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The Interplay of Immigrant Integration and Naturalization

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Chapter 1: Introduction

1.1 Background and aim of this dissertation

Many Western countries have experienced immigration for a long time. Early migration scholars have focused their research primarily on immigration waves from Europe to North America (Gordon, 1964). In these waves, people tried to escape from religious suppression, famines and/or poverty (Han, 2016). In the twentieth century, there was considerable immigration to some European countries (Great Britain, France, Germany, and the Netherlands) from inhabitants of former colonies or following guest worker arrangements (Diehl & Schnell, 2005). In recent years, immigrants have been leaving their home countries especially out of economic reasons because of the financial crisis and economic recession or as refugees fleeing from humanitarian catastrophes (Luft, 2017). Nowadays, more than 44 million people live in the European Union without having the citizenship of their respective residence country (Eurostat, 2020). Counting those with citizenship in the country they reside in, but with a history of migration it can be widely assumed that the number is a lot higher. Large scale immigration is a challenge for receiving societies whose policies take their position within the liberal-democratic spectrum between acceptance and non-acceptance of immigration (Joppke, 2007; Penninx, 2005). However, immigration is vital for Europe's ageing societies by promoting sustainability within their economies (Van Wolleghem, 2019).

Many aspects of immigrant integration are subject to country or even community specific policies. Naturalization as one central manifestation of legal integration that is strongly regulated (Hailbronner, 2006). Citizenship acquisition serves as a symbolic act of very high significance for immigrants since it reflects their willingness to be an integral part of their new country (Howard, 1998). However, citizenship as a potential gate keeper to further integration has not had appropriate attention in migration research (except to some degree in Hainmueller et al., 2015, 2017), which makes it even more important to accelerate

research in this field. To this day it is not fully clear how citizenship status interacts with other areas of immigrant integration, where it is situated in the integration process and how different institutional settings shape the connection between citizenship and other areas of integration. After all, citizenship status and origin among immigrants and also in comparison with people without a history of migration is a far under-researched topic, despite its great importance for the societies that are the largest destination countries of contemporary migration. Timing and location of naturalization in immigrant integration in particular, as a multidimensional process has not been sufficiently elaborated until today. Even though there are several studies investigating the association between socio-cultural and economic integration and the respective welfare state regime (Ersanilli & Koopmans, 2010; Koopmans, 2010) a lack of attention on other contextual factors such as neighborhoods or integration-related policies is still observable. Furthermore, especially within newer integration theories immigrant incorporation is regarded as a multidimensional construct where different dimensions interact. Recent studies do, however, rarely pick up this perception. Theoretical considerations need to be expanded by empirical findings of modern integration research.

Against this background, this dissertation focuses on the role of citizenship and origin as significant parts in the integration process. It aims at disentangling what triggers naturalization, how it is associated with other areas of integration, and how different contextual settings act as potential moderators between citizenship and integration outcomes. Furthermore, the association between origin and integration shall be observed to explore which immigrant groups (especially with regard to regional origin) are potentially more thoroughly integrated than others. In this dissertation, the whole integration process is viewed as an intertwined multidimensional space where immigrants' integration processes unfold in a highly individual manner. These processes are highly sensitive to outer influences (such as the living environment or policy regulations) and inner interdependencies between single dimensions of integration. Integration is examined at different levels: On the individual level,

different characteristics of integration including citizenship status, country of birth, labor market participation, language skills, inter-ethnic contact and access to the health care system are examined. On the collective level, the focus is twofold: First, this dissertation observes the effect of the living environment, and second, it investigates how national level institutional characteristics influence the relationship between citizenship status and integration outcomes. Drawing on data from the German Socio Economic Panel (SOEP), the European Union Statistics on Income and Living Conditions (EU-SILC) and the Migrant Integration Policy Group (MIPEX) this dissertation contributes to a better understanding of the interrelation of integration dimensions within immigrants' integration trajectories.

This first chapter gives an overview of the three studies presented in the subsequent chapters. It starts with an elaboration on integration theories and strives to point out their evolution and scope with comparison to other (earlier) theories of immigrant incorporation. Subsequently, each study is summarized and finally an overall conclusion is drawn.

1.2. Theories of immigrant incorporation

Migration scholars have long since tried to identify how immigrants accommodate themselves in their new country of residence. In contemporary research, there are essentially two main strands of theories addressing how immigrants become part of their new society. The first strand consists of assimilation theories which are largely based on immigration to North America. The second strand deals with integration as one possible outcome of immigrant incorporation and was elaborated by scholars who mainly focused on immigrants within Europe. Both concepts, however, address questions and challenges arising from large-scale immigration to both continents in their own respective manner (Schneider & Crul, 2010). In the following two sub-sections, both strands of research are presented and thereafter the theoretical foundation of this dissertation is elaborated.

