The Effects of Migration on Attitudes towards the European Union: Extent, Dynamics and Causality

MASTER'S THESIS

ALINA CHERKAS

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The Effects of Migration on Attitudes towards the European Union: Extent, Dynamics and Causality

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Abstract

Looking at the relationship between immigration and attitudes towards the EU, the study employs a wide range of techniques to provide a causal estimate of the direction and magnitude of the effect. Utilising shift-share instrument in panel models, the analysis consistently demonstrates that the increase in immigration flows leads to a growth in the share of people with negative attitudes towards the EU. The causal estimate shows a sizable effect of 0.3 percentage points increase in the share of people with very negative attitudes for 0.1 p.p. growth in immigrant flow. The validity of the results in ensured through a set of robustness checks which include alternative specification of the dependent and main independent variable as well as using multi-level models with more precise controls of local conditions. The study provides a robust causal estimate to support McLaren's (2002) argument that foreigners create public misperception of the EU which gives a rise to the anti-EU sentiments. The estimated effect size reminds of the heightened sensitivity of the migration issue and the need for a coordinated efforts of EU member-states so as to prevent the spread of the anti-immigrant and anti-EU agendas.

Key words: migration, immigrant inflow, EU, instrumental variables, causal inference.

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Table of Contents

Introduction	- 1 -
Chapter I. Theoretical Underpinnings	- 4 -
1.1. European Integration and Migration	- 4 -
1.2. Foundations of European Migration Theories	- 9 -
1. 3. Migration Studies, Contact Theory and Social Trust	- 11 -
1.4. Migration and Attitudes Towards the EU	- 14 -
1.5. Research question and hypotheses	- 21 -
Chapter II. Methodological Approach	- 23 -
2.1. Variables and Data Sources	- 23 -
2.2. Data Description	- 27 -
2.3. Data Modelling	- 30 -
Chapter III. Empirical Results	- 38 -
3.1. Baseline Analysis	- 38 -
3.2. Causal Inference	- 40 -
3.3. Robustness Checks	- 42 -
3.4. Further Robustness Check	- 45 -
3.3. Limitations and Discussion	- 49 -
Conclusion	- 50 -
Annex A. First-Stage IV Results for a Subset of 7 European Countries (2009-2017)	- 52 -
Bibliography	- 53 -

Detailed Table of Contents

Introduction	- 1 -
Chapter I. Theoretical Underpinnings	- 4 -
1.1. European Integration and Migration	- 4 -
1.2. Foundations of European Migration Theories	- 9 -
1. 3. Migration Studies, Contact Theory and Social Trust	- 11 -
 1.4. Migration and Attitudes Towards the EU 1.4.1. Immigration as an Explanatory Variable 1.4.2. Attitudes Toward the EU as a Dependent Variable 	- <i>14 -</i> - 16 - - 18 -
1.5. Research question and hypotheses	- 21 -
Chapter II. Methodological Approach	- 23 -
2.1. Variables and Data Sources2.1.1. Dependent Variable2.1.2. Independent Variables	- 23 - - 23 - - 25 -
2.2. Data Description	- 27 -
 2.3. Data Modelling 2.3.1. Model Specification 2.3.2. Identification Strategy 2.3.3. Shift-Share Instrument 	- 30 - - 30 - - 33 - - 34 -
Chapter III. Empirical Results	- 38 -
3.1. Baseline Analysis	- 38 -
3.2. Causal Inference	- 40 -
3.3. Robustness Checks	- 42 -
3.4. Further Robustness Check	- 45 -
3.3. Limitations and Discussion	- 49 -
Conclusion	- 50 -
Annex A. First-Stage IV Results for a Subset of 7 European Countries (2009-2017)	- 52 -
Bibliography	- 53 -

List of Figures and Tables

Figure 1. Attitudes and Immigration Flows in Selected European Countries (2006-2019)	- 29 -
Figure 2. Immigrant Stock and Attitudes towards the EU in Selected European Countries	- 30 -
Figure 3. Directed Graph of Causal Relationships between Immigration and Attitudes towards the EU	J - 37 -
Figure 4. Migrant Inflows and Shift-Share Instrument for 7 European Countries (2009-2017)	- 37 -

Table 1. Descriptive Statistics of the Dataset	- 28 -
Table 2. Baseline Results for 22 European Countries (2009-2017)	- 39 -
Table 3. Main Results for a Subset of 7 European Countries (2009-2017)	- 41 -
Table 4. First Robustness Check of Main Results	- 43 -
Table 5. Second Robustness Check of Main Results	- 44 -
Table 6. Pooled Cross-sectional Model for a Subset of European Countries (2015)	- 47 -
Table 7. Multilevel Cross-sectional Model for a Subset of European Countries (2015)	- 48 -

Introduction

Comprising more than two dozen of countries, the European Union (EU) is a multicultural and multi-ethnic place that hosts millions of migrants. Some countries however are more migrant-friendly than others, while some are more pro-EU than others. The 2004 expansion of the EU and 2015 European migration crisis are two examples of how important migration issues are and how differently they might shape opinions about the Union. Therefore, previous research has largely focused on analysing either attitudes towards migration, or attitudes towards the EU through migration and combined the study on interaction of both. Yet, the causal linkages between attitudes towards migration and the EU as such are quite hard to estimate (Bergh, 2019).

Importantly, empirical research has shown that not only the attitudes towards migration, but levels of immigration (going beyond simple numbers of net migration) may be the other reason why people's perception of the EU is changing. On top of that, several studies measured the relationship between immigration inflows and voting in favour of the Eurosceptic parties, arriving at quite puzzling conclusions. While some studies (Nicoli & Reinl, 2019) show that bigger immigration inflow creates higher support of Eurosceptics in the elections (Levi et al., 2020a), the other scholars argue that there has been no linkage between rejection of migrants and rejection of the EU (Scipioni et al., 2020).

This thesis sets out to disentangle the complex relationship between migration and attitudes towards the EU. Do larger migrant populations lead to more discontent with the Union? Will a higher immigration flow make people dislike the EU? How strong is the relationship between migration and the attitudes? What is the direction of the relationship? These questions are both academically noteworthy and politically relevant. And these will be addressed in this thesis.

Traditional economic theoretical accounts of migration mainly take a so-called "rational actor" approach while explaining migration patterns. This framework emphasises labour market competition that is driving individuals' decisions to relocate, thus, migrate. This, in its turn may generate a shift in the migration to more developed countries and consequently, negative attitudes towards the migrants (Lewis, 1954).

On the other hand, modern approaches to migration, such as contact theory, introduce social effects of migrants and migrant networks and are more relevant for studying social trust using migration. They suggest that interethnic contact contributes to the effective reduction of out-group derogation, that is migrants, and therefore makes these interactions less hostile. Higher shares of immigrants are also said to lead to a higher degree of local population's experience with immigration and, therefore, the integration of immigrants. The theory provides a fruitful framework for analysis the question of interest and the study of attitudes.

Multiple studies have looked at the effect of migration on various political and social phenomena, taking different econometric strategies (e.g. Card et al., 2005; Dustmann et al., 2016; Levi et al., 2020). I build up on some of such strategies to provide a more reliable and robust estimate of the migration effects on the attitudes and to test the contact theory hypothesis. In so doing, I start with creating a new country-level dataset that allows me to model migration as a dynamic process. Using panel data analysis and instrumental variable approach, I provide several estimates of the (causal) effect of interest. The validity of the results is ensured via robustness checks in which I apply multi-level models on individual outcomes with NUTS- and country-level variables.

The contribution of this thesis is three-fold. First, it brings together different disciplines by adopting mostly econometric techniques to analyse a political science question. Secondly, regardless of the approach, the results show strong and consistent evidence as to the existence and upward direction of the relationship between immigration and negative attitudes towards

the EU. Thirdly, it builds up on recent findings of Levi and colleagues (2020) and indirectly contributes to the contact theory. Finally, it uses an innovative methodological approach to address the study of migration and attitudes towards the EU using an instrumental variable.

The thesis is structured as follows. Chapter I builds up a theoretical framework drawing on contact and social trust theories. It also provides an overview of the EU integration processes and major milestones related to the Union. Methodological approach is laid down in detail in Chapter II. The chapter explains data sources used and presents the econometric strategy. It also contains a discussion on the issues related to causal inference and related problems in migration research. Chapter III shows the main results of the study based on a range of estimation techniques. A separate section in the chapter presents a robustness check, ensuring the validity of previous results. The thesis ends with the discussion of the substantial implications of the finding in both academic and policy domains.

Chapter I. Theoretical Underpinnings

Research on migration and its relationship with politics has come a long way. In the European Union (EU) context it has developed from traditional studies on push and pull factors of migration to the research on causal linkages between salience of migration issue in political discourse in the era of Euroscepticism and draining trust in the EU. This chapter lays out theoretical foundations for understanding the role of migration in people's attitudes towards supranational authorities (i.e. EU). It opens with a brief overview of the history of European integration and developments of migration regulations with regard to both EU member-states and third countries. This is followed by a review of existing literature on theoretical approaches to studying the migration phenomenon and its impact. This includes the push and pull factors framework as well as contact and integration theories. In the third part, I analyse existing applied research on the relationship between immigration and attitudes towards the EU specifically. This includes two broad categories of research papers: on the one hand, studies use net migration as an independent variable in the models estimating public opinion on the EU from survey data. On the other hand, scholars focus specifically on attitudes towards the EU as an outcome using attitudes towards migrants or migration as such as the explanatory variables. The final section of this chapter formulates hypotheses to be tested in next chapters.

1.1. European Integration and Migration

Historically, migration has been a key component of European integration, regarded as one of the four fundamental freedoms of the EU: the free movement of capital, goods, services, and people. The long process of European integration has seen several milestones in relation to both EU-sourced migration and migration from third countries.

The Treaty of Rome that established European Economic Community in 1957 already mentioned the *four freedoms* (Treaty of Rome 1957, Article 3(c)). The Merger Treaty (1965) expanded the pre-EU institutional structure, combining EEC, European Coal and Steel

Community and Euratom into one organization. Subsequent accession of Denmark, Ireland and the UK (1973), Greece (1981) together with Span and Portugal (1986) lead to the adoption of the Schengen treaty. Although the 1985 Schengen treaty was originally signed and implemented by only five member states in 1990, other member states joined shortly¹. German reunification in 1990 was seen by scholars as a signal towards further integration (Constant & Zimmermann, 2017). And indeed, two years later the Maastricht Treaty that established the EU was adopted.

The Schengen Treaty signified the abolition of borders for the free movement of capital, goods, services and persons, the four freedoms. In essence, the Schengen Treaty was a political agreement on internal security measures such as immigration and asylum. By 2014 all but two of the 26 EU member states were also members of the Schengen zone (Geddes & Scholten, 2016). The two exceptions – the United Kingdom and the Republic of Ireland – have enjoyed a unique privilege of a self-regulatory policy on migration. They however did participate in the common free movement of the labour force within the EU.

Maastricht Treaty established three-pillar system of the EU – Euratom, ECSC and EEC, Common Foreign and Security Policy and judiciary in criminal matters. It introduced common regulations on migration policies and simplified migration within the EU. Citizens of the EU member states were granted a right to circulate and reside freely in the European Community (Maastricht treaty, 1992, Article 73(b)). In 1995, three new member states joined the EU and adopted Schengen agreement shortly after.

The next milestone in the history of European integration was the signature of the Dublin Convention (1997), aimed at regulating EU policies in respect of refugees and asylum seekers.

