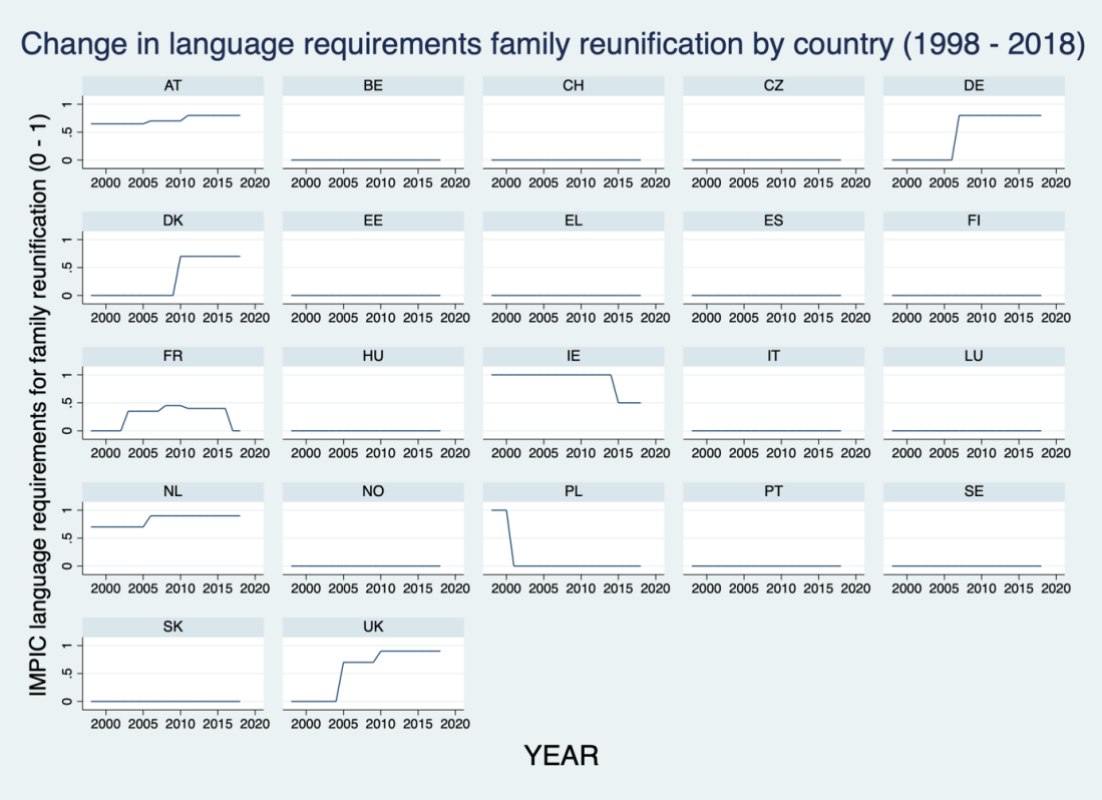


Table 4

Descriptive statistics: summary of variables

Variable	Obs.	Mean	Std. dev.	Min	Max
impiclabour	462	.064403	.1747966	0	1
impicfamily	462	.1891775	.3418588	0	1
mipex	354	.4915254	.5006358	0	1
totmiginflow	596	127145	193526.1	35	1571047
eumiginflow	338	46544.26	76232.44	6	456174
tcnmiginflow	322	60858.11	104407.9	444	998260
gdpcapita	630	25237.83	18230.74	1500	98750
unemployment	609	8.567323	4.354444	2.2	27.5
socexp	605	22.66727	5.565982	10.6	34.5
totpop	630	1.70e+07	2.20e+07	384176	8.28e+07
migstock	539	8.38476	8.803506	.1071785	47.84163

Note: impiclabour and *impicfamily* are expressed on a scale between 0 and 1; *totmiginflow*, *eumiginflow*, *tcnmiginflow* and *natinflow* are expressed in numbers of people per year; *gdpcapita* is expressed in euros; *unemployment* is expressed as percentage of the labour force; *socexp* is expressed as share of the national GDP; *totpop* is expressed in number of people and *migstock* is expressed as the share of the total population.

The total migration inflows vary significantly across different countries and years. The summary statistics for total, EU and TCN migration inflows are shown in Graphs 7-9 in the appendix. The lowest value is 35 in Estonia, while the highest value is 1,571,047 in Germany. The mean is 127,145 and the standard deviation is 193,526.1, which indicates large variation in the observations.

The mean for the migration inflow of EU citizens is 46,544.26, which is smaller than the mean for the migration inflow of TCNs, which is 60,858.11. The minimum and maximum values are larger for the migration inflow of TCNs, but so is the standard deviation. This suggests that more immigrants are coming from countries outside the EU, but the variation in these observations is larger as well.

In some countries, the differences between the minimum and maximum observation of total migration inflows are quite large, while in others they are not. For countries such as Switzerland, Ireland and Luxembourg, the EU migration inflow is much larger than the TCN migration inflow. For countries such as Bulgaria, France, Croatia and Italy the TCN migration

inflow is substantially larger than the EU inflow. For the Baltic states, the total migration inflow is generally low. This heterogeneity in migration flows indicates that migration patterns are diverse across the included countries.

Skewness tests on the dependent variables revealed that the data is unlikely to be symmetric. Some countries have very large migration inflows, while others barely have any. This is important to consider when choosing models for the analyses and when interpreting the results.

Results

Total Migration Inflows

First, I will discuss the results of the regressions with total migration flows as the dependent variable, which are carried out to test the first hypothesis.

Language requirements for labour migration

Without the inclusion of control variables, the coefficients for the main IV, *impiclabour*, are not significant in the robust SE and robust FE analyses. The results are displayed in Table 5, columns 1-3. The R^2 for the robust SE and the robust FE models is 0.0016 overall. For the robust time FE model, the R^2 has a value of 0.0094 overall. This signifies that the models have almost no explanatory power for the variability in the annual migration inflows within countries and between countries. This is not surprising, as the control variables are not included.

When control variables are included (columns 4-6), the coefficients for *impiclabour* remain insignificant, but in the robust SE analysis, the coefficients for the control variables *unemployment* and *totpop* are significant on a 0.05 level. The coefficient for the unemployment rate in the destination country is negative and quite large. This indicates that a one unit increase in the unemployment rate would lead to a decrease of about 10,000 immigrants. This is consistent with the theoretical underpinnings of the relationship between these variables. The coefficient for the total population in the destination country is positive, but very small, which indicates that an increase of 1,000 persons in the total population of a destination country would lead to an increase of 8 persons migrating into the country annually. However, while the control variable for the unemployment rate also remains significant in the robust FE regression model, the variable for the total population does not. This could be because the total population does not vary much within countries. Both become insignificant when two-way fixed effects are used in the analysis. This indicates that both variables affect migration inflows when assuming that

there is no correlation between language requirements and time and country-specific factors, but when assuming that there is, the effect might be absorbed by these factors.
The R^2 values increase when the control variables are included, which implies that the control variables do add to the explanatory power of the model for variation in annual migration inflows. For the robust SE model with control variables, the overall R^2 is 0.7511, which indicates that 75% of the variation in annual migration inflows can be explained by the language requirements and the control variables. This implies that the model with control variables fits the data well overall, but the impact of language requirements remains insignificant in this model.

When the variable for total migration inflows is transformed to its logarithmic form (Appendix Table 18), excluding control variables, the effect of the strictness of entry language requirements for labour migration remains insignificant for the robust SE and robust FE models, but is significant in the robust time FE model. In the latter regression, the coefficient is 0.02817, while the standard error is 0.1090. This indicates that a one unit increase in the strictness of language requirements for labour migration leads to a 1.0285 increase in immigrants. Only the time FE model generating a significant effect could indicate that immigration inflows vary systematically over time and that unobserved time-invariant factors might play a role in explaining the variation in migration flows over time.
It is somewhat surprising that the relationship between the strictness of entry language requirements for labour migration and migration inflows is positive, because this is not in line with the first hypothesis in this thesis, based on relevant literature. While some studies find that generous integration policies can have a positive effect on migration inflows (Beine et al., 2020; Beverelli, 2022), most studies found that stricter policies decrease migration. However, a possible underlying causal mechanism could be that potential immigrants are aware of the benefits of rapid language integration and consider stricter language requirements as a benefit which allow them to swiftly integrate in the labour market, but this should be tested in further research.