¹ The five original signatories to the treaty were Belgium, Netherlands, Luxembourg, France, and (West) Germany.

The treaty established a legal framework that required asylum seekers arriving to the EU make an asylum application specifically to the country of entry. By 1997, all member states ratified the agreement.

Another relevant regulation was the Amsterdam Treaty (1999) that defined the EU as 'an Area of Freedom, Security and Justice'. A newly added Title IV stipulated the free movement, immigration and asylum. *"Title IV gave the Council of Ministers the responsibility to ensure within five years of Treaty ratification (2004) the free movement of persons and related external border control, asylum and immigration measures"* (Geddes & Scholten, 2016, p. 155).

Importantly, during 1990s the Central and Eastern European countries underwent significant socio-economic and democratic changes that allowed many of them to acquire a candidate country status and later integrate into the EU. This resulted in the biggest EU enlargement in 2004 with 10 newcomers. Scholars characterise this enlargement as an "unprecedented" event. Such a description is warranted by at least three facts. First, there were – and still remain – highly divergent income levels and labour market opportunities between "old" and "new" member states. Secondly, the newly accessed members were still undergoing important socio-economic transitions and institutional changes at that time. Thirdly, the migration restrictions imposed by Western European states against the third countries challenged the migration options for Eastern and Central European countries before the 2004 accession (Brücker et al, 2009; Kahanec & Zimmermann, 2008).

Assessing the rationale behind the legal solution to grant labour market access to the nationals of the new member states from Eastern and Southern Europe, Fihel et al (Fihel et al., 2015) point out to two major issues it raised for a wider public. Firstly, there was a concern about the impact of migration on the host countries in terms of their labour market and the welfare of their nationals. Secondly, pre-existing public fears were seriously fuelled by the political process (Fihel et al., 2015, p. 7). With this fear of an increased migration to the Western Europe, several regulations curbing the flow of migration to the West from newly accessed members were adopted. Among these, was 7-years transitional arrangement or the '2+3+2' mobility scheme that evaluated the conditions under which nationals of new member states could access the labour market in other EU countries. Even though, the regulation did not apply to those studying and working as self-employed, it limited the employment of traditional wage-dependent migrants, both low- and high-skilled (Fihel et al., 2015, p. 4). According to statistical data, more than one out of 3.8 million of migrants recorded in 2008 in the EU originated from the former European communist countries. Mobility from the new member states accounted for around 60% of intra-EU population movements and roughly 20% of all inflows (Kaczmarczyk, 2015).

Another important migration milestone in the history of the EU was the refugee crisis of 2015. Specifically, the earlier mentioned Dublin agreement was updated to allow Syrian refugees to apply for the asylum in Germany regardless of the country of arrival to the EU. This has been largely criticized as a regulation undermining the original convention of 1997 (Geddes & Scholten, 2016, p. 154). Assessing the crisis, Niemann and Zaun argue that the EU mainly relied upon the "hotspot approach" while dealing with crisis (Niemann & Zaun, 2018, p. 5). In more detail, this approach was translated as the involvement of EU migration-related agencies (such as FRONTEX, the European Asylum Support Office, Europol and Eurojust) in assisting the local authorities of the member states in their work on the ground. The main aim was to ensure the provision of registration and fingerprinting of the refugees. Afterwards, the EU introduced so-called "temporary emergency relocation scheme" to address the challenge of transferring newly arrived persons from one member-state to another. The compulsory regulation however, suffered from the implementation deficit. Though, it can be seen as the first effort committed by the member-states towards the shared responsibility for the refugees

(Niemann & Zaun, 2018, p. 7). Scholars also, note that the refugee crisis started a chain of unilateral policy actions by member-states in regard to migration and refugee policy. Besides, the issue of refugees has received a large media coverage, thus affecting the perception of the EU and EU refugee policies by the general audience.

As for the recent trends in within-EU migration, Vargas-Silva (2012) shows that EU-nationals who migrated to another EU-State in 2010 accounted for 35% of the total migrant stock in the EU as a whole. The cross-country divergence prevailed with Luxembourg being the leader of immigration from abroad, accounting for ~80% of its population and countries such as UK with ~30% of those who arrived (Vargas-Silva, 2012). Quite importantly, EU citizens living in another EU country had a higher employment rate (77.1 %) than those residing in the country of which they were citizens (73.1 %) (Rienzo & Vargas-Silva, 2017).

These trends contribute to making the Western European countries the countries of net migration when the number of immigrants is significantly prevailing the number of emigrants. Admittedly, these tendencies influence the internal political discourses within the countries and may contribute to the artificially created fear of EU migrants while linking even an intuitively positive increase of high-skilled workers from the EU countries to the general increase of immigrants from overseas. The economic reservations of immigrants "taking away the jobs" becomes reinforced by the fear of migrants causing more crime and being a cultural threat. Moreover, as the empirics show, that the topic of immigration is becoming more salient when assessing the attitudes to the EU as such.

Descriptive statistics on the overall trust in the EU has been showing a downward trend over the last decade. Analysing the case study of the UK, Ford et al. (2015) show that since 2004 the levels of public concern grew together with high levels of immigration (including EU free movement zone). This challenged the governmental role of responding to public demands as from the economic side the country benefited from the EU migrants. Similarly, analysing the issue of salience of immigration on the EU level Stockemer et al find that that negative attitudes toward immigration generally trigger higher levels of Euroscepticism (Stockemer et al., 2018). As this brief overview of the history of European migration shows, economic constraints and high divergences between member states following thee 2004 enlargement and, more recently, the refugee crisis are important drivers of the predicated change in the attitudes both towards migrants, and the EU as such.

1.2. Foundations of European Migration Theories

Standard neoclassical assumptions of migration models are characterised by two underlying assumptions – characteristics of behavioural agents (as postulated by behavioural theory) and the environment in which the agents act (Radu & Straubhaar, 2012, p. 28). Overall, migration is regarded as a choice made by a rational agent who is seeking a better life and consequently, better job opportunities, thus being driven by self-interest.

The respected theoretical approach explains the factors that make people leave their home country and those that compel them to move to another state. In this regard, it emphasises the structural and objective conditions which act as "*push*" and "*pull*" factors for migration. The most commonly used theoretical framework of migration tackles *push and pull factors* (interaction of labour-market, economic, political and demographic causes) and is widely used by scholars to analyse European migration and European integration processes. Boswell (Boswell, 2002) provides a brief overview of examples that these factors include. As her discussion goes, push factors would typically incorporate economic conditions such as unemployment, low salaries or low per capita income relative to the country of destination. In contrast, pull factors would include migration legislation and the labour market situation in receiving countries (Boswell, 2002).

This framework makes a clear distinction between emigration and immigration states (Faist, 2000, p. 12). Faist argues that all kinds of demand-pull and supply-push factors can only operate if migrant networks link the respective countries within specific migration systems. This is especially true for the refugees as a subcategory of migrants (Faist, 2000, p. 64). In the context of 1990s when migration regulations were agreed upon by each EU member state individually, Zimmerman sees supply-push migration as driven by "*better economic conditions in the receiving than in the sending countries as measured by unemployment, wages, working conditions, social security benefits, the structure of the economy, and the like; demographic characteristics of the labour force; the wishes of the families of migrants to reunite; and conditions that foster the migration of asylum seekers and refugees (Zimmermann, 1996, p. 97). The biggest concern of push migration is a possible unemployment in the destination country. In contrast, pull migration is caused by the shift in the demand curve and driven by all factors that affect aggregate demand internally, within the country context. Pull migration is then traditionally associated with the labour-seeking.*

As for the EU, Zimmerman (1996) explains the migration patterns in the region in post-World War II period within traditional push-pull conceptual framework. He splits the Europe's history into four elements, migration periods: (1) 1945–1960s (war adjustment and decolonization); (2) 1955–1973 (labour force immigration); (3) 1974–1988 (restrained migration), and (4) 1988–present (migration to the West caused by the end of socialism in the East). Admittedly, the author analyses the relationship between real growth (which should capture all *pull* factors), lag net migration and the time trend (both should account for *push* factors) to analyse the impact of 1973 exogeneous shock – change in the European migration policy with the economic crisis – and thus, the beginning of restrained migration. Strong correlation patterns in Zimmerman's findings allow scholars to argue that migration trends in Europe were driven by push-pull factors. In a similar manner earlier research has characterized migration as the interaction of

labour-market, economic, political, and demographic factors—referred to as the push and pull variables (Zimmermann, 1996).

1. 3. Migration Studies, Contact Theory and Social Trust

More recent studies expanded the theoretical framework of push-pull migration specifically by enriching the theory with, bringing societal and human dimensions on stage. As the result, scholars-theorists started to focus more on the role of human capital and migrant networks as additional key drivers and components of immigration. More importantly, modern branches of migration research study migration drivers through the framework of individual choices and individual attitudes that can be grouped together. This dimension is largely overlooked in standard neoclassical theory (Radu & Straubhaar, 2012).

Human capital theory extends neoclassical approaches with a more comprehensive description of labour migration patterns. The core assumption states that migration decisions are not made by an individual as an isolated agent. Instead, they are driven by endogenous effects coming from the peer group or by contextual effects coming from the group's specific characteristics. Therefore, social interactions have a substantial influence on the migrants' decisions. In this respect, *social impacts* cannot be captured by standard socio-economic variables, but rather "rough" measures, such as stocks of immigrants to proxy network connections (Radu & Straubhaar, 2012, pp. 29–30). Manski (1993) suggests that there are two major reasons for this non-inclusion. Firstly, behavioural attributes cannot be used to "*identify individuals' reference groups*" and consequently endogenous social effects. This is mostly due to the lack of data to conduct micro-econometric analysis of the respected groups (i.e. migrants as a reference group). Secondly, the methodological challenges (*"attributes are either functionally dependent or are statistically independent"*) do not allow to distinguish endogenous social effects. (Manski, 1993, p. 541). My research aims addresses this methodological barrier by applying an instrumental variable in order to approach migration as a *stock* and *immigrants' inflow*.

In addition to social effects, migration is analysed from the individual perspective. The calculations of net returns from migration as such are estimated using individual skills (operationalised as a wage earning) and their subtraction from the expected value of the receiving country. Therefore, the operationalisation of migration and its inflows as such can be understood as the sum of all individual decisions to migrate. However, one should keep in mind that human capital characteristics are also believed to affect the migration decisions. Scholarship suggests that these are not limited to personal traits, but also to heterogeneous preferences, social conditions and *migrant networks* (such as family, friends, family members abroad). The latter can be translated overall as a "*mechanism for reducing the costs and risks of migration under imperfect information*" (Radu & Straubhaar, 2012, pp. 31–33).

Finally, scholars embed social interactions into migration models. In particular, the *feedback effects* on individual choice are another determinant of migration. Theoretically, they explain the relationship between a person's decision to migrate and prevalence of a similar decision in one's reference group. This approach is two-fold and is built upon the constraints faced by people inclined to migration and threshold effects. This means that on the one hand, using constraints scholars argue that personal decision to migrate is dependent on comparison of goods in the country of origin and destination country (Tiebout, 1956; Tiebout; 1956; Tullock, 1971). On the other hand, threshold models propose that newly settled migrants are assisted by those who migrated before (Stark & Taylor, 1991). Once the migration network within the specific country or set of countries grows, it results in the gradual interaction of the migrants "out" group with the "inner" group (i.e. local population). These approaches have resulted in a more general theoretical conceptualisation of the effect of immigrants and migrant networks and its impact on economics, policies and social attitudes towards immigration in the receiving countries. The latter can be viewed through the prism of contact theory which will constitute the major theoretical framework to be tested in this research.