The regressions including the Western dummy as a control (Appendix Table 24) as a robustness check did not yield significant results for the independent variable. The dummy is not significant, which implies that cultural and historical differences between Eastern and Western European countries are not responsible for the insignificance of the main results. It would be

possible to further test whether there is an effect of being a Western European country when running split-sample regressions, but in this case, there is not enough data available to run this. When the regressions are repeated using a two-year lag of the independent variable (Appendix Table 25), the results remain insignificant, both with and without control variables.

Table 5

Regressions analysis of total migration inflows – language requirements for labour migration

Variable	Robust SE (1)	Robust FE (2)	Robust Time FE (3)	Robust SE (4)	Robust FE (5)	Robust Time FE (6)
impiclabour	61424.23	61392.39	82864.63	4583.086	9044.492	15402.05
	(71452.34)	(70139.61)	(53284.88)	(44261.77)	(36196.43)	(42456.38)
gdpcapita				.4026218	.3290469	-1.647539
				(.5201707)	(.8499267)	(1.360499)
unemployment				-10663.61*	-12336.47*	-12752.68
				(5009.518)	(5822.346)	(6326.707)
socexp				2058.398	3496.285	1654.18
				(1876.187)	(2117.108)	(4881.817)
totpop				.0081118***	.008576	.003051
				(.001106)	(.0110999)	(.0116818)
mig_stock				3025.188	4926.50	7347.806
				(2779.744)	(5277.705)	(6106.482)
Obs	432	432	432	384	384	384
R^2	0.0016	0.0016	0.0094	0.7511	0.7316	0.4412

Note: * = p<0.05, ** = p<0.01, *** = p<0.001

Language requirements for family reunification

The coefficients for the second IV, *impicfamily*, are also not significant without the addition of control variables for all regression models (Table 6, columns 1-3). The values for R^2 are 0.0502 in both the robust SE model and the robust FE model and 0.0309 in the time FE model. This indicates that the explanatory power of the models is very low for the variation in migration inflows.

The inclusion of control variables in the regression models does change the insignificance (Table 7, columns 4-6). The controls for unemployment rate and total population in the

destination country are again significant in the robust SE model. The effect of the unemployment rate is again negative and quite large, at -12444, while the effect of population size is again positive and very small at 0.00918. This implies that for an increase in the unemployment rate by one percent, total immigration would decrease by around 12,444 persons and an increase in population by a thousand people would lead to an increase of about 9 immigrants. The effect of population size is only significant in the robust SE model, while the effect of the unemployment rate is significant in the robust FE model as well, but not in the robust time FE model. This indicates that the effect of the variables might be confounded with broader trends which are controlled for in the FE models, such as economic shocks which hit all the countries in the sample. However, the total population might not be significant in the FE models because it does not vary much over time within countries.
The R^2 values for the models including control variables are higher than for the models without the control variables, indicating that the control variables do increase the explanatory power of the models.

Contrary to the IV on language requirements for labour migration, the IV on language requirements for family reunification remains insignificant in all models when the dependent variable is transformed into its logarithmic form (Appendix Table 19). This implies that there is no evidence for a relationship between the strictness of language requirements for the entry of family reunification immigrants and annual migration inflows in EU countries. The introduction of the Western dummy (Appendix Table 24) does not affect this finding, because the coefficient and the dummy remain insignificant.

When the regressions are repeated using the 2-year lagged variable on language requirements for family reunification (Appendix Table 26), the effect becomes significant at the 0.05 level in the robust SE and FE models. The effect is positive and quite large, which indicates that an increase in the strictness of language requirements for family migration of one unit would lead to an increase in migration inflow of over 100,000 people after two years. This is again contradictory to the first hypothesis and not in line with the theoretical underpinnings regarding the effect of the strictness of immigration policies. The effect becomes insignificant when two-way fixed effects are added, which indicates that the variation in migration inflows over time is not significantly associated with variation in language requirements.
When the regressions are repeated with control variables, the effect of family reunification language requirements becomes insignificant. This implies that the initial significance may be

due to omitted variable bias. While the control variables themselves are not significant individually, they help adjust for potential confounding factors and collectively account for variations in migration inflows. Another possible explanation is that the control variables are highly correlated with the independent variable, but after checking for multicollinearity they did not appear to be highly correlated.

Table 6

Regressions analysis of total migration inflows – language requirements for family reunification

Variable	Robust SE (1)	Robust FE (2)	Robust Time FE (3)	Robust SE (4)	Robust FE (5)	Robust Time FE (6)
impicfamily	79725.93	76591.58	39985.44	7252.628	-3113.929	-15407.92
	(56699.8)	(58490.75)	(54737.33)	(44219.25)	(49606.84)	(48255.64)
gdpcapita				.3845455	.3703211	-1.667532
				(.5171756)	(.8180773)	(1.265929)
unemployment				-10541.85*	-12444.77*	-13092.06
				(4947.866)	(5927.24)	(6524.082)
socexp				1796.272	3626.22	1919.797
				(2053.983)	(2435.885)	(5041.682)
totpop				.0081012***	.0091889	.0041523
				(.0011235)	(.0119969)	(.0130704)
mig_stock				2962.946	4481.178	6611.342
				(2687.385)	(5198.598)	(6272.231)
Obs	432	432	432	384	384	384
R^2	0.0502	0.0502	0.0309	0.7530	0.7418	0.5882

Note: * = p<0.05, ** = p<0.01, *** = p<0.001

As a robustness check, I repeated the regressions with a dummy variable indicating whether countries have language requirements for permanent residency sourced from MIPEX as IV. The results can be found in the appendix (Table 15). This robustness check confirms that the independent variable has no significant effect on migration inflows.

When interpreting the results from the regression analyses carried out for this thesis, I cannot confirm the first hypothesis that stricter language requirements have a negative effect on annual migration inflows in the EU. I do not find sufficient significant results which would imply that there is a correlation between language requirements for immigrants and migration inflows. The few significant results which I do find, become insignificant after adding controls or changing models, but they do suggest that language requirements and migration inflows are positively correlated.

Migration Inflows of EU-citizens and TCNs

In this section, I will discuss the results of the regression analyses with migration inflows of EU-citizens and TCNs as dependent variables, carried out to test the second hypothesis.

Language requirements for labour migration

Language requirements for labour migration do not seem to have a significant effect on the migration inflows of EU-citizens in all models when the control variables are excluded (Table 7, columns 1-3). When the control variables are included in the analyses, the effect remains insignificant (columns 4-6).

All control variables have insignificant coefficients as well, except for the variable measuring the effect of the total population in the destination country in the robust SE regression. However, the effect is very small at 0.00276 and becomes insignificant when fixed effects are included in the analyses. This again could be because the population varies significantly across countries, but remains relatively constant within countries over time, so it is absorbed by the FE and becomes insignificant.

The effect of language requirements also remains insignificant when the inflows of EU-citizens are transformed into their natural logarithm for all regressions (Appendix Table 20), when the dummy for Western European countries is included (Appendix Table 24) and when the regressions are repeated with the two-year lagged policy variable (Appendix Table 27).