The main rationale of contact theory is that interethnic contact contributes to the effective reduction of out-group derogation, i.e. migrants, and therefore make these interactions less hostile (Allport, 1957). Higher shares of immigrants also lead to a higher degree of local population's experience with immigration and, therefore, the integration of immigrants. Reversely, it may also be the case that the larger an outgroup is, the more threatening its presence becomes for people who do not have any contact with members of that group than for those who do. Thus, intergroup contact could lighten the effects of cultural distance. Also, this implies that the outgroup size correlates with contact opportunities, and intergroup contact in turn is known to influence intergroup attitudes (Schneider, 2007, pp. 54–55). Therefore, if the interactions between migrants and locals increase, the question arises: how do we measure the outcome of such interactions? Scholars argue that social trust is directly related to migration issues.

Bergh argues that the influence of immigration salience on the level of social trust is threefold (Bergh, 2019, p. 97). First, immigrants coming from countries with the low level of social trust may also worsen the level of trust in the recipient country. Second, in the reverse scenario, if the institutions in the receiving country with low social trust are hostile and "inferior", migrants coming from high-level trust can lower their trust as well. Third, and most relevant for the scope of this research, any kind of migration "may lead to higher ethnic diversity" which in its turn may have an adverse impact on the social trust. Yet, one cannot synonymise trust in political institutions as a proxy for social trust. The challenge arises with the direction and measurement of causality between different types of trust. Bergh acknowledges that "people who tend to have high trust in other people also tend to be more trusting toward political institutions" (Bergh, 2019, p. 105).

Taken together, contact theory and social trust studies are relevant for this research in several ways. First, with the growing number of immigrants, the level of interactions of migrants' "outgroup" with the local population and authorities is rising as well. Second, as these intergroup contacts tend to be more frequent over time which suggests that it is important to shed a light on the effect of the rising immigration inflows on locals' attitudes and trust in political institutions and more importantly, supranational authorities (i.e. EU) as such. Third, it is puzzling to see how the repeated contact of migrants with the local population is reflected in the trust of the letter in the EU. Fourth, contextually, as the recent developments in respect to the biggest EU enlargement in 2004 and refugee crisis in 2014 can be regarded as exogenous shocks, it is important to study the change in likelihood of negative peoples' attitudes towards the EU and European integration. Finally, including the stock of immigrants helps to contribute indirectly to the human capital approach and network connections. The present research aims to validate the unbiased effect of immigration on the public opinion about the EU using instrumental variable research design.

1.4. Migration and Attitudes Towards the EU

Over the last decades there has been an extensive number of studies on the linkages between inbound migration to the EU and change in attitudes to the pro-EU government as well as general trust in the EU. Studying associations and sometimes causal relationship and between these, scholars focused on specific country studies and cross-country analyses.

As observed by Dennison (2019), the salience of issues is most often measured in surveys "*by asking individuals what they consider to be the most important issue(s)*" or most important problem(s) affecting themselves or their country (or less commonly some other social unit such as community, family or Europe) (Dennison, 2019, p.9). In this respect, the existing literature shows that the European Social Survey and Eurobarometer remain two major sources of public opinion data used for econometric analysis of panel data to the topic of interest. These data

sources enable scholars to operationalize their variable of interest (i.e. attitudes towards the EU) using specific questions that can be analysed together or using an index of both. As for the earlier, the question used in the literature (e.g. Garry and Tilley, 2009; Borgonovi and Pokropek, 2018) with the following wording measured on 10-point scale:

'Generally speaking, do you think that [your country's] membership of the European Union is a good thing, a bad thing, or neither good nor bad?'

Scholars who opt for Eurobarometer data (e.g. Vasilopoulou & Talving, 2019; Scipioni et al, 2019) make use of dummy variable that is coded from the question as outlined below:

What is your opinion on each of the following statements? Please tell me for each statement, whether you are for it or against it. 'The free movement of EU citizens who can live, work, study and do business anywhere in the EU'.

Alternatively, trust in political institutions can be used as a proxy of the general trust in the EU. This approach was taken by Hatos (2013) analysing attitudes towards the EU with multilevel modelling techniques. Author's main finding suggests that *"the individual satisfaction with the national government does not have the impact on the dependent variable [attitude towards the EU] that could be derived from the model of the opportunity benefits of transferring sovereignty to European Union"* (Hatos, 2013, p. 145). Overall, one of the largest impacts of immigration seems to be on public perceptions (Wadsworth, 2015). Several studies have tackled the issue of migration to the EU and specifically, anti-immigrant sentiment in EU countries' political discourse.

In this respect I will first discuss the existent research on migration where the term is operationalised as an independent variable. Secondly, I will look into studies that analyse public opinion and attitudes towards the EU and, therefore use it as an outcome variable.

1.4.1. Immigration as an Explanatory Variable

Analysing the existing quantitative research addressing the immigration its correlation with Euroscepticism and trust in the EU, Stockemer et al (2018) performed a meta-analysis of over 80 studies. This allowed them to subdivide the literature into three broad categories (1) "significant according to theoretical expectations" - 51 articles, (2) "non-significant" - 8 articles, and (3) "significant contrary to the literature's predictions" – 11 articles (Stockemer et al., 2018, p. 330). Their descriptive statistics suggests that there exist two broad categories of immigration as an independent variable operationalized by scholars - attitudes toward immigration and *structural* approach that uses percentage of immigrants *per se* as dependent variable. While the first one accounts for approximately 70% of all of the observations in their sample, the second subtype is less frequent and is used in only around 30% of the articles. The dependent variable, Euroscepticism is mostly captured as a general phenomenon (in 80% of the cases) and as a policy field in 20%. The general finding of their study proves the relationship between anti-immigration being a significant predictor of Euroscepticism in regression analysis studies. This, however, applies to the studies that operationalize the explanatory variable as *attitudes*. Interestingly, only 36% of all articles using structural data on immigration (increase in number of immigrants) estimate the rise of Euroscepticism. In addition, studies relying on immigration as an independent variable mostly operationalised it in three ways - number of new migrants proportion of migrants from non-EU countries; migrants from Central Europe (Stockemer et al., 2018, p. 336). Again, among these only a third of studies succeeded at finding a relationship between the variables. This shows that usually the shift-share dimension of "raw" immigration has been largely overlooked in the literature.

Yet, scholarship precludes from operationalising immigration as "raw numbers" as this may not reflect the true effect (Kentmen-Cin & Erisen, 2017; Manski, 1993). Kentmen-Sin and Erisen argue that the two most commonly used measures of anti-immigrant attitudes do not fully capture perceived threats from immigrants and opinion about different immigrant groups Overviewing a big share of literature focusing on immigration and support of the EU they note that future studies should pay more attention to methodological techniques that capture the underlying constructs associated with attitudes and public opinion (Kentmen-Cin & Erisen, 2017). Therefore, there is a growing need to fill in this gap in studies by using newer data on immigration combined with better suited methodological tools to make a real causal inference.

Also, it is worth noting several methodological challenges that disable an operationalisation of immigration as an independent variable. A simple number of immigrants does not capture all the complexities of perceived threats and consequently the quality and quantity of contact between migrants and the local population. That is why several studies focused on studying the effect of immigration attitudes as a proxy for immigration. Still, this approach can be criticised according to the questions phrasings in the public opinion surveys that often do not capture or distinguish the type of threat migration may pose (Kentmen-Cin & Erisen, 2017, p. 5). The recent scholarly attempt to overcome these methodological constraints was done by Levi et al (2020), whose work I will discuss in more detail in the next sub-chapter.

Still, the literature usually focuses on the relationship between the attitudes to immigrants (McLaren, 2002) and Euroscepticism. Both measures are operationalised through survey data which to some extent brings the gap between the real influence of net migration and its influence on the EU. For example, De Vreese and Boomgaarden (2005) provide one of the first empirical contributions of the link between immigration attitudes and support for the EU in two Western European countries – Denmark and the Netherlands. Specifically, they estimate public support for European integration using *"five-item index measuring anti-immigrant sentiments focusing on out-group perceptions"* (de Vreese & Boomgaarden, 2005, p. 68). The results of multivariate analysis are robust and statistically significant.

Therefore, a number of puzzling questions remain unanswered. First, how does an immigration inflow translate into the attitudes to the EU as the area of free movement as such? Second, does the immigration stock has a different impact on the perception of the EU than on the image of migrants? Lastly, to what extent does the net migration influence the attitudes towards the EU in cross-country perspective?

1.4.2. Attitudes Toward the EU as a Dependent Variable

Literature contains scholarly attempts to find theoretical support of the relationship between attitudes towards the EU and national evolutions. One of the earliest studies was done by Inglehart and Rabier who argued that on the state-level the support for the EU was explained by post-materialist values and individual cognitive mobilization (Inglehart & Rabier, 1978). Additionally, analysing political participation - political partisanship, Cichowski found out that attitudes towards democracy and capitalism affected the overall perception of the EU (Cichowski, 2000). This was in line with Gabel's findings as an earlier stage. McLauren (2002) argued that Euroscepticism has important linkages to identity politics and specifically, nationstate can be regarded as a primary in group of EU citizens. In contrast to these studies, studies also showed support for political values as the explanation only small percent of variation of European integration support in the Baltic states (Ehin, 2001). In this respect studies like this of Hatos (2013) operationalised the expansion of the EU by two country-level predictors economic development and governmental efficiency. As the scholar argues, generally, countries with less developed economies (as expressed by the GDP per capita and unemployment rate) are expected to gain from a more integrated Union, as proponents of the European integration vividly popularized.

Scipioni et al measure both attitudes to immigration and trust in the EU analysing the voting behaviour during 2014 and 2019 elections to the European Parliament on municipality level (Scipioni et al., 2020). The authors' research question tackles territorial perspective in

estimating the results. The main finding of the paper is that still, socio-economic factors predict voting for parties with restrictive views on migration and high degree of Euroscepticism. In other words, authors argue and show empirical evidence from municipalities Italy and the Netherlands local presence of migrants does not impact on voting support of anti-immigrant parties.

Importantly, the relationship between the 2015 refugee crisis and perception of the EU is not overlooked by the empirical studies. Analysing public opinion data from European social survey, Stockemer et al (2019) argue that refugee crisis had a direct effect on the subsequent image of the EU (Stockemer et al., 2019). What is more, scholars argue that an increased the number of asylum applications together with media coverage affect attitudes towards the EU (Harteveld et al., 2018). This suggests that there may have been a shift in attitudes towards the EU on cross-country level since 2015.

Scholars also draw our attention to an aversion amplification hypothesis. Testing the latter in the UK context, Abrams and Travaglino hypothesized that the effect of aversion amplification on voting intentions would be mediated first by perceived threat from immigration, and then by (dis) identification with Europe (Abrams & Travaglino, 2018) . Through conducting two parallel in Kent (England) and in Scotland using Qualtrics Panels scholars measured the trust in politicians and threat from immigration. Response variables on concerns about immigration and political trust were measured on a scale from Strongly Disagree (1) to Strongly Agree (5). As a result of a regression model, both in Kent and Scotland the interaction term capturing immigration concerns and political trust was significant for threats. Their main finding was that in fact, voters were most likely to reject the political status quo (choose Brexit) when concerns that immigration levels were too high were combined with a low level of trust in politicians.

Much bigger share of literature, however, focused on predicting elections outcomes and voting behaviour with the explanatory variable that operationalizes migration. These studies usually relate to public support of either pro-European or Eurosceptic party in the context of the given EU country.