Table 7

Regressions analysis of EU migration inflows – language requirements for labour migration

Variable	Robust SE (1)	Robust FE (2)	Robust Time FE (3)	Robust SE (4)	Robust FE (5)	Robust Time FE (6)

impiclabour	-10531.08	-21481.26	-18548.32	-20340.39	-7595.362	7130.008
	(35635.53)	(29726.4)	(32333.91)	(25481.82)	(35847.74)	(33906.98)
gdpcapita				.2212379	.1092777	-.3557637
				(.6897014)	(.8341013)	(1.080819)
unemployment				-4177.797	-4237.655	-5599.501
				(2295.822)	(2408.373)	(2983.101)
socexp				-357.0524	-728.0257	-391.3926
				(1132.486)	(1600.048)	(2004.901)
totpop				.0027692***	-.002538	-.0025325
				(.0006834)	(.0099616)	(.0093814)
mig_stock				1111.85	3559.983	5599.285
				(1396.452)	(3978.61)	(4656.651)
Obs	255	255	255	248	248	248
R^2	0.0491	0.0491	0.0019	0.6436	0.3063	0.2320

Note: * = p<0.05, ** = p<0.01, *** = p<0.001

When the regressions are repeated using annual migration inflows of TCNs a as the dependent variable, the effect of the language requirements for labour migration is insignificant in all regression models as well (Table 8, columns 1-3). When the control variables are included, the effect remains insignificant (columns 4-6). Similar to the regression with the EU-citizens DV, only the size of the total population in the destination country is a significant control variable in the robust SE regression, but the effect is again very small and becomes insignificant when controlling for fixed effects. In all models, the results do not change when the inflows of TCNs are log transformed (Appendix Table 21) when the Western European dummy is included (Appendix Table 24) and when the independent variable is replaced with the 2-year lagged version (Appendix Table 28).

Overall, because there does not seem to be evidence for a relationship between the language requirements upon entry for labour migration and migration inflows of both EU-citizens and TCNs, it is not possible to test whether the effect is stronger for TCN inflows. Possible reasons for the lack of significance and improvements for further research will be discussed in a later section

Table 8

Regressions analysis of TCN migration inflows – language requirements for labour migration

Variable	Robust SE (1)	Robust FE (2)	Robust Time FE (3)	Robust SE (4)	Robust FE (5)	Robust Time FE (6)
impiclabour	34454.56	5889.285	12016.96	10014.9	32783.79	40914.36
	(65970.97)	(43016.28)	(29670.29)	(40585.92)	(44780.99)	(47720.13)
gdpcapita				.2506562	1.091659	-1.172627
				(.2866039)	(1.116754)	(1.457456)
unemployment				-2846.743	-5900.907	-6063.886
				(1612.385)	(3677.851)	(4135.36)
socexp				-561.8733	2864.661	1589.586
				(1347.509)	(3145.393)	(3145.418)
totpop				.0039914***	-.0044067	-.0103078
				(.000496)	(.0072948)	(0078342)
mig_stock				698.6467	4419.706	3920.703
				(907.2455)	(4546.122)	(7166.481)
Obs	242	242	242	235	235	235
R^2	0.0612	0.0612	0.0249	0.6548	0.4098	0.6186

Note: * = p<0.05, ** = p<0.01, *** = p<0.001

Language requirements for family reunification

The independent variable measuring language requirements for family reunification has no significant effect on the annual migration inflow of EU-citizens in all three models without the addition of control variables (Table 9, columns 1-3).

When control variables are included in the model (columns 4-6), the effect of the language requirements on the inflow of EU-citizens is significant at the 1% level and positive in the robust SE model. The coefficient is 39774.12, which indicates that a one unit increase in the strictness of the language requirements would lead to an increase in EU-citizen migration inflows of around 39,774 people per year. The control variable for the size of the total population in the destination country is significant as well. The effect becomes insignificant when fixed effects regressions are run. This could indicate that the effect of language requirements is constant within countries over time and is thus absorbed in the FE model or that the language requirements are endogenous. It could also indicate that there are time-invariant

factors which are omitted in the first analysis, which affect the relationship between the language requirements and EU migration inflows.

Transforming the dependent variable into its logarithmic form leads to a significant effect in the FE model with control variables (Appendix Table 22) This implies that a one unit increase in language requirements for family reunification would lead to an increase of 1.697 immigrants. This might indicate that the effect of language requirements varies across countries but remains constant over time within countries or that they are correlated with unobserved factors.

The effect remains significant when a dummy for Western European countries is added to the controls, only the coefficient becomes slightly smaller, but the dummy is not significant itself (Appendix Table 24). When the regressions are repeated with the lagged variable for language requirements (Appendix Table 29), the effect becomes insignificant for all models. This indicates that there is no delayed effect of the strictness of language requirements.

Table 9

Regressions analysis of EU migration inflows – language requirements for family reunification

Variable	Robust SE (1)	Robust FE (2)	Robust Time FE (3)	Robust SE (4)	Robust FE (5)	Robust Time FE (6)
impicfamily	33282.07	13809.7	22518.68	39774.12**	37854.6	22546.21
	(23027.13)	(9687.012)	(12578.04)	(15065.28)	(24648.26)	(20390.52)
gdpcapita				.350758	.4354154	-.0546207
				(.6187312)	(.7656455)	(1.098945)
unemployment				-3845.612	-4123.388	-5449.342
				(2180.14)	(2388.332)	(2987.08)
socexp				-1351.606	-1234.661	-535.0839
				(1125.33)	(1641.559)	(1905.717)
totpop				.0026358***	-.0020442	-.0017878
				(.0005736)	(.0093842)	(.0089947)
mig_stock				891.203	2512.617	4570.094
				(1273.759)	(3688.142)	(4402.286)
Obs	255	255	255	248	248	248

R^2	0.1998	0.1998	0.1547	0.6694	0.1953	0.1305

Note: * = p<0.05, ** = p<0.01, *** = p<0.001

When the dependent variable is changed to the annual inflow of TCNs, the effect of language requirements for family reunification is insignificant in the models without control variables (Table 10, columns 1-3). The effect remains insignificant when adding the control variables, and again only the total population size has a significant effect in the robust SE model (columns 4-6). The transformation of the dependent variable into its natural logarithm does not lead to significant results either (Appendix Table 23). Adding a dummy for Western European countries does not change this result (Appendix Table 24), nor does replacing the IV with the lagged version (Appendix Table 30). In sum, it cannot be concluded that the language requirements for family reunification have any effect on annual migration inflows of TCNs. The lack of significance in the regressions on TCN inflows might be caused by the lower number of observations for this dependent variable.

As a robustness check, I have repeated the regressions on EU and TCN migration inflows using the independent variable measuring language requirements for permanent residency, which did not change the results, as they remain insignificant (Appendix Table 16 and 17).
Because there is not sufficient evidence to confirm a relationship between language requirements and EU and TCN migration inflows, I am not able to confirm the second hypothesis that the effect of language requirements on the migration inflows of TCNs is stronger than the effect on the migration inflows of EU-citizens.

Table 10

Regressions analysis of TCN migration inflows – language requirements for family reunification

Variable	Robust SE (1)	Robust FE (2)	Robust Time FE (3)	Robust SE (4)	Robust FE (5)	Robust Time FE (6)
impicfamily	19919.49	-21961.47	468.2502	2132.78	-10504.77	-23566.89
	(33055.71)	(19917.15)	(20432.11)	(12250.81)	(22936.01)	(30450.78)
gdpcapita				.2525825	1.028062	-1.328492
				(.2887648)	(1.158504)	(1.542454)

unemployment				-2855.311	-5981.534	-6193.757
				(1620.96)	(3683.977)	(4187.777)
socexp				-569.1055	3130.966	2209.7
				(1233.257)	(3273.914)	(3201.747)
totpop				.0039942***	-.0036238	-.0094944
				(.0005006)	(.0073412)	(.0074916)
mig_stock				683.4345	3889.132	3488.561
				(907.9026)	(3994.164)	(6700.371)
Obs	242	242	242	235	235	235
R^2	0.0833	0.0833	0.0192	0.6547	0.3853	0.6254

Note: * = p<0.05, ** = p<0.01, *** = p<0.001

Discussion

The results of the analysis of the effect of language requirements on migration inflows do not provide sufficient evidence of a relationship between these two variables. Most of the regressions did not yield significant results, which could be due to several factors. First, the variation in both measures of the independent variables is very low, as the scale ranges from 0 to 1, and many of the countries in the sample did not implement any policy change in the observed period. This lack of variation could have contributed to the insignificance of the results. Additionally, multicollinearity was considered as a possible cause, but correlation tests indicated no high correlation among the predictor variables.

Another potential cause for the insignificance is the relatively small sample size, which limited the number of observations and made it more difficult to detect significant effects. This is particularly an issue for the regressions on EU-citizens and TCN migration inflows, because the observations here are lower than for the total migration. Other factors such as measurement error or incorrect model specifications might also have contributed. It is possible that the relationship between language requirements and migration inflows is non-linear and thus not captured by the linear models. The models did not account for indirect relationships between the independent and dependent variables either, which could also explain the lack of significance.

The control variables for unemployment, GDP per capita and total population are more often significant in the log-transformed models, which indicates that the skewness of the data might have affected the results. Furthermore, omitted variables not included in the research could

contribute to the lack of significance. This study did not account for origin-country specific and micro-level variables, and other variables that are likely to affect the relationship between language requirements and migration flows, such as other migration and integration policies or the prevalence of widely spoken languages in destination countries.

In the main analysis no evidence was found for a significant effect of language requirements on total migration inflows. However, in the robustness checks I found some significant effects. For language requirements for labour migration, there seems to be a positive effect on total migration inflows when time specific factors are controlled for. For language requirements for family reunification, there seems to be a positive effect on total migration inflows when control variables are not included and the IV is lagged.
There is no convincing evidence for a relationship between language requirements and the inflow of TCN migrants, possibly due to the smaller sample size and limited observations. It could indicate that TCNs do not consider language requirements as an important factor when deciding to migrate. There is very little evidence for a relationship between family reunification language requirements and the inflows of EU citizens, but the effect is significant and positive in some models. This might suggest that other factors related to the strictness of family reunification language requirements attract EU immigrants, because the language requirements themselves are often not applicable to EU citizens. It is possible that stricter language requirements are common in countries that are attractive for EU citizens for other reasons.

It is somewhat surprising that in the instances where a relationship is identified, this relationship is positive, because it contradicts the hypotheses and the literature on which they are based. A possible explanation for this discrepancy is that the relevant literature analyses bilateral migration flows and is thus able to control for many factors which cannot be controlled for when analysing unilateral flows. Another possible explanation is related to the categorization of language requirements as immigration or integration policies. My hypotheses are based on studies which find that an increase in strictness in immigration policies negatively affects migration flows, but other studies find a positive effect for integration policies. It is possible that immigrants consider language requirements as integration policies and favour stricter language requirements, as they facilitate swifter integration in the destination country. This causal mechanism could be explored in further research.

Most control variables did not show a significant relationship with migration inflows in the main analysis, which contradicts earlier studies discussed in this thesis. The insignificance of variables representing economic conditions might be because many immigrants are not seeking better economic conditions but have other migration motives, as they originate from a prosperous region. The size of the total population, unemployment rate and GDP per capita are significant in many of the models where the dependent variable is log-transformed, which could indicate that the insignificance in the main models is due to errors in these models. The control variables for the share of social expenditure and the existing stock of migrants in the destination country are insignificant in all models. This could indicate that these factors do not affect migration inflows. However, it is important to consider that the insignificance could also be due to the use of unilateral instead of bilateral migration flows, which is a necessary limitation to my study, or other methodological limitations in the models.

Conclusion

In this thesis, I have researched the relationship between language requirements for immigrants and migration inflows into EU countries. While the determinants of migration have been extensively studied, no prior studies focused only on the role of language requirements for the EU. This is a relevant area of research, because language plays a key role in the integration of immigrants and knowledge of the determinants of immigration can facilitate the development of effective policies, either in regulating or increasing migration inflows.

The research question which I sought to answer in this thesis is whether language requirements affect migration inflows in the EU and whether the effect is different for EU-citizens and TCNs. Following existing literature on the effect of immigration policies on migration flows, I hypothesised that stricter language requirements would have a negative effect on migration inflows and that this effect would be stronger for TCNs. The analyses did not confirm these hypotheses, because they did not provide sufficient evidence to state that there is a relationship between the language requirements and migration inflows and the limited evidence points towards a positive relationship between these variables. Therefore, this study has not shown that policy on language requirements influences migration inflows. If there is an effect, it appears to be positive rather than negative, suggesting that stricter language requirements increase migration inflows. Because a relationship between language requirements and the

inflows of EU-citizens and TCNs could not be established, it is not possible to state that the effect of language requirements is stronger for inflows of TCNs.

This study has several necessary limitations which may have affected the results. One major limitation of this study is the quality of the data. The data on the strictness of language requirements per country were sourced from the IMPIC database. While this is created with information provided by national experts, it might not include nuances in the policies on the national level. Furthermore, the reliance on Eurostat data, which has gaps and does not always credit the sources of national data, may have introduced biases and reduced the number of observations. There is a discrepancy between the independent and dependent variables, because the independent variable measures language requirements for certain types of migration, while the dependent variable does not distinguish between these motives of immigrants, possibly leading to distorted results.

Another limitation is the use of unilateral migration flows as a dependent variable. The relevant literature on determinants of migration flows uses bilateral flows, which allows to include many more control variables related to the country of origin, and a better estimation for the model. Omitted variable bias is one of the main limitations of this study. Only five control variables are included in this thesis, and no control variable accounting for immigration or integration policy other than language requirements is included, while it could be expected that there are many other policies or factors which affect migration inflows.

Additionally, endogeneity is a potential issue, as migration flows could affect language requirements, and unobserved factors might affect influence both language requirements and migration inflows, such as broader economic and political developments. Quantitative analysis has limitations in capturing individual choices in the migration process and unaccounted factors in statistics. Finally, it is difficult to determine which statistical model would be most fitting for this research, as results of the tests were contradictory, which complicates the interpretation of the results.

Further research is required to examine the relationship between language requirements and migration flows using a more comprehensive model, bilateral migration flows, controls for other policy and language factors, and data directly sourced from national sources on language requirements. Future research could explore the possible causal explanations for a positive relationship between language requirements and migration inflows. A focus point for future research on language requirements may be whether language requirements for immigration and

integration have different effects on actual migration, or whether the effect of language requirements is different for immigrants of different skill levels.

The findings in this thesis indicate possible implications for policymakers. If there is no relationship between language requirements and migration inflows, policymakers could impose stricter language requirements to facilitate swifter integration without affecting the number of immigrants. The other way around, if the aim is to limit migration inflows, language requirements are not an effective instrument. If stricter language requirements indeed have a positive effect on migration flows, they could be operationalized to attract more labour immigrants where required.

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Appendix

MIPEX

In this section I provide information on the MIPEX independent variable used as a robustness check.

The Migrant Integration Policy Index (MIPEX) database evaluates and compares integration policies in 56 countries across the world. The database reviews whether all residents of a country are afforded equal rights and opportunities and is based on public laws, policies and research and uses data from independent scholars. Similar to the IMPIC dataset, the input for the MIPEX database is taken from questionnaires which are completed by national experts and then reviewed based on available data and legal texts (Solano et al., 2020). For each question, the answers have values ranging from 0 to 100 associated with them. The lowest value indicates that a policy does not meet standards for equal treatment of migrants, and the highest value indicates that a policy meets the highest standards for equal treatment (Solano et al., 2020).

The Permanent Residence section contains variables which assess how easily immigrants can become permanent residents in a destination country. One of the indicators, eb84a, corresponds to the question whether there are any language requirements for obtaining a permanent residence permit and the form of the requirement. The indicator can take three values, ranging from 0 to 100. The possible values and corresponding labels are summarized in the table below.