Another important contribution to the research of attitudes towards migrants uses education as a major explanatory variable. In their research Borgonovi and Pokropek find strong positive and significant association between education of 25-65-year olds and attitudes toward migrants even after controlling for the size of the migrant community in a country of analysis (Borgonovi & Pokropek, 2018). Importantly, the study accounts for the recent migration influx experienced by the European countries since 2015 and shows no evident change in attitudes among the educated individuals on cross-country level.

Garry and Tilley (2009) aim to study the earlier mentioned dilemma between economic and identity-based approaches to the attitudes towards the EU. In particular, they investigate macroeconomic conditions that trigger opinion about the EU and European integration. This study is specifically relevant to this thesis as the authors measure identity as "*attitudes to economic migrants and exclusive national identity*" (Garry & Tilley, 2015, p. 363). This widens the perspective of their research to the attitudes towards migration and its impact on attitudes towards the EU (dependent variable of the study). As part of their research strategy scholars use 2004 wave of pooled European Social Survey data, however, excluding three EU countries for measurement constraints. In their model on top of the standard controls that account for socio-demographic status of the respondents, they include public sector employment and retrospective economic perceptions measures. Methodologically, the research relies upon hierarchical models with random intercept coefficients which allows scholars to look on individual and country level specifications. Overall results of their study suggest that "economic xenophobia and an exclusive national identity are negatively associated with support for EU integration" (Garry & Tilley, 2015, p. 372). The results show a cross context variability of the predictors of attitudes toward the EU integration processes.

Yet, little research has been done on the relationship between migration stock and attitudes towards the EU using public opinion survey data. The reason for this is the inability to distinguish the effect of migration on attitudes towards the EU due to reverse causality and endogeneity problems.

The recent study by Levi et al (2020) predicting support of UK independent party (UKIP) using immigrant presence has aimed at overcoming this gap in the literature. Authors resort to dynamic framework introduced by Altonji and Card (1991) in the context of immigration's impact on labour market. In stark contrast to the previous research, using traditional OLS estimates authors report the impact of the share of immigrants on the votes for Ukip. Yet, these estimates appear to be biased, yet significant. That is why, another methodological tool they use allows to report more interesting findings. Using multi-instrument IV approach based on the current and lagged values of immigration they find that increase in immigration flows entails an increase in votes for Ukip of 0.68% while the share of immigrants causes a decrease in votes for the respected party. The paper of Levi et al (2020) also bears important methodological implications for this research. Instrumental variable approach accounts for possible endogenous effects present in the given context as well as reverse causality problems. Authors conclude that traditional OLS estimates create a bias (i.e. downward bias for immigration inflows and upward bias for the share of immigrants in Levi et al, 2020). At present, this thesis extends the scope of Levi et al's work analysing a subset of EU countries.

1.5. Research question and hypotheses

The aim of this thesis is exactly to examine the relationship between the migration and attitudes towards the EU. Formulated in a general way, the research question asks:

RQ: How does immigrant stock and inflow impact peoples' attitudes towards the EU?

In theoretical terms, this question aims to test the main argument of the contact theory, examining whether the lengthier presence of immigrants in the country suggests less conflict with the local population, thus, less hostile attitudes. Specifically, the literature above brings much evidence about the linkages between the immigration and general attitudes towards the EU. That is why, the main variable of interest tackles the image and perception of the EU as such. More generally, the research contributes indirectly to studying the general effect migration networks and change in immigrant stock in relation to attitudes towards the political institutions, i.e. the EU.

Methodologically, this research will be an extension to cross-country analysis of Levi et al's (2020) study on voting outcomes. Importantly, the analysis addresses the methodological concerns raised by Manski (1993) about the measurement of the migration stock and migration. Attempting to understand the complexity of the relationship, I hypothesise that: (1) Immigration stock has no negative impact on the attitudes; (2) immigration flow does have a negative impact on the attitudes; (3) rate of change in the immigration flows further strengthens the effect beyond current flows.

Chapter II. Methodological Approach

There are three major challenges in disentangling the relationship between migration and attitudes towards the EU. The first one is of a practical nature and concerns data availability. The second one relates to model specification, which, if not specified correctly, might not capture the phenomenon of interest or misestimate its effect. The last one is an endogeneity problem that makes identification problematic. This stems from the fact that immigrants do not move to countries randomly, but instead self-select into favourable conditions (Jaegger et al. 2018). More importantly, since we cannot control for people's preferences, OLS models will almost necessarily suffer from an omitted variable bias. In what follows I consider these three challenges one by one. I start by explaining the choice of data sources and providing some descriptive statistics of the dataset. After that, I present my econometric strategy before discussing the identification problem and proposing a solution to it.

2.1. Variables and Data Sources

The analysis of the research question stated above requires the use of data that is not readily available in any particular database. Thus, multiple data sources are combined to create a new country-level panel dataset that is suited for quantifying the relationship of interest. In so doing, I bring together data from Eurobarometer, OECD and Eurostat.

2.1.1. Dependent Variable

As described in Chapter I, there are two main sources of data widely used in the literature that provide estimates of attitudes towards the EU. The first one is the European Social Survey (ESS), a reputed cross-national biennial survey established in 2001, which provides individuallevel data on multiple socio-economic dimensions for several dozens of countries. The second one is Europarometer, public opinion survey established by the European Commission in 1974. The Standard version of this survey consists of 1000 face-to-face interviews per country that are conducted biannually.

The major drawback of ESS data is that it takes place once every two years. As such, it provides only a partial view of the temporal dynamics and calls for some caution when used in panel analysis. Importantly for the present study, the question about the attitudes towards the EU (*EUFTF* variable) was omitted from the survey in ESS Round 5, creating a four-year gap between Round 4 and 6 as well as limiting temporal dimension to just 5 observations between 2008 and 2018. Although ESS data can offer a rich set of individual and regional covariates, it proves to be very limiting for studying phenomena with not only cross-sectional but also temporal variation. In stark contrast, Eurobarometer surveys are conducted twice a year, i.e. four times as often as ESS, providing a complete set of year-on-year observations. For the main analysis, the aggregated country-level data from Standard Eurobarometer are used².

It is also worth mentioning that while the dependent variable could, in principle, be based on either of the two sources, there may be notable differences in what corresponding survey items measure. In ESS surveys, respondents are asked the following question:

Now thinking about the European Union, some say European unification should go further. Others say it has already gone too far. Using this card, what number on the scale best describes your position?

While a similar question from Eurobarometer reads:

In general, does the European Union conjure up for you a very positive, fairly positive, neutral, fairly negative or very negative image?

² Standard Eurobarometer Series 63.4 (June 2005) through 88.3 (November 2017) inclusive. The data were obtained from the EU Open Data Portal (<u>https://data.europa.eu/euodp/en</u>). Aggregated data were averaged over the rounds conducted in the same year.

Clearly, the two questions have a slightly different connotation. The first one refers to the EU but the question itself is about European unification (not even about integration), while the second question is invoking the EU in a quite straightforward way. Moreover, it may also be argued that the question in ESS implicitly asks about changing *the status quo* ("go further" or "gone too far") as opposed to Eurobarometer question which is more stance-neutral in this respect.

Likewise, there is a difference in measurement scales. ESS question is coded on a 11-point scale from 0 (Unification already gone too far) to 10 (Unification go further), while Eurobarometer uses a traditional 5-point Likert response item. National-level Eurobarometer data provides a count of respondents who selected a particular response. Hypothesising the adverse effect of immigration, I operationalise the attitude towards the EU specifically as the share of respondents who have a very negative attitude³.

2.1.2. Independent Variables

Since the primary effect of interest for this study is immigration, there are two key independent variables to be included in the model. One is *immigrant stock*, i.e. the total number of migrants (or share thereof) in a given country at a particular point in time. A key variable however is *immigrant flow*, which provides an estimate of how many new migrants have arrived in a given country within a specific period.

Eurostat does provide information on immigration flows but does not provide a readily available information on immigrant stock. However, OECD maintains International Migration Database that contains both above-mentioned measures for (most) its member countries⁴.

³ The validity of this operationalisation and results obtained from it are tested in Section 3.3 and 3.4 where I use different aggregated dependent variable and multi-level models with the dependent variable on the original 5-point scale.

⁴ Immigrant flows are coded as *migr_imm1ctz* variable in Eurostat. The OECD database is accessible at <u>https://stats.oecd.org/Index.aspx?DataSetCode=MIG</u>

Moreover, the database offers a breakdown by country of origin, a crucial feature for the causal analysis as will be showed in the next section. In statistical terms, immigrants in this database are defined as foreign citizens who are granted a legal right to reside in a given country for a short or long period of stay. This includes temporary migrants (staying up to 3 months), foreign workers and people with residence permits more generally.

Immigration research often suffers from a lack of reliable data and OECD itself state that countries rarely have tools to specifically monitor inflows and outflow of foreigners. As such, migration statistics comes from multiple sources such as population registers, residence/work permit statistics and specific surveys, e.g. International Passenger Survey in the UK, Australia and New Zealand. The absence of strict monitoring rules over the movement of EU-citizens within the Schengen zone further reminds of unavoidable gaps in migration statistics. It worth noting that the available data is only an approximation of actual migration processes⁵.

Other covariates to be controlled for come from Eurostat and include key macroeconomic and demographic factors. Gary and Tilley (2009) showed that living in richer member-states increases the salience of economic xenophobia and contributes to more sceptical perception of the EU. But economic controls are especially relevant because the period under scrutiny includes the years of the European debt crisis that strongly affected people's attitudes (see Figure 1 below). I therefore add unemployment rate and GDP growth – that is percentage change of GDP from a previous period – to the models to account for the impact of the crisis and other economy-related shifts in attitudes.

It also stands to reason that EU member-states whose economies benefit from cooperation with others are more favourable of the Union. I approximate this phenomenon by using an exposure

⁵ While this means that any official statistics is likely to be incomplete, I use another approximation of immigrant flow that aims at testing the robustness of main results.

to globalisation variable, defined as a ratio of the trade flows (imports plus exports) to GDP. In demographic terms, the models control for age composition and general education levels in respective countries, although some of these are later dropped in favour of a more concise model specification.

2.2. Data Description

The constructed dataset is an unbalanced long panel that includes 22 countries observed over the period of 9 years, 2009-2017 inclusive⁶. Due to a large extent of missing records on immigrants, only 7 countries are included in the causal part of the analysis. In addition to its relatively high coverage, the full dataset provides a reasonable geographic balance, containing 6 countries from Western, 7 from Northern, 5 from Southern and 4 from Eastern Europe⁷. Table 1 provides key measures of the main variables in the dataset for three samples. Due the fact that Luxembourg has unusually large immigrant stock and flow, the full sample of data is contrasted with a full sample without the Grand Dutchy and a subsample of countries for which breakdown of immigrant statistics is available (IV Sample).

While the full sample is almost identical with or without Luxembourg for all measures except for migration ones, there are some differences between the full sample and IV subset. The latter has roughly the same share of population with very negative attitudes but slightly more people with fairly negative views. One can also notice that the mean value for migration flows is slightly larger than in the full sample, yet the range is much narrower⁸.

⁶ The 22 countries are Austria, Belgium, Bulgaria, Germany, Denmark, Estonia, Spain, Finland, France, Greece, Hungary, Ireland, Italy, Luxembourg, Latvia, Netherlands, Poland, Portugal, Sweden, Slovenia, Slovakia, United Kingdom.

⁷ As per United Nations Standard Country or Area Codes for Statistical Use (Series M, No. 49).