Table 11

Values and labels for variable eb84a on language requirements for permanent residency

Value	Label
100	No requirement OR voluntary language course
50	Requirement to take a language course
0	Requirement includes a language test/assessment

Of the countries included in this sample, Germany, Norway and the UK are the sole countries for which a value of 50 is indicated. Because only three of the countries in the sample have an observed value of 50, and these countries still had a form of language requirements for

permanent residency, the variable for language integration requirements in this thesis will be treated as a binary, based on the MIPEX indicator. The three values of the MIPEX indicator are converted into two possible values for the language integration requirement variable. If the MIPEX value is 100, indicating no language requirements, the binary variable will be set to 0. If the MIPEX value is 0, indicating a requirement to take a language course, test or assessment, the binary variable will be set to 1.

For the MIPEX variable on language requirements for permanent residency, which is a binary, the mean is 0.491. In the table for this variable, it is observed that the frequency of no language requirements is 180, and the frequency of language requirements is 174, indicating a quite equal distribution. The MIPEX variable on language requirements for permanent residency is binary and for most countries there is either a language requirement throughout the entire period or not at all. Only Cyprus, Czechia, Italy, Malta and Poland change their policy in the period between 2007 and 2018.

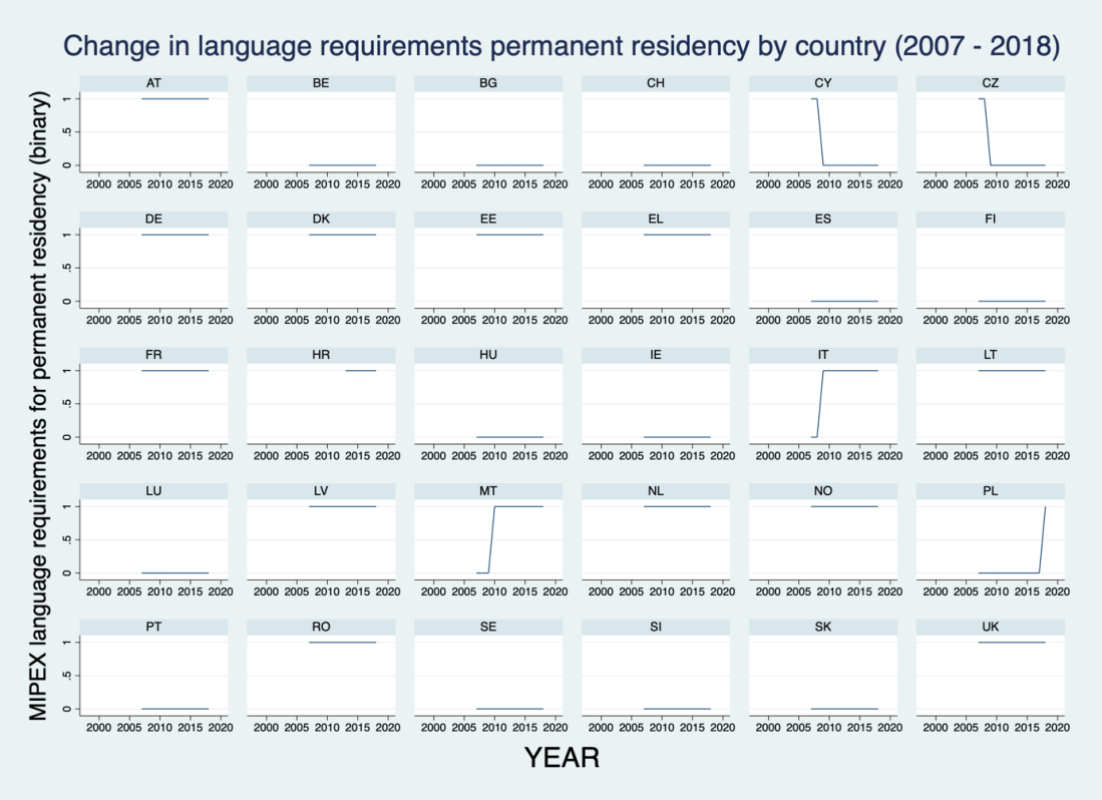
Table 5 (continued)

Descriptive statistics: summary of variables

Variable	Obs.	Mean	Std. dev.	Min	Max
mipex	354	.4915254	.5006358	0	1

Graph 3

Change in language requirements for permanent residency by country (MIPEX)



Results

For the MIPEX variable, there are 349 observations because even though the MIPEX includes all countries in the sample, it only covers a period of 12 years. The independent variable indicating whether a country has a policy on language requirements when applying for permanent residency does not have a significant effect on migration inflows for any of the regression models (Table 15, columns 1-3). The values for R^2 are very low as well, which indicates that in these models, the independent variable has little power in explaining variation in migration inflows.

When the control variables are included in the regression analyses, the coefficient of the MIPEX language requirement remains insignificant (Table 15, columns 4-6). The models do not imply that there is any relationship between whether a country has implied language requirements for permanent residency and annual migration inflows. The coefficients for most control variables are not significant as well, only the variable controlling for the total population size in the destination country is significant at the 0.05 level in the robust SE model. The coefficient for this control variable however is very small at 0.0079, which indicates that an increase in the total population of one thousand people leads to an increase of around 8 persons in who immigrate into the destination country. This effect becomes insignificant when country and time fixed effects are included in the analysis.

Again, when the dependent variable is transformed into its logarithmic form, the coefficients for effect of language requirements for permanent residency on migration inflows remain insignificant, indicating that there is no relationship between the independent and the dependent variable in this model. This could be because the MIPEX variable is binary and does not change a lot over time for most countries in the sample, thus the variation is very small. Another reason for the insignificance could be the number of observations, which is not very high because the MIPEX database only covers 2007 until 2019.

For MIPEX, the implementation of language requirements for permanent residency, the effect on the annual migration inflows of EU citizens is not significant in all three models without control variables. When the control variables are included, the effect remains insignificant and only the control variable for the total population size is significant, with a very small effect.

When the dependent variable is changed to the inflow of TCNs, the effect of whether there are language requirements for permanent residency remain insignificant in all models, both with and without control variables.

Table 12

Descriptive statistics by country: total immigration flows

Country	Obs	Mean	Std. dev.	Min	Max
Austria	21	98984.1	24049.74	69295	166323
Belgium	21	120680.6	18816.4	83812	147377
Bulgaria	8	20308.63	9034.325	1561	29559
Switzerland	21	139487.7	22739.54	95955	184297
Cyprus	21	15155.52	5618.234	6940	23442
Czech Republic	21	47051.67	29117.64	4227	108267
Germany	21	778192.1	250333.9	346216	1571047
Denmark	21	58105.76	8490.119	49754	78492
Estonia	19	5286.842	6042.856	35	17616
Greece	21	77966	23177.69	57946	119489
Spain	21	461385	218404.8	81227	958266
Finland	21	24910.24	6446.944	14192	34905
France	21	250074.2	111354.6	82753	387158
Croatia	19	17928.21	10405.65	8534	51784

Hungary	21	35009.14	18032.69	17269	82937
Ireland	21	74766.48	24158.2	48175	139434
Italy	21	332007.6	107923.4	156885	534712
Lithuania	21	11644.14	8568.119	1510	28914
Luxembourg	21	17249.52	4636.56	11630	24644
Latvia	21	7049.238	2999.76	1813	13303
Malta	14	10636.71	7486.502	2075	26444
Netherlands	21	133360	29559.33	92297	194306
Norway	21	51992.95	13201.21	34264	70337
Poland	21	100730.3	99605.59	6587	222275
Portugal	21	35348.29	17790.07	14606	77775
Romania	11	149959.4	15970.53	132795	177435
Sweden	21	94665.86	33307.66	49391	163005
Slovenia	21	15661.86	8151.234	4603	30693
Slovakia	21	5121.238	2208.497	2023	8765
United Kingdom	21	507513.9	102867.6	332390	644209