⁸ The degree to which inferences from this smaller subset of countries can be applied to other countries will be discussed in Chapter III. Empirical Results.

Attitudes towards the EU vary greatly both across countries and time periods. Before the year of 2010, the share of people with very negative attitudes was relatively stable, but tensions started to mount in 2011, peaking in 2013 in most countries before returning to previous levels in 2015. Shortly after that, the discontent spiked again. Figure 1 displays these trends and juxtaposes immigration flows for the period with available data. The figure is suggestive of some co-variation in the two trends, although this correlation seems to be overshadowed by the Sovereign debt crisis and concomitant discontent with the European Union.

		Full Sample N = 22, T = 9		Full Sample less LU N = 21, T = 9			IV Sample N = 7, T = 9		
	Mean	Std. Dev.	Range	Mean	Std. Dev.	Range	Mean	Std. Dev.	Range
Attitude Variables									
Very Negative	4,68	3,59	0.6-19.4	4,75	3,65	0.6-19.4	4,55	2,23	0.89-9.95
Fairly Negative	17,13	6,17	4.28-34.3	17,22	6,26	4.28-34.3	19,82	5,12	8.22-28.48
Negative	21,82	9,08	5.18-51.9	21,97	9,22	5.18-51.9	24,36	7,02	9.11-38.29
Positive	37,69	9,77	16.26-61.61	37,2	9,62	16.26-61.61	34,63	7,32	21.26-57.0
Migration Variabl	es								
Immigrant Stock	9,07	8,94	0.16-47.66	7,33	4,25	0.16-17.69	7,89	3,08	2.69-15.3
Inflows (OECD)	0,79	0,77	0.04-4.02	0,65	0,45	0.04-2.48	0,93	0,5	0.34-2.48
Inflows (Eurostat)	0,89	0,77	0.09-4.23	0,74	0,41	0.09-1.94	0,89	0,35	0.42-1.94
Shift-Share Instrument	0,77	0,35	0.34-1.78	0,77	0,35	0.34-1.78	0,81	0,38	0.34-1.78
Economic and Den	nograpł	nic Con	trols						
Unemployment Rate	6,31	3,03	2.6-17.3	6,45	3,03	2.6-17.3	6,06	3,58	2.6-17.3
GDP Growth	2,25	5,56	-22.91-34.91	2,14	5,62	-22.91-34.91	1,93	3,86	-11.34-19.09
Globalisation Exposure	86,38	41,82	29.95-180.11	86,94	42,68	29.95-180.11	70,18	30,45	34.9-148.08
Population Aged 25-49	35,14	2,03	31.2-40.6	34,99	1,95	31.2-40.6	34,54	2,34	31.2-40.6
Population Aged Over 65	17,6	2,41	10.9-22.3	17,77	2,33	10.9-22.3	18,9	1,75	15.0-22.3

Table 1. Descriptive Statistics of the Dataset

Note: all attitude and migration variables as well as age composition variables are measures as % of the total population in a given country and year averaged across 22 countries and 9 years. Range columns indicate minimum and maximum value for each variable within the observed time period.

Admittedly, there seems to be a reversed relationship between the share of migrant population and the negative attitude towards the EU. The size of the circle in Figure 2 represents the size of the immigrant stock in each country – expressed as the share of total population – while the colour of the circle is reflective of the mean share of people with very negative attitudes between 2009 and 2017. Indeed, the darkest circles tend to be the larger ones. Countries with the highest share of population unsympathetic to the EU are the United Kingdom and Greece and Austria. Although Greece could be an outlier due to repercussions of the debt crisis, the general picture suggests no negative relationship between immigrant stock and disapproval of the EU.



Figure 1. Attitudes and Immigration Flows in Selected European Countries (2006-2019)



Figure 2. Immigrant Stock and Attitudes towards the EU in Selected European Countries

2.3. Data Modelling

The exploratory analysis may be suggestive but alone cannot provide any convincing evidence as to the relationship between migration and the perception of the EU. In this section, I explain which approaches can help to disentangle the relationship using the data at hand.

2.3.1. Model Specification

Given the panel structure of the data, the choice of a model becomes straightforward. To control for unobserved heterogeneity, I allow the intercept to vary from country to country (entity effects). In a similar vein, I also include time effects, which leads to a two-way fixed effects model, also known as "within" estimator. In its general form, the model can be written as:

$$y_{i,t} = \alpha_i + \eta_t + X_{i,t}\beta + \epsilon_{i,t}$$
 (Eq. 1)

Where y_{it} is the attitude towards the EU in country *i* and year *t*. Two intercepts, α_i and η_t , are vectors of individual and time effects correspondingly. $X_{i,t}$ is a design matrix with β being a column vector of estimated coefficients. The disturbance term is denoted with $\epsilon_{i,t}$. By definition, this set-up does not allow to use time or entity invariant variables, e.g. Schengen

state dummy or Western/Eastern Europe variable, but if strict exogeneity assumption holds for explanatory variables, the fixed effects estimator becomes unbiased (Wooldridge, 2016, p. 435). Moreover, the availability of time dimension allows me to test if immigration effect has any time-dependent properties, such as lags. It also becomes possible to quantify the immediate effect of migration *and* its lagged effect at the same time.

When estimating the impact of immigration on votes for UKIP in European elections, Levi and colleagues (2020) propose to model it as a dynamic process. As such, their specification allows to separate short-run and long run effects of immigration. Although extensively used previously in applied economics (e.g. Jaeger et al., 2018), the approach is relatively new to political science literature⁹. Drawing on this dynamic method, I utilise a distributed lag model, where one of the independent variables, i.e. immigration, appears twice: first as a current value and then as a lagged value. Rewriting Equation 1 to separate the migration variable and its lag we obtain:

$$y_{i,t} = \alpha_i + \eta_t + \theta_1 Imm_{i,t} + \theta_2 Imm_{i,t-l} + X_{i,t}\beta + \epsilon_{it}$$
(Eq. 2)

The only change to the previous equation is that $Imm_{i,t}$, *immigration stock*, is now a separate variable with its own estimate θ_1 . Note that there is also a lagged value of this variable, $Imm_{i,t-l}$, where *l* defines the lengths of the lag and θ_2 estimates the effect of this lag. Taken together, θ_1 and θ_2 represent the compound effect of immigrants on attitudes to the EU. In mathematical terms, θ_2 actually estimates $\Delta Imm_{i,t}$, in other words, change in the immigrant stock¹⁰. This is an intriguing model specification that makes it possible to capture the dynamic nature of immigration effects. Nevertheless, I argue that this model ignores at least one

⁹ Although there were a few theoretical contributions (e.g. Box-Steffensmeier, 2014; Esarey, 2016), the lack applied time series research is apparent.

¹⁰ To be precise, change in immigrant stock within the past *l* years. For derivation and explanation see Levi et al (2020, p. 11) who refer to $\Delta Imm_{i,t}$ as immigrant *flows*. As I show in the next few paragraphs, this is a somewhat misleading name for $\Delta Imm_{i,t}$.

dimension of immigration that may be helpful in understanding the role of immigration with regard to the attitudes towards the EU.

To illustrate this dimension, consider a hypothetical situation when Equation 2 results in θ_1 and θ_2 being zero, that is when there is no change in immigrant stock. Does this mean that immigration is not happening? The correct answer is "not necessarily". When the number of foreigners who leave the country¹¹ is equal to the number of new arrivals (immigrants), immigrant stock is constant, but immigration *does* take place. Thus, what θ_2 in Equation 2 really captures is the change in immigrant stock, not *immigrant flows*. For the latter to be quantified, one specifically needs to know the number of new arrivals and not just the overall value of stock at time *t*. Consider the following system of equations:

$$Imm_{i,t} = Imm_{i,t-l} + \Delta Imm_{i,t}$$
(Eq. 3.1)

And alternatively:

$$Imm_{i,t} = Imm_{i,t-l} - Dep_{i,t} + Arr_{i,t}$$
(Eq. 3.2)

Rearranging, we obtain:

$$\Delta Imm_{i,t} = Imm_{i,t} - Imm_{i,t-l}$$
(Eq. 3.3)

$$Arr_{i,t} = Imm_{i,t} - Imm_{i,t-l} + Dep_{i,t}$$
(Eq. 3.4)

Hence:

$$Arr_{i,t} \neq \Delta Imm_{i,t}$$
, unless $Dep_{i,t} = 0$ (Eq. 3.5)

Where $Arr_{i,t}$ denotes the number of new arrivals, i.e. immigrants, and $Dep_{i,t}$ denotes the number of departures. Since we empirically know that $Dep_{i,t} \neq 0$, it stands to reason that $Arr_{i,t} > \Delta Imm_{i,t}$. Therefore, Equation 2 does not provide an accurate estimate of the effect, if any, of changes in the number of new immigrants arriving in a country *i* at time *t*, instead it estimates the effects of changes in the stock within past *l* years. Consequently, it is $Arr_{i,t}$ that

¹¹ Note that technically these are not emigrants. These are (ex-)immigrants who arrived in a country i at some period t_0 and now living this country at t_1

should be called *immigration flows* (henceforth: $ImFlow_{i,t}$). Taking this into consideration, we can write the final equation to be estimated as follows:

$$y_{i,t} = \alpha_i + \eta_t + \theta_1 ImStock_{i,t} + \theta_2 ImFlow_{i,t} + \theta_3 ImFlow_{i,t-l} + X_{i,t}\beta + \epsilon_{it} \quad (Eq. 4)$$

Extending the logic behind Equation 2, one can see that θ_2 captures the effect of new immigrations while θ_3 quantifies the effect of *changes in migration flows*¹². There are several theoretical reasons to suspect that such an effect could exist. As literature suggests, living in areas with a sizeable migrant population induces to voting for parties that advocate stricter immigration policies (Colantone & Stanig, 2018), but was not found to impact on the attitudes towards migrants *per se* (Card et al., 2005). In the long run, migrants and locals get accustomed to one another through interaction (contact theory). So, when the stock consists of same immigrants who have been residing in a country for some time and integrated at least to a degree, tensions are not likely. But since integration of migrants does not happen overnight, increases in inflows directly impact on the extent of migrant integration and thus can generate short-term tensions between locals and migrants. The chosen model specification will therefore test if such tensions arise and, if so, whether these tensions are translated into negative attitudes towards the EU. But before presenting the results of the analysis, the discussion of two other issues is in order.

2.3.2. Identification Strategy

While the distributed-lag model specified above tackles a few inference problems in virtue of fixed effects, it is not a remedy against unobservable factors that may affect both immigration and attitudes towards the EU. Neither does it help to solve the issue of reversed causality. It is not unreasonable that migrants might move to countries where a more migrant-friendly and

¹² One can think of it akin to turnover rates. If at time period t - l there were 100 new arrivals in country *i* but 110 immigrants arrived at time t, θ_3 would estimate the effect of this 10% change.

pro-EU environment exists. If this is the case, then $y_{i,t}$ and $ImFlow_{i,t}$ affect each other (reverse causality problem). On the other hand, since the model does not account for heterogeneous preferences of either migrant groups or natives – who might have different impact on attitudes towards the EU¹³ – θ_2 and θ_3 in Equation 4 are bound to be biased (omitted variable bias)¹⁴. In any case, it stands to reason that $ImFlow_{i,t}$ is an endogenous variable, which means that one may not interpret θ_2 and θ_3 as causal effects of immigration.

A way to solve these problems is to find a variable $Z_{i,t}$ that is a source of exogenous variation in $ImFlow_{i,t}$. Such a variable is known as an *instrument* and helps to tackle (all of) the abovementioned issues (Wooldridge, 2010, p. 91). For a proper instrument, however, two requirements need to be satisfied: (1) the instrument *must not* be correlated with the disturbance term, i.e. $Cor(Z_{i,t}, \epsilon_{it}) = 0$ and (2) it *must be* correlated with the endogenous variable, i.e. $Cor(Z_{i,t}, ImFlow_{i,t}) \neq 0$. These requirements are commonly referred to as *exclusion restriction* and *relevance condition* respectively. The first requirement also implies that the instrument affects the outcome only through the endogenous variable, in other words, the effect is *mediated* (Mehta, 2015). Although we cannot test the first requirement empirically, there can be compelling theoretical arguments to accept it as an assumption. The next section presents the instrument used for immigration flows and explains why the exclusion restriction is likely to hold.

2.3.3. Shift-Share Instrument

Starting from the first application by Altonji and Card (1991), the dominant strategy in determining the causal effect of immigration is to use spatial correlation approach, known as

¹³ For example, an inflow of people from Balkan countries in Austria might affect people's attitude towards the EU in a very different way than a comparable inflow of Poles in Ireland.

¹⁴ Naturally, the standard OLS assumption of $Cor(ImFlow_{i,t}, \epsilon_{it}) = 0$ is violated in this case.

past settlement instrument (Jaeger et al., 2018) or shift-share instrument. The instrument originates from the observation that immigrants tend to settle in areas with a large migrant population (Card, 2001). Moreover, resulting from the role of immigrant networks is the fact that new migrants are more likely to move to areas where a community of their country fellows already exists (Peri, 2016). Exogenous shocks however change this process creating a "shift" in the flow of migrants across areas. Consequently, the prior distribution combined with the fact that migration rates for some nationalities have started to grow only recently implies a very different inflow of migrants across areas.

Traditionally, the shift-share instrument has been applied in the context of the United States for the analysis of regional impacts of immigration on labour market (see an overview in Dustmann et al., 2016). By changing the prior distribution across *regions* to the prior distribution across *countries* and substituting *national-level* inflow with the *inflow in Europe*, I adopt the shift-share instrument for the analysis of migration in Europe. In so doing, I construct a predicted inflow based on the previous distribution of immigrants from each source country and the current inflow of immigrants at the European level. In notational terms, it can be written as follows:

$$\widetilde{ImFlow}_{c,t} = \sum_{o} \frac{M_{o,c,t}}{M_{o,t_{o}}} \frac{\Delta M_{o,t}}{L_{c,t-1}}$$
(Eq. 5)

Where $ImFlow_{c,t}$ is the expected inflow in country *c* at time *t*. The first fraction, $M_{o,c,t} / M_{o,t_0}$, is the share of immigrants from country of origin *o* in destination country *c* at some prior period t_0 . The second fraction consists of the total number of new arrivals from that country of origin in Europe at time *t*, denoted by $\Delta M_{o,t}$, and the population in destination country *c* in the previous period. Thus, the instrument is a weighted mean of the inflow rates in Europe from each source country that depends on the prior distribution of immigrants.

Note that $t_0 < t$ and most studies allowed for at least a 10-year span between the two (e.g. Card, 2009; Cortés and Pan, 2014; Levi et al., 2020). This is an important factor since choosing t_0 that is close in time to t is likely to render the instrument invalid. The data available for this research greatly limits the choice of t_0 since OECD Migration Database provides data only from 2000. Moreover, because most countries do not report a break-down of their migrant stock by a country of origin – which is an integral part of Equation 5 – the instrument can only be estimated for a handful of countries in the dataset¹⁵. Even for those few who do report the breakdown, the records are incomplete for 2000 and 2001. Hence, the year of 2002 serves as t_0 to estimate the prior distribution of migrants.

Although the ideal prior period would be much distant from the first year of observations included in the models, i.e. 2009, there are at least two arguments suggesting that the year of 2002 is fitting as well. First, the period precedes the largest expansion of the European Union in 2004 when 10 new member states joined. The expansion and the ensuing accession of 9 new members to the Schengen Area likely created a sufficient shift in the migration flows. The second important phenomenon that occurred between 2002 and 2009 is the global economic crisis of 2007-2008. The crisis was a major blow to European economies and a notable exogenous event that generated another shift in, at least work-related, migration.

Taken together, the above arguments lend support to the fact that a chosen instrument is more endogenous to the equation of interest than the original immigration flow variable. Assuming that the choice of t_0 is reasonable, the exclusion restriction is likely to hold because the shiftshare instrument affects attitudes towards the EU only through the current inflows. Figure 3 schematically summarises the relationship of interest in a directed graph.

¹⁵ The countries whose records are sufficiently complete are Austria, Finland, Germany, Greece, Hungary, Italy, Netherlands, Spain, Sweden. Greece and Hungary are however excluded for not reporting some of the immigrant flows, reducing the final number of countries to just 7.



Figure 3. Directed Graph of the Causal Relationship between Immigration and Attitudes

To better illustrate how the constructed instrument relates to the endogenous variable in question, Figure 4 depicts immigrant flows derived from two different sources (red and blue lines) and the predicted flow based on the past settlement instrument (green line). In Finland and Spain, the three lines are very close to each other, but in Austria, Germany and Netherlands, the predicted flow is much smaller than the actual OECD estimates, demonstrating how immigration flows corrected for the self-selection of migrants could look like.



Figure 4. Migrant Inflows and Shift-Share Instrument for 7 European Countries (2009-2017)

Chapter III. Empirical Results

In this section, I present the results of the analysis that relies on several estimation techniques and levels of analysis. I start with simple country-level pooled OLS models and fixed-effects panel models for the whole set of country-years available, which serves as a baseline for further analysis. For the subset of countries, I re-run the within estimator before utilising the instrumental variables approach. After that, I conduct robustness checks using alternative dependent and independent variable operationalisations. Finally, I use disaggregated individual-level outcomes in combination with NUTS- and country-level variables in a multilevel model. Disaggregated data provides greater variation of outcomes and more precise controls of local conditions, serving as an additional robustness check for other models¹⁶.

3.1. Baseline Analysis

Although several recent studies explored the country-level impact of migration in political contexts (Levi et al., 2020; Lubbers and Scheepers, 2007; Stockemer, 2016), the results were not always consistent. This is due to, at least to some extent, tendency to apply different modelling approaches. In order to provide a more complete evidence on the relationship between immigration and attitudes towards the EU, I bring together several approaches in the sections below.

A reasonable starting point for analysing complex data is actually to ignore some of its dimensions using complete pooling (Gelman & Hill, 2007, p. 270). This means using a single model to fit to all data points disregarding both time and entity dimensions. Building on the complete pooling model, one can estimate more elaborate models, such as those described in Equation 2 and 4. As discussed in section 2.3.1. Model Specification, using a distributed lag

¹⁶ Replication files for the analysis are available at a dedicated repository on my GitHub page: <u>https://github.com/alinacherkas/MA-Thesis</u>

model with only immigrant stock is likely to overlook the actual impact of migration flows. This is because change in the migrant stock reflect only a part of true changes in immigrant flows.

	DV: Share of Population with Very Negative Attitude towards the EU						
	Complete Pooling			Fixed-Effects			
	(1)	(2)	(3)	(4)	(5)	(6)	
Immigrant Flows	2.440**	2.159*	1.937*	1.308**		0.962	
ininingrant i to wa	(1.121)	(1.155)	(1.175)	(0.530)		(0.606)	
Immigrant Flows					1.176**	0.619	
(1-year lag)					(0.560)	(0.667)	
In the second Starla	-0.173**	-0.161**	-0.163**	-0.552***	-0.617***	-0.591***	
Immigrant Stock	(0.074)	(0.073)	(0.075)	(0.151)	(0.155)	(0.154)	
I la succión de la companya d	0.503	0.407	0.362	0.890^{***}	0.888^{***}	0.894***	
Unemployment Rate	(0.366)	(0.361)	(0.388)	(0.109)	(0.108)	(0.106)	
C11'		-0.017	-0.018	0.039**	0.039^{*}	0.040^{**}	
Glogalisation Exposure		(0.014)	(0.016)	(0.020)	(0.021)	(0.020)	
		-0.052*	-0.164***	0.003	0.002	0.002	
GDP Growth		(0.030)	(0.041)	(0.021)	(0.021)	(0.021)	
D Elastica			0.059	-0.032	-0.032	-0.035	
Pop. Education			(0.134)	(0.091)	(0.092)	(0.089)	
CI 4 105 40			0.008	0.873***	0.838***	0.869***	
Share Aged 25-49			(0.466)	(0.242)	(0.243)	(0.245)	
			0.028	-0.339	-0.247	-0.258	
Share Aged Over 65			(0.221)	(0.335)	(0.359)	(0.360)	
	1.232	3.527	2.277				
Constant	(2.437)	(3.276)	(20.004)				
N	194	194	174	174	174	174	
R ²	0.164	0.209	0.265	0.448	0.443	0.452	
Adjusted R ²	0.151	0.188	0.229	0.303	0.297	0.303	
F Statistic	12.413^{***} (df = 3; 190)	9.909*** (df = 5;188)	7.434^{***} (df = 8; 165)	13.914^{***} (df = 8; 137)	13.628^{***} (df = 8; 137)	12.449^{***} (df = 9; 136)	

Table 2. Baseline Results for 22 European Countries (2009-2017)

Significance levels: ${}^{*}p < .1$; ${}^{**}p < .05$; ${}^{***}p < .01$ Note: Complete pooling and two-way fixed effects models with country-clustered standard errors in parentheses. The dependent variable and all other variables are measured in percentages.

Table 2 below presents results of 6 baseline models that utilise different estimation approaches on a full sample of 22 countries between 2009 and 2017. The first three models are complete "pooling" models and the last three are fixed effects (FE) models with different lag properties. Complete pooling models tend to be too restrictive and rigid and thus account for between 15 and 23% of the variation in the dependent variable, while FE models reach an adjusted R^2 of about 30%. In line with the expectations, the estimates consistently show that *immigrant flows* are associated with higher shares of people with very negative attitudes towards the European Union in all but one model. Conversely, after accounting for all the other variables in the model, *immigrant stock* has a negative sign implying that a larger immigrant population is associated with a smaller extent of discontent with the EU.

Although the lagged immigrant flow variable is consistent with the results from the pooling model, the distributed-lag specification (Model 6) renders both realisations of the variable statistically indistinguishable from zero¹⁷. The results suggest that 1 p.p. increase in immigrant flows would increase the share of people with very negative attitudes by a value between 1.1 and 2 p.p.

Note that complete pooling models do not control for unobserved cross-country heterogeneity, while FE models are no remedy for endogeneity problem. This means that all the estimates can be interpreted only with major reservations and primarily serve as a baseline for other results.

3.2. Causal Inference

Using the shift-share instrument outlined in the previous chapter, one can provide more reliable estimates that may be regarded as the *causal* effect, if such an effect exists. Because this instrument is only available for a small set of countries, just 7 countries will be analysed in this section. I fit the model described in Equation 4 for this subset using an original variable as well as shift-share instrument. Because of a small sample size, some of the less important variables were removed from the models. The main results of this thesis are reported in Table 3 below

¹⁷ Levi et al. (2020) found a statistically significant impact of lagged values of immigrant stock on the share of votes for the UKIP in European elections. They also decided to use a 2-year lag only, based on the AIC and BIC criteria for various models. Whether my results are different because of another operationalisation of immigrant flows or because the lag value is smaller is an open question.

where the first three models use the original variable and the last three models are instrumented with the shift-share variable.