Table 13

Descriptive statistics by country: EU migration inflows

Country	Obs	Mean	Std. dev.	Min	Max
Austria	12	53392.5	13029.73	36165	68797
Belgium	10	62574.3	3124.84	58025	67314
Bulgaria	8	1455.25	1204.855	6	4136
Switzerland	11	91612.18	8463.215	82535	113575
Cyprus	10	8995.5	3150.198	3749	13210
Czech Republic	12	17104.33	5313.939	10706	29647
Germany	12	323522.7	103705.7	125772	456174
Denmark	12	21479.42	3383.687	16218	25595
Estonia	12	1623.583	1717.991	62	4555
Greece	11	14685.55	2073.815	11589	17180
Spain	12	144693.8	80077.29	90421	389203
Finland	12	7856.917	1392.611	6464	10281
France	12	77238.92	10472.83	57943	90774

Croatia	11	1710.091	551.5049	919	2334
Hungary	12	11778.58	2339.546	8997	17664
Ireland	12	31515.17	16249.87	19506	78377
Italy	11	97790.45	47037.74	57369	212862
Lithuania	12	558.8333	228.3649	149	813
Luxembourg	12	14943.67	1697.286	11929	16662
Latvia	8	681	170.5068	498	926
Malta	11	5517.182	3858.631	1763	11746
Netherlands	12	56300.08	11361.47	42259	79443
Norway	11	30320.64	7434.676	19957	39960
Poland	11	19500.27	8980.764	196	29631
Portugal	11	4403.636	2490.429	1341	8092
Romania	11	5258.545	2877.143	1024	9244
Sweden	12	28007.5	2416.907	24154	31352
Slovenia	12	2681.917	623.1509	1881	3389
Slovakia	11	3184.182	1413.222	1968	6754
United Kingdom	12	206082.2	39966.25	157554	269241

Table 14

Descriptive statistics: TCN migration inflows

Country	Obs	Mean	Std. dev.	Min	Max
Austria	12	36586.5	17919.17	23642	86469
Belgium	9	51950.22	9155.802	41443	65808
Bulgaria	7	11400.71	3164.666	4989	15268
Switzerland	11	39852.91	39852.91	34928	48221
Cyprus	10	6745.4	1861.629	4022	10700
Czech Republic	11	24874.45	17370.46	8265	61317
Germany	11	346051.5	245402.9	140332	998260
Denmark	11	21031.91	5468.079	15954	32256
Estonia	11	2354.545	1729.623	685	5460
Greece	11	33171.45	22718.35	13539	70564
Spain	11	244714.9	91487.39	157823	414292
Finland	11	13619.73	2580.263	10802	19638

France	12	132657.8	24250.02	24250.02	24250.02
Croatia	11	4742.364	3532.691	2758	15157
Hungary	11	16152.91	8612.996	9854	38160
Ireland	12	19510.33	6470.519	8847	32839
Italy	11	232229.9	40830.43	180271	305888
Lithuania	11	3942.818	3512.879	911	11536
Luxembourg	11	4577.091	1483.401	2667	6882
Latvia	8	3567	1130.59	2363	5858
Malta	11	5487.545	3591.853	1243	13512
Netherlands	11	48366.18	16829.58	31750	76680
Norway	11	24238.27	3514.949	19491	32364
Poland	10	60768.2	21937.5	34147	103883
Portugal	11	8307.727	4087.718	3737	16224
Romania	11	10798.18	5171.728	5864	21867
Sweden	11	69305.09	17729.09	50440	104384
Slovenia	11	13679.91	6870.255	8046	25894
Slovakia	11	585.3636	69.5288	444	665
United Kingdom	11	293754.3	27196.94	248464	325052

Table 15

Regressions analysis of total migration inflows – language requirements for permanent residency

Variable	Robust SE (1)	Robust FE (2)	Robust Time FE (3)	Robust SE (4)	Robust FE (5)	Robust Time FE (6)
mipex	-2724.411	-16944.34	-22709.72	-14636.76	-31552.52	-31913.23
	(35002.76)	(39626.14)	(37470.97)	(25069.4)	(33216.0)	(35409.35)
gdpcapita				.849488	2.545177	-.2426192
				(.6741362)	(1.964653)	(1.804469)
unemployment				-6132.123	-7844.414	-8992.455
				(3539.396)	(4788.721)	(5450.831)

socexp				-965.0999	2803.205	2106.827
				(1411.222)	(2885.739)	(4106.165)
totpop				.007974***	-.0104097	-.0152037
				(.000898)	(.016233)	(.0164016)
mig_stock				766.8417	2584.818	2904.822
				(1557.403)	(3001.61)	(3668.117)
Obs	349	349	349	336	336	336
R^2	0.0493	0.0493	0.0030	0.7799	0.6002	0.7188

Note: * = p<0.05, ** = p<0.01, *** = p<0.001

Table 16

Regressions analysis of EU migration inflows – language requirements for permanent residency

Variable	Robust SE (1)	Robust FE (2)	Robust Time FE (3)	Robust SE (4)	Robust FE (5)	Robust Time FE (6)
mipex	-10198.05	-19171.46	-22884.62	-14844.13	-24716.43	-27081.05
	(18462.55)	(22748.41)	(20198.05)	(14243.59)	(20083.8)	(19524.46)
gdpcapita				.3765037	.3546145	.3088924
				(.5242461)	(.8008594)	(.738104)
unemployment				-2958.62	-2965.386	-4141.182
				(1717.891)	(1752.538)	(2255.828)
socexp				-386.7597	-668.6985	521.612
				(880.6192)	(962.152)	(1356.826)
totpop				.0027782***	-.0018899	-.0012623
				(.0006133)	(.0094425)	(.0089878)
mig_stock				895.5227	2165.728	2764.876
				(1000.112)	(1900.403)	(1897.786)
Obs	333	333	333	321	321	321
R^2	0.0431	0.0431	0.0198	0.6669	0.3142	0.1329

Note: * = p<0.05, ** = p<0.01, *** = p<0.001

Table 17

Regressions analysis of TCN migration inflows – language requirements for permanent residence

Variable	Robust SE (1)	Robust FE (2)	Robust Time FE (3)	Robust SE (4)	Robust FE (5)	Robust Time FE (6)
mipex	1897.786	1467.741	-3853.184	-5137.498	-7024.05	-7128.553
	(14159.69)	(15225.81)	(14125.06)	(11579.71)	(14349.78)	(15413.4)
gdpcapita				.2431359	1.3699	-.1604227
				(.2037871)	(1.303428)	(1.000731)
unemployment				-2224.246	-4215.393	-4242.952
				(1155.715)	(2466.279)	(2946.196)
socexp				-209.2038	2602.332	2369.048
				(955.1528)	(2634.049)	(2727.992)
totpop				.0039125***	-.0015649	-.0051479
				(.0004927)	(.0066525)	(.0064927)
mig_stock				736.4978	1474.985	1036.694
				(695.7747)	(1809.079)	(2356.827)
Obs	317	317	317	306	306	306
R^2	0.0424	0.0424	0.0049	0.6790	0.1428	0.6115

Note: * = p<0.05, ** = p<0.01, *** = p<0.001

Table 18

Regressions analysis of LN total migration inflows – language requirements for labour migration

Variable	Robust SE (1)	Robust FE (2)	Robust Time FE (3)	Robust SE (4)	Robust FE (5)	Robust Time FE (6)
impiclabour	.1139396	.1027776	.2817213*	-.108967	-.1716607	-.0848967
	(.2231372)	(.2171706)	(.1090138)	(.1125163)	(.1525256)	(.1609727)
gdpcapita				0000243***	.000026**	.0000113
				(6.38e-06)	(8.53e-06)	(.0000159)
unemployment				-.0660885*	-.0685262*	-.0646093*
				(.0268626)	(.0279092)	(.0289606)

socexp				.0341452	.0356819	.0020593
				(.022691)	(.0272324)	(.0368269)
totpop				4.21e-08***	6.30e-08	1.47e-08
				(5.70e-09)	(3.25e-08)	(6.10e-08)
mig_stock				-.0374921	-.0498649	-.0393483
				(.0242836)	(.0416253)	(.0492858)
Obs	432	432	432	384	384	384
R^2	0.0170	0.0170	0.0130	0.6650	0.6748	0.4529

Note: * = p<0.05, ** = p<0.01, *** = p<0.001

Table 19

Regressions analysis of LN total migration inflows – language requirements for family reunification

Variable	Robust SE (1)	Robust FE (2)	Robust Time FE (3)	Robust SE (4)	Robust FE (5)	Robust Time FE (6)
impicfamily	.278627	.25144	-.0949437	-.173454	-.2080718	-.3113426
	(.1720649)	(.1736651)	(.2124434)	(.2159863)	(.2212988)	(.31268)
gdpcapita				.0000247***	.000026**	8.65e-06
				(6.38e-06)	(8.54e-06)	(.0000159)
unemployment				-.0673774*	-.0699538*	-.0682319*
				(.0267406)	(.0278297)	(.0291872)
socexp				.0390533	.0415758	.0040331
				(.0241527)	(.0284307)	(.0355126)
totpop				4.23e-08***	5.81e-08	1.12e-08
				(5.78e-09)	(3.10e-08)	(5.20e-08)
mig_stock				-.0363246	-.0444552	-.0362263
				(.0242495)	(.0400487)	(.0470547)
Obs	432	432	432	384	384	384
R^2	0.0863	0.0863	0.0012	0.6598	0.6725	0.3225

Note: * = p<0.05, ** = p<0.01, *** = p<0.001

Table 20

Regressions analysis of LN EU migration inflows – language requirements for labour migration

Variable	Robust SE (1)	Robust FE (2)	Robust Time FE (3)	Robust SE (4)	Robust FE (5)	Robust Time FE (6)
impiclabour	-.3259011	-.5558357	-.5609713	-.4628042	-.599911	-.6668861
	(.5659652)	(.4860527)	(.4245336)	(.3071685)	(.4499262)	(.6122893)
gdpcapita				.0000248*	.0000268	.000013
				(.0000103)	(.0000159)	(.0000228)
unemployment				-.0697968	-.0763957*	-.0716916*
				(.0350978)	(.0412)	(.0329107)
socexp				.0581426	.0714802	.0705449
				(.0424847)	(.062031)	(.0841059)
totpop				3.69e-08***	-1.84e-08	-5.99e-08
				(6.70e-09)	(5.54e-08)	(7.91e-08)
mig_stock				-.0280373	-.061125	-.0771891
				(.0258829)	(.0560177)	(.0786456)
Obs	255	255	255	248	248	248
R^2	0.0908	0.0908	0.0025	0.5941	0.0052	0.1942

Note: * = p<0.05, ** = p<0.01, *** = p<0.001

Table 21

Regressions analysis of LN TCN migration inflows – language requirements for labour migration

Variable	Robust SE (1)	Robust FE (2)	Robust Time FE (3)	Robust SE (4)	Robust FE (5)	Robust Time FE (6)
impiclabour	-.4071107	-.5199531	-.4015083	-.4883334	-.2989053	-.3856455
	(.5623857)	(.5148862)	(.3014703)	(.3708435)	(.4260749)	(.4699308)
gdpcapita				.000031**	.0000319*	8.43e-06
				(.000011)	(.0000152)	(.0000171)
unemployment				-.056965*	-.0577002*	-.0431261*
				(.0222009)	(.0236544)	(.0169332)

socexp				.0319126	.0269419	.0244396
				(.0281092)	(.0428258)	(.0403207)
totpop				4.94e-08***	-2.76e-08	-1.06e-07
				(7.91e-09)	(6.50e-08)	(5.20e-08)
mig_stock				-.035381	.0044485	-.0477477
				(.0302978)	(.0570725)	(.0678928)
Obs	242	242	242	235	235	235
R^2	0.0965	0.0965	0.0032	0.6223	0.1255	0.4831

Note: * = p<0.05, ** = p<0.01, *** = p<0.001

Table 22

Regressions analysis of LN EU migration inflows – language requirements for family reunification

Variable	Robust SE (1)	Robust FE (2)	Robust Time FE (3)	Robust SE (4)	Robust FE (5)	Robust Time FE (6)
impicfamily	.4711153	.1665274	.3345346	.4647183	.5291252*	.5044371
	(.252595)	(.1051206)	(.212494)	(.2591094)	(.2454694)	(.3113406)
gdpcapita				.0000266**	.0000312*	.0000177
				(9.20e-06)	(.0000146)	(.0000242)
unemployment				-.0660857	-.07402	-.0685776*
				(.0346665)	(.0405575)	(.0322458)
socexp				.0464012	.0629143	.0617498
				(.0433915)	(.0620673)	(.081354)
totpop				3.52e-08***	-2.61e-08	-6.90e-08
				(6.55e-09)	(5.63e-08)	(7.79e-08)
mig_stock				-.0293405	-.0645942	-.0788319
				(.0243867)	(.0589876)	(.0815678)
Obs	255	255	255	248	248	248
R^2	0.2006	0.2006	0.1328	0.6083	0.0024	0.1716

Note: * = p<0.05, ** = p<0.01, *** = p<0.001

Table 23

Regressions analysis of LN TCN migration inflows – language requirements for family reunification

Variable	Robust SE (1)	Robust FE (2)	Robust Time FE (3)	Robust SE (4)	Robust FE (5)	Robust Time FE (6)
impicfamily	-.1357155	-.2898199	.0513064	.1598934	.1851208	.2123794
	(.3851319)	(.4022307)	(.1686862)	(.1813801)	(.2256836)	(.242684)
gdpcapita				.0000317**	.0000332*	9.78e-06
				(.0000112)	(.0000157)	(.0000187)
unemployment				-.0556802*	-.056641*	-.0419826*
				(.0222749)	(.0235214)	(.0173793)
socexp				.0276285	.023428	.0186843
				(.0285502)	(.0421198)	(.0389252)
totpop				4.85e-08***	-3.28e-08	-1.13e-07*
				(7.98e-09)	(6.44e-08)	(5.20e-08)
mig_stock				-.0327981	.0064709	-.0433059
				(.0319468)	(.0577697)	(.0682518)
Obs	242	242	242	235	235	235
R^2	0.1048	0.1048	0.0250	0.6164	0.1443	0.4848

Note: * = p<0.05, ** = p<0.01, *** = p<0.001

Table 24

Regressions analysis of migration inflows – dummy for Western European countries

Variable	Robust SE (1)	Robust SE (2)	Robust SE (3)	Robust SE (4)	Robust SE (5)	Robust SE (6)
impiclabour	3576.069		-24563.5		1354.117	
	(45673.39)		(28277.61)		(43978.89)	
impicfamily		7432.749		37654.85**		-2795.759
		(44188.55)		(14238.44)		(13112.83)
gdpcapita	.3598146	.3388409	-.1125981	.0599815	-.5345405	-.5408829
	(.5635402)	(.5553708)	(.843405)	(.8118729)	(.7476422)	(.7699255)

unemployment	-10535.8*	-10456.82*	-4159.947	-3862.104	-3370.437	-3423.898*
	(4948.856)	(4935.492)	(2249.384)	(2167.771)	(1688.877)	(1734.07)
socexp	1803.643	1575.78	-1122.635	-1951.027	-2701.562	-2621.987
	(2169.228)	(2293.924)	(1264.753)	(1350.468)	(2374.185)	(2234.657)
totpop	.0080768***	.0080635***	.002655***	.0025437***	.0038341	.0038426***
	(.0010964)	(.0011172)	(.0007035)	(.0005999)	(.0004465)	(.000446)
mig_stock	2996.366	2976.129	1214.271	1020.349	935.9075	944.6216
	(2801.773)	(2737.586)	(1391.829)	(1314.808)	(940.7224)	(964.15)
western	14680.35	15846.34	41708.41	33880.56	63873.31	64146.5
	(42272.8)	(39060.48)	(31866.83)	(33259.6)	(44179.2)	(45263.53)
Obs	384	384	248	248	235	235
R^2	0.7536	0.7551	0.6721	0.6898	0.6791	0.6787

Note: The dependent variable is total migration flows for columns 1 and 2, EU migration flows for columns 3 and 4 and TCN migration flows for columns 5 and 6.