	Share of Population with Very Negative Attitude towards the EU					EU
		Fixed-Effects		Γ	V Fixed-Effect	S
	(1)	(2)	(3)	(4)	(5)	(6)
L	1.573***	1.638***	2.002***	2.853***	2.788**	2.842*
Immigrant Flows	(0.400)	(0.357)	(0.497)	(1.087)	(1.139)	(1.480)
Immigrant Flows			-0.545			0.188
(1-year lag)			(0.732)			(1.083)
Immigrant Staals	0.021	0.004	-0.072	-0.082	-0.131	-0.337
minigram Stock	(0.122)	(0.126)	(0.223)	(0.139)	(0.154)	(0.217)
Un annul arm ant Data	0.896***	0.923***	1.065***	1.095***	1.113***	1.315***
Unemployment Rate	(0.100)	(0.104)	(0.176)	(0.188)	(0.206)	(0.224)
Share A and 25 40	-0.569***	-0.658***	-0.715***	-0.715***	-0.639***	-0.673***
Share Aged 23-49	(0.150)	(0.160)	(0.159)	(0.088)	(0.160)	(0.250)
CDD Crosseth		0.001	-0.032		0.012	-0.002
GDP Growth		(0.023)	(0.029)		(0.031)	(0.043)
		-0.019	-0.003		-0.030**	-0.036
Glogalisation Exposure		(0.013)	(0.019)		(0.014)	(0.025)
First Stage Instru	ıment					
Shift-Share				0.850^{***}	0.872^{***}	0.872***
				(0.238)	(0.241)	(0.241)
F statistic (first stage IV)				18.788^{***}	10.202***	10.202***
N	63	63	56	63	63	56
\mathbb{R}^2	0.544	0.548	0.561	0.522	0.522	0.529
Adjusted R ²	0.357	0.332	0.311	0.326	0.294	0.260
F Statistic	13.117^{***} (df = 4; 44)	8.477^{***} (df = 6; 42)	6.399^{***} (df = 7; 35)	12.001^{***} (df = 4; 44)	7.641^{***} (df = 6; 42)	5.622^{***} (df = 7; 35)

Table 3. Main Results for a Subset of 7 European Countries (2009-2017)

Significance levels: p < .1; p < .05; p < .01

Note: Two-way fixed effects models with country-clustered standard errors in parentheses. The dependent variable and all other variables are measured in percentages. First-stage IV estimates show only the instrument.

Despite consisting of only a subset of original countries, the re-estimated fixed-effects models exhibits already familiar patterns. The predicted effect of *immigration flows* remains positive and the magnitude of estimates in FE models is very similar to that found in Table 2.

The IV models show however that those estimates are downward biased, and the actual effects are as large as 2.7 p.p. In other words, one percentage point increase in *immigrant flows* is estimated to cause an increase of 2.7 p.p. in the share of people with very negative attitudes.

This is a considerable impact that is almost three times larger than that of unemployment rates. But given the fact that the immigrant flows in this subset ranges from 0.34% of the population for Finland in 2009 to 2.48% in Germany in 2015, the estimates are reasonably sized.

In stark contrast to previous results, *immigrant stock* is not significant in any of the six models. This might suggest that migrant communities are more of a problem in new member-states than in older ones¹⁸. The lagged value of *immigrant flows* is indistinguishable from zero too. The model therefore fails to uncover a dynamic process in immigration effects on attitudes. This might be partly attributed to the fact that a one-year lag is simply insufficient, and one needs a longer lag to discover the process. The small number of observations precludes me from testing if this is the case and calls for investigating this issue in a longer time series elsewhere.

Of notice are the results of the first-stage regression which demonstrate that the relevance condition required by a proper instrument is satisfied and the shift-share is highly significant at 1% level. Moreover, the results are suggestive of the shift-share being also marginally strong instrument (F-statistics > 10). All models exhibit a moderate fit with an R^2 of 25-35%.

3.3. Robustness Checks

To test if the above results are valid, I employ three different robustness checks. First, I use an alternative operationalisation of *immigrant flows* variable based on data from Eurostat. As seen in Figure 4 above, Eurostat data is slightly different allowing to gauge whether the IV estimates are sensitive to the choice of the variable. Figure 4 refits the models from Table 3 using this new variable.

Clearly, the new results confirm previous findings. All six models consistently show that *immigrant flows* are associated with a larger share of people with negative attitudes. When

¹⁸ The seven countries included in the analysis have all been EU-members at least since 1995. In contrast, every third country from the full subset analysed above is a newcomer who joined in 2004 or after.

compared to Table 3, the new estimates are slightly larger in both fixed-effects and IV fixedeffects models. The causal effect is estimated to be about 3 p.p. for every percentage point increase in the share of immigrant flows. Also note that the F-statistic for the first stage is slightly lower than before which is to be expected. Shift-share instrument is calculated based on disaggregated OECD statistics which is much closer to aggregated OECD data than Eurostat.

	Share of Population with Very Negative Attitude towards the EU					e EU	
		Fixed-Effects	5	IV Fixed-Effects			
	(1)	(2)	(3)	(4)	(5)	(6)	
Immigrant Flows (Eurostat)	1.643***	1.682***	1.650***	3.170***	3.134***	3.168**	
	(0.391)	(0.353)	(0.586)	(1.087)	(1.139)	(1.480)	
Immigrant Flows (1-year lag)	ſ		0.254			0.260	
			(0.942)			(1.083)	
Immigrant Stock	0.072	0.062	-0.148	-0.016	-0.054	-0.258	
	(0.112)	(0.116)	(0.217)	(0.139)	(0.154)	(0.217)	
Unemployment Rate	0.873***	0.891***	1.082^{***}	1.079***	1.096***	1.300***	
	(0.075)	(0.079)	(0.153)	(0.188)	(0.206)	(0.224)	
Share Aged 25-49	-0.603***	-0.672***	-0.718***	-0.715***	-0.660***	-0.702***	
	(0.132)	(0.151)	(0.179)	(0.088)	(0.160)	(0.250)	
GDP Growth		-0.00004	-0.033		0.012	-0.002	
		(0.023)	(0.028)		(0.031)	(0.043)	
Glogalisation Exposure		-0.014	-0.003		-0.023*	-0.029	
		(0.014)	(0.018)		(0.014)	(0.025)	
First Stage Instru	ment						
Shift-Share				0.765***	0.775***	0.775^{***}	
				(0.213)	(0.220)	(0.220)	
F statistic (first stage IV)				16.831***	8.592***	8.592***	
N	63	63	56	63	63	56	
R ²	0.535	0.537	0.548	0.522	0.522	0.529	
Adjusted R ²	0.344	0.316	0.289	0.326	0.294	0.260	
F Statistic	12.642^{***} (df = 4; 44)	8.114 ^{***} (df = 6; 42)	6.052 ^{***} (df = 7; 35)	12.001^{***} (df = 4; 44)	7.641^{***} (df = 6; 42)	5.624 ^{***} (df = 7; 35)	

 Table 4. First Robustness Check of Main Results

Significance levels: ${}^{*}p < .1$; ${}^{**}p < .05$; ${}^{***}p < .01$

Note: Two-way fixed effects models with country-clustered standard errors in parentheses. The dependent variable and all other variables are measured in percentages. First-stage IV estimates show only the instrument.

Model estimates do not seem to be sensitive to the choice of the independent variable, so next I substitute the dependent variable with another measure of attitudes towards the EU for the second robustness check. Table 5 re-estimates the models from Table 3 to predict the share of people with *fairly negative or very negative* attitudes. Note that, on average, the share of people with *fairly negative* views is 4 to 5 times larger than that of people with very negative views (see Table 1 above). Therefore, the estimates should increase accordingly.

	Share of Population with Fairly or Very Negative Attitude towards the EU						
		Fixed-Effects		IV Fixed-Effects			
	(1)	(2)	(3)	(4)	(5)	(6)	
Immigrant Flows (OECD)	3.596	3.596	5.828***	10.461**	9.589*	10.317*	
	(2.680)	(2.680)	(2.094)	(5.203)	(5.030)	(5.678)	
Immigrant Flows (1-year lag)			-4.086			-1.658	
			(2.566)			(5.002)	
Immigrant Stock	0.032	0.032	0.535	-0.595	-0.644	-0.703	
	(0.793)	(0.793)	(1.021)	(0.546)	(0.518)	(0.819)	
Unemployment Rate	2.915***	2.915***	3.061***	3.982***	3.771***	4.186***	
	(0.346)	(0.346)	(0.528)	(0.745)	(0.772)	(0.307)	
Share Aged 25-49	-2.046	-2.046	-2.897**	-2.475*	-1.537	-2.705***	
	(1.635)	(1.635)	(1.284)	(1.290)	(0.936)	(0.614)	
GDP Growth			-0.598***		-0.082	-0.508***	
			(0.143)		(0.094)	(0.147)	
Glogalisation Exposure			0.382^{**}		0.070^*	0.254**	
			(0.154)		(0.036)	(0.110)	
First Stage Instru	ment						
Shift-Share				0.850***	0.872***	0.872***	
				(0.238)	(0.241)	(0.241)	
F statistic (first stage IV)				18.788***	10.202***	10.202***	
N	63	63	56	63	63	56	
R ²	0.476	0.476	0.549	0.504	0.534	0.547	
Adjusted R ²	0.261	0.261	0.292	0.301	0.312	0.288	
F Statistic	9.986^{***} (df = 4; 44)	9.986^{***} (df = 4; 44)	6.092 ^{***} (df = 7; 35)	11.177^{***} (df = 4; 44)	8.010^{***} (df = 6; 42)	6.036 ^{***} (df = 7; 35)	

 Table 5. Second Robustness Check of Main Results

Significance levels: *p < .1; **p < .05; ***p < .01

Note: Two-way fixed effects models with country-clustered standard errors in parentheses. The dependent variable and all other variables are measured in percentages. First-stage IV estimates show only the instrument.

The first two models now have standard errors that are too large for the estimates to be significant. But the other four models, including all IV models are still significant. In accord with the expectations, the magnitude of the estimates increases almost 3 times. As in other DL models, the lag value is not significant and so is *immigrant stock*.

Taken together, the Tables 4 and 5 lend extra support to the robustness of the results suggesting that the causal estimates are not only insensitive to the operationalisation of the dependent variable but also to the choice of the outcome measure.

3.4. Further Robustness Check

Although the above models go well beyond traditional regression approaches in estimating the casual effect, they may be still subjected to justifiable criticism. For example, it might be argued that the estimated effect does not take into account individual attitudes of people within EU member-states. Large shares of population may be dissatisfied with the economic situation or data protection policy that translates into negative attitudes towards the EU. Moreover, the magnitude of migration is very difference for small cities and towns as opposed to large metropolitan areas. To at least partly address some of these issues, I employ multi-level modelling techniques that aim at better capturing both, individual attitudes and regional contexts. In so doing, I estimate a nested three-level model of the following form:

$$y_i = \alpha_{j[i]} + \eta_{c[i]} + X_i\beta + \epsilon_i \tag{Eq. 6.1}$$

$$\alpha_j \sim N(U_j \gamma, \sigma_\alpha^2)$$
 (Eq. 6.2)

$$\eta_c \sim N(\theta_0 + \theta_1 \mu_c, \sigma_\eta^2) \tag{Eq. 6.3}$$

This is a three-level nested regression combining individual, NUTS and country levels. y_i is the attitude of the i^{th} responded within j NUTS region in country c. Therefore, $\alpha_{j[i]}$ and $\eta_{c[i]}$ are modelled NUTS and country-varying intercepts that are estimated using Equations 6.2. and 6.3. respectively. They are assumed to follow a normal distribution. U_j is a design matrix of NUTS-level covariates and μ_c is the immigration flow in country *c*. The estimate of interest is θ_1 that corresponds to the change in the intercept for observations in country *c* given the current immigration flow in that country. This is a cross-sectional model with no time dimension¹⁹.