Note: * = p<0.05, ** = p<0.01, *** = p<0.001

Table 25

Regressions analysis of total migration inflows – 2-year lagged language requirements for labour migration

Variable	Robust SE (1)	Robust FE (2)	Robust Time FE (3)	Robust SE (4)	Robust FE (5)	Robust Time FE (6)
lagimpiclabour	60255.94	60518.42	76078.65	-4077.64	-981.6554	7224.354
	(53781.25)	(52485)	(44111.62)	(38829.22)	(33986.57)	(41027.86)
gdpcapita				.6164557	.7414842	-1.846732
				(.6623084)	(.9519767)	(1.714316)
unemployment				-10145.19	-11719.29	-12076.1
				(5240.329)	(6044.973)	(6625.635)
socexp				1051.643	3034.735	603.3226
				(1764.522)	(2008.242)	(4885.909)
totpop				.0080722***	.0048669	-.001863
				(.0010695)	(.0119727)	(.0123397)

mig_stock				2009.731	3659.899	6375.55
				(2523.809)	(5126.183)	(6319.592)
Obs	398	398	398	361	361	361
R^2	0.0009	0.0009	0.0072	0.7539	0.6120	0.2273

Note: * = p<0.05, ** = p<0.01, *** = p<0.001

Table 26

Regressions analysis of total migration inflows – 2-year lagged language requirements for family reunification

Variable	Robust SE (1)	Robust FE (2)	Robust Time FE (3)	Robust SE (4)	Robust FE (5)	Robust Time FE (6)
lagimpicfamily	107984.5*	106482.6*	84694.31	35430.14	35321.15	18079.06
	(47571.93)	(48859.63)	(48762.73)	(32314.34)	(47113.45)	(50838.48)
gdpcapita				.5620512	.6529356	-1.655321
				(.5867466)	(.9495969)	(1.661765)
unemployment				-9681.971	-11217.08	-11899.11
				(4988.094)	(5863.03)	(6526.875)
socexp				186.9017	2112.24	695.8515
				(1790.326)	(1952.84)	(4662.198)
totpop				.0080019***	.0034077	-.0017059
				(.001087)	(.0113124)	(.0123655)
mig_stock				1985.432	3870.024	5972.688
				(2444.845)	(5712.574)	(7009.365)
Obs	398	398	398	361	361	361
R^2	0.0455	0.0455	0.0463	0.7575	0.4829	0.1916

Note: * = p<0.05, ** = p<0.01, *** = p<0.001

Table 27

Regressions analysis of EU migration inflows – 2-year lagged language requirements for labour migration

Variable	Robust SE (1)	Robust FE (2)	Robust Time FE	Robust SE (4)	Robust FE (5)	Robust Time FE

			(3)			(6)
lagimpiclabour	14702.01	12428.19	11695.65	-731.4348	3642.824	707.7494
	(19912.44)	(20998.3)	(13489.98)	(16606.09)	(14381.45)	(12606.32)
gdpcapita				.2126559	.1218195	-.3380091
				(.6944731)	(.8324092)	(1.044155)
unemployment				-4152.646	-4182.768	-5588.87
				(2381.167)	(2495.757)	(3092.232)
socexp				-394.7795	-777.4086	-354.8242
				(1109.104)	(1605.88)	(2027.64)
totpop				.0027495***	-.0029267	-.0023486
				(.0006807)	(.0099679)	(.009374)
mig_stock				1195.786	3789.724	5427.284
				(1434.181)	(3780.669)	(4103.4)
Obs	255	255	255	248	248	248
R^2	0.0245	0.0245	0.0185	0.6425	0.3291	0.2187

Note: * = p<0.05, ** = p<0.01, *** = p<0.001

Table 28

Regressions analysis of TCN migration inflows – 2-year lagged language requirements for labour migration

Variable	Robust SE (1)	Robust FE (2)	Robust Time FE (3)	Robust SE (4)	Robust FE (5)	Robust Time FE (6)
lagimpiclabour	2821.202	-4240.457	6362.581	-7066.709	-16733.4	-4782.67
	(19745.44)	(15630.82)	(14024.53)	(18877.46)	(22780.24)	(24683.5)
gdpcapita				.2395406	1.039795	-1.023647
				(.3041845)	(1.216987)	(1.360527)
unemployment				-2929.195	-6145.248	-6052.533
				(1662.369)	(3861.461)	(4218.224)
socexp				-478.8846	3085.362	2086
				(1364.088)	(3286.949)	(3313.849)
totpop				.0040031***	-.0027408	-.0086544
				(.0004886)	(.0080306)	(.0080514)

mig_stock				692.9664	3279.213	2492.565
				(919.5165)	(4126.874)	(6274.591)
Obs	242	242	242	235	235	235
R^2	0.0201	0.0201	0.0209	0.6537	0.3133	0.6213

Note: * = p<0.05, ** = p<0.01, *** = p<0.001

Table 29

Regressions analysis of EU migration inflows – 2-year lagged language requirements for family reunification

Variable	Robust SE (1)	Robust FE (2)	Robust Time FE (3)	Robust SE (4)	Robust FE (5)	Robust Time FE (6)
lagimpicfamily	21467.15	8759.335	13558.96	16157.39	7252.244	-5591.71
	(16050.48)	(15086.38)	(19858.55)	(16463.08)	(25627.93)	(30397.39)
gdpcapita				.2115749	.1103064	-.3877855
				(.6606743)	(.8033945)	(1.178172)
unemployment				-3988.626	-4176.465	-5663.323
				(2254.476)	(2423.893)	(3127.73)
socexp				-775.9539	-905.0632	-306.8997
				(1088.631)	(1515.444)	(1947.099)
totpop				.0027033***	-.0026609	-.0024567
				(.0006928)	(.0097758)	(.0095778)
mig_stock				1121.098	3569.312	5594.292
				(1366.782)	(4164.015)	(4914.383)
Obs	255	255	255	248	248	248
R^2	0.1559	0.1559	0.0882	0.6557	0.3081	0.2332

Note: * = p<0.05, ** = p<0.01, *** = p<0.001

Table 30

Regressions analysis of TCN migration inflows – 2-year lagged language requirements for family reunification

Variable	Robust SE (1)	Robust FE (2)	Robust Time FE	Robust SE (4)	Robust FE (5)	Robust Time FE

			(3)			(6)
lagimpicfamily	52320.63	35624.84	31172.65	14704.52	28665.72	14280.99
	(40467.65)	(34232.09)	(31995.4)	(15421)	(26928.78)	(23306.38)
gdpcapita				.2234951	1.196302	-.8846816
				(.2800842)	(1.075225)	(1.431793)
unemployment				-2786.161	-5814.522	-5850.495
				(1543.173)	(3631.399)	(4107.125)
socexp				-777.9038	2617.753	1969.812
				(1290.404)	(2982.668)	(3115.504)
totpop				.0039498***	-.0032496	-.0087084
				(.0004956)	(.0079475)	(.007959)
mig_stock				718.692	2830.925	2079.528
				(886.7649)	(3928.732)	(6235.232)
Obs	242	242	242	235	235	235
R^2	0.0783	0.0783	0.0764	0.6547	0.3417	0.6198

Note: * = p<0.05, ** = p<0.01, *** = p<0.001