For this particular research, several additional caveats need to be made. Firstly, the regression model presumes an interval independent variable. The original attitude variable is however a 5-point Likert response item that I assume to be continuous for the modelling purposes. Whether this assumption is warranted is to be tested elsewhere. Secondly, the regional level data are made available from the Database on Migrants in OECD Regions²⁰ which is a crosssectional dataset covering the year of 2015. The absence of the time dimension is certainly a shortcoming rather than a desirable feature of the dataset. Aware of these limitations, I first present pooled multivariate regressions of individual-level covariates before discussing the results of the multilevel model.

The choice of individual-level controls is greatly limited by the fact that questions greatly vary across Eurobarometer waves. Nevertheless, the models below control for gender, age, residence (urban versus rural), general satisfaction with life and political satisfaction with the EU (proxied via "My Voice counts in the EU" question).

The first model in Table *6* 6 includes only these individual variables, while the second and third models also include country- and NUTS- fixed effects respectively. The models explain between 10% and 20% of the variation in the dependent variable.

Traditional regression can be seen as a particular case of multilevel models in which intercepts are forced to be the same across groups. When estimating the effects of migration on attitudes

¹⁹ One of the models estimated below is a bit more complex and involves not only varying intercepts but also country-varying slopes for individual's gender and age. For brevity, I avoid specifying the model in notation. Details on the varying-slopes models with examples can be found in Gellman and Hill (2007, pp. 279–299).

²⁰ https://stats.oecd.org/Index.aspx?DataSetCode=REGION MIGRANTS

	Attitude Towards the EU (5-point scale)					
	Complete Pooling	No P	ooling			
	(1)	(2)	(3)			
Gender (Female = 1)	-0.007	-0.028***	-0.029***			
	(0.005)	(0.005)	(0.005)			
Age (Scaled)	-0.061***	-0.045***	-0.042***			
	(0.003)	(0.003)	(0.003)			
Residence (Large City = 1)	0.066***	0.070^{***}	0.052^{***}			
	(0.006)	(0.006)	(0.007)			
Voice Counts (Binary)	0.523***	0.568***	0.562^{***}			
	(0.005)	(0.005)	(0.005)			
Life Satisfaction (Binary)	0.287^{***}	0.369***	0.367^{***}			
	(0.007)	(0.008)	(0.008)			
Country-fixed Effects	No	Yes	No			
NUTS-fixed Effects	No	No	Yes			
N	102,584	102,584	102,584			
R ²	0.115	0.194	0.203			
Adjusted R ²	0.115	0.194	0.202			
Residual Std. Error	0.847 (df = 102578)	0.827 (df = 102561)	0.823 (df = 102446)			
F Statistic	$2,662.730^{***}$ (df = 5; 102578)	$1,074.596^{***}$ (df = 23; 102561)	189.530^{***} (df = 138; 102446)			

Table 6. Pooled Cross-sectional Model for a Subset of European Countries (2015)

Significance levels: p < .1; p < .05; p < .01

towards the EU, there is no compelling reason not to allow the intercepts to vary across countries or even smaller clusters like NUTS regions. This is exactly the restriction that is relaxed in the models presented in Table 7. Availability of regional-level data on immigrant stock allows for a much finer control of local heterogeneity across countries than was previously possible in panel regressions. The interclass correlation coefficient (ICC), which indicates the degree of non-independence in the data, is ~6% in the null model²¹. This is not a fairly significant coefficient, provided that ICC in school effects research is typically between 10 and 20% (Hancock et al., 2019, p. 306).

²¹ The coefficient is important to estimate as it shows if multilevel models are relevant for the data. If the ICC is 0, there is no clustering and nothing to explain by grouping the observations.

	Attitude Towards the EU (5-point scale)				
	Null Model	Level 1		Nested Model	
	(1)	(2)	(3)	(4)	(5)
Fixed Effects					
Constant	0.187***	-0.379***	-0.355***	-0.195*	-0.338***
	(0.042)	(0.048)	(0.066)	(0.102)	(0.062)
Gender (Female $= 1$)	~ /	-0.029***	-0.029***	-0.029***	-0.030***
		(0.005)	(0.005)	(0.005)	(0.011)
Age (Scaled)		-0.042***	-0.042***	-0.042***	-0.040***
,		(0.003)	(0.003)	(0.003)	(0.011)
Residence (Large City $= 1$)		0.053***	0.050***	0.052***	0.051***
		(0.007)	(0.007)	(0.007)	(0.007)
Voice Counts (Binary)		0.562***	0.562***	0.562***	0.558***
		(0.005)	(0.005)	(0.005)	(0.005)
Life Satisfaction (Binary)		0.367***	0.367***	0.367***	0.365***
		(0.008)	(0.008)	(0.008)	(0.008)
NUTS Effects					
Immigrant Stock (NUTS)			0.010***	0.013***	0.010***
c ()			(0.002)	(0.002)	(0.002)
Highly Educated (NUTS)				-0.004**	
				(0.002)	
Unemployment (NUTS)				-0.004	
				(0.004)	
Country Effects					
Immigrant Flow (Country)			-0.143***	-0.167***	-0.154***
			(0.050)	(0.051)	(0.044)
Variance Components					
Varying Intercepts	Yes	Yes	Yes	Yes	Yes
Varying Slopes	No	No	No	No	Yes
Country-Level	0.03	0.04	0.03	0.03	0.03
NUTS-Level	0.02	0.01	0.01	0.01	0.01
Individual	0.77	0.68	0.67	0.67	0.67
Ν	102,584	102,584	102,584	102,584	102,584
Log Likelihood	-132,617.400	-125,748.000	-125,740.800	-125,748.300	-125,579.400
AIC	265,242.800	251,514.000	251,503.600	251,522.600	251,190.800
BIC	265,281.000	251,599.800	251,608.500	251,646.600	251,343.500

Table 7. Multilevel Cross-sectional Model for a Subset of European Countries (2015)

Significance levels: *p < .1; **p < .05; ***p < .01

The results of the estimation lend additional support to the previous finding on the effects of migration. All three models show that immigration flows tend to decrease the attitude towards

the EU. Admittedly, immigrant stock – which is now measured on NUTS-level – is also significant yet positive, as it was in some of the panel models. The estimated effect of immigration is substantially large: 0.2 percentage points increase in the inflow is comparable to the effect of individual's gender, while 0.3. percentage point change is similar to the effect of residing in a large city.

3.3. Limitations and Discussion

While the relationship of migration and attitudes towards the EU was approached from different perspective, there are some limitations to the present research. For the panel models presented first, one limitation is the country coverage. Although extensive, it is still not comprehensive and excluded some member-states due to data availability. The same holds for the length of time-series which is desired to be much linger if DL models are to be used. The lack of migration statistics renders the calculation of shift-share instrument impossible for more than a half of the sample. It is also likely that countries who do collect this statistics are distinct in important ways from those who do not.

The multilevel approach is not barren of shortcomings either. The data includes only a set of observations for one particular year and does not control for a few important individual-level predictors of attitudes such as education and generalised trust. The analysis could also be reinforced if NUTS-level immigrations flows were included in the model. These limitations are important to address in the future research on the topic.

Despite these shortcomings, the results consistently show that the *immigration flows* have a negative impact on attitudes towards the EU. The estimated effect is substantively large: for 0.1 p.p. increase in the immigration flows, the share of people with very negative attitudes is estimated to grow by 0.11 to 0.28 p.p. The IV estimate was much larger than what OLS predicted, suggesting that simple estimation is downward biased. Most models also showed that the *immigrant stock* is insignificant when proper model specification is used.

Conclusion

The thesis set out to disentangle the complex relationship between immigration and attitudes towards the EU, analysing self-compiled data for 22 countries between 2009-2017. In so doing, I approached the question from several sides using a range of estimation strategies: pooled regressions, fixed effects panel models, including distributed lag and instrumental variables. The preliminary analysis of pooled panel data suggested a strong link between immigration flows and attitudes. The negative effect was confirmed after removing cross-country heterogeneity using fixed-effects and even after applying an IV estimation for a subset of countries to deal with endogeneity issues. The analysis was further corroborated through a set of robustness checksusing different operationalization of the independent variable as well as dependent variable and applying a multi-level model on disaggregated individual-level outcomes with controls on NUTS-levels and a country-level treatment.

This study contributes to the literature on migration and public trust. Its theoretical contribution indirectly supports contact theory, providing evidence to the importance of migrant networks and feedback effects. More directly, it elaborates on the fundamental study of McLaren (2002) and her argument about outsiders fuelling public misperception of the EU and rise of the anti-EU sentiments. The analysis has shown that immigrant population as such does not lead to a hostile behaviour on the part of natives. In fact, it was not found to be significant at all. Conversely, quasi-experimental approaches consistently and in a robust manned demonstrated that immigrant flows give a rise to negative attitudes towards the EU. The shortcomings of data did not allow to uncover any *dynamic aspects* of the relationship between migration and locals' attitudes towards the EU, which points to further direction for research.

Since the immigrations flows are shown to be important in determining the attitudes towards the EU but migrant stock is not, the sensitivity of the migration issue should be carefully taken into account by policy makers on the EU level. The policies need to prevent the rise of antiimmigrant agendas at the national level while not compromising people's rights to free movement.

Den en deut Venieble.	Immigrant Fl	ows (OECD)	Immigrant Flo	Immigrant Flows (Eurostat)		
Dependent Variable:	(1)	(2)	(3)	(4)		
	0.850***	0.872***	0.765***	0.775***		
Shift Share Instrument	(0.238)	(0.241)	(0.213)	(0.220)		
Immigrant Staals	0.055^{*}	0.073**	0.029	0.041		
Immigrant Stock	(0.032)	(0.034)	(0.029)	(0.031)		
Lu angelar maget Data	-0.087***	-0.094***	-0.073**	-0.079**		
Onemployment Rate	(0.032)	(0.033)	(0.029)	(0.030)		
Shara A god 25 40		-0.033		-0.022		
Share Aged 23-49		(0.067)		(0.061)		
CDP Crowth (in $9/$)		-0.004		-0.003		
GDP Growth (III %)		(0.010)		(0.009)		
Classification Exposure		0.010		0.006		
Glogansation Exposure		(0.007)		(0.007)		
N	63	63	63	63		
\mathbb{R}^2	0.556	0.593	0.529	0.551		
Adjusted R ²	0.388	0.399	0.351	0.337		
F Statistic	18.788*** (df = 3; 45)	10.202^{***} (df = 6; 42)	16.831^{***} (df = 3; 45)	8.592*** (df = 6; 42)		

Annex A. First-Stage IV Results for a Subset of 7 European Countries (2009-2017)

Significance levels: ${}^{*}p < .1$; ${}^{**}p < .05$; ${}^{***}p < .01$ Note: First-Stage results for two alternative operationalisations of immigrant flow. OECD data is used in Table 3 Main Results. Eurostat data is used in Table 4 First Robustness Check. Instrument with F-statistics > 10 is considered strong Cunningham (2020)

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