1.2.1 Theories of Assimilation

Classical Assimilation Theory (CAT) is based on Robert Park's work at the Chicago School (e.g., Park, 1928) and arose from the perceived necessity of delving into a close examination of immigration to North America in the late nineteenth and early twentieth century. According to CAT assimilation takes place when immigrants and the general population melt together to form a homogeneous society with regard to cultural and demographic characteristics. This was typically a process which took several generations. Milton Gordon elaborated on the different stages of immigrant assimilation into the mainstream society (Gordon, 1964): cultural, structural, marital, identificational, attitude-receptional, behavior-receptional, and civic assimilation. Criticisms point out that CAT presupposes one national mainstream society which is hence considered to be a solid construct without change. Furthermore, forceful ethnocentric policies under the names "Americanization" or "Germanization" added significantly to the rejection of the old concept of assimilation (Glazer, 1993; Harzig et al., 2009).

Newer theories of assimilation, the Theory of Segmented Assimilation (Portes & Rumbaut, 2001; Portes & Zhou, 1993) and the Neoclassical Assimilation Theory (Alba & Nee, 1997, 2003), emerged to explain phenomena inherent in the immigrant second generation and also due to the pluralization following "new immigration" after 1965. These newer theories admitted that assimilation might have different faces and therefore might lead to different outcomes like "upward mobility", "downward assimilation" or "selective acculturation". By doing so, they furthermore acknowledge that both the immigrant population and the host society are heterogeneous in nature and traits regarding immigrants' origin culture are not inferior to those of the host society (Zhou, 2015). Depending on the timing and location of arrival, new immigrants face different contexts of incorporation which then again lead to different outcomes of adaptation. Segmented assimilation is mainly visible among the immigrant second generation and understands absorption into mainstream society

only as only one possible alternative (Portes & Rumbaut, 2001). In some cases, assimilation into the white Anglo-Saxon Protestant upper-middle class, which is declared as the reference category by Gordon, is opposed by stronger alternatives which require the maintenance of certain characteristics of the ethnic or racial group. For example, belonging to a certain ethnic group might support individuals' socio-economic opportunities through ethnic economies (Alba & Nee, 2003) and being part of an ethnic network may increase educational performance (Portes & Zhou, 1993). On the contrary, there is also the possibility to assimilate into the underclass due to special relationships with mainstream members of this group (Portes & Zhou, 1993).

What the neoclassical approach to assimilation theory admits is that not all immigrant groups assimilate to the same extent, but at different rates and in a different manner (Alba & Nee, 2003; Zhou, 2015). In what aspects and how fast they assimilate is a matter of socio-economic position, legal status and possible exposure to racism and discrimination (Alba & Nee, 2003). However, over the course of several generations assimilation is still the anticipated outcome of the immigration processes.

1.2.2 Integration Theory

Whereas North American scholarship predominantly uses the concept of assimilation, integration is the scholarly focus alongside the civil and political debates in Europe. However, there are at least two main problem areas to be mentioned: First, in the political sphere the term integration is regularly used when essentially referring to assimilation and hence it is used for talking about the merger of immigrant groups into a supposedly existing mainstream society. Second, there is no common ground regarding a clear definition of the term within academic scholarship (Grzymala-Kazlowska & Phillimore, 2018; Phillimore, 2012). Within this dissertation, the second problem is particularly meaningful. Here, the EU's Common Basic Principles for Immigrant Integration Policy in the EU describe quite precisely how

integration is defined in this dissertation. They state that "integration is a dynamic, two-way process of mutual accommodation by all immigrants and residents" (EESC, 2004). Stepping away from the policy perspective, the view through the academic lens is necessary to apprehend the understanding of immigrant incorporation within this contribution.

The conceptual differentiation between social integration and system integration used in general sociology can also be applied to migration research (Lockwood, 1964). Whereas system integration addresses the consequences of immigration integration for society as a whole, social integration refers to the integration of immigrants into the institutions and relationships of the receiving country (Heckmann, 2015). Migration studies have mainly dealt with social integration so far. Social integration as a concept is divided into four dimensions: structural integration, cultural integration, social integration[1], and identificational/identificative and legal integration. Structural integration aims at participation of receiving country specific institutions like the education system and the labor market and having (equal) access to health care services. Cultural integration refers to cognitive, cultural, behavioral and attitudinal changes. This also includes language acquisition. Social integration pertains to contact between minority and majority group members, examples of which include relationships such as friendships or marriage. Lastly, identificational and legal integration is the process and objective of becoming a member of the new society and manifests itself by feelings of belonging and/or citizenship. This can relate to national, local or ethnic structures (Heckmann, 2015; Heckmann & Schnapper, 2003; Penninx & Garcés-Mascareñas, 2016).

Esser's typology of immigration outcomes is in line with the previously described concept. In addition he names integration as one outcome in which immigrants orient themselves towards both the host society and their origin country/culture (Esser, 2001). Other possible outcomes are assimilation, for example full orientation towards the receiving

[1] Here social integration is understood as a dimension within the concept. In German it is easier to differentiate between *Sozialintegration* as the concept and *soziale Integration* as the dimension.

country's society and institutions, as well as segregation/separation and marginalization which represent orientation towards the country/ethnicity of origin or neither the country of origin nor the receiving one, respectively.

1.2.3 Core aspects and scope of this dissertation

The concept of social integration (German: *Sozialintegration*) with its four aspects and Esser's typology of immigration outcomes is helpful for disentangling the terms assimilation and integration when discussing immigrant incorporation in the European context and shall be the basic definition within this dissertation.

This dissertation focuses on identificational integration and even more specifically on aspects of citizenship status and acquisition. The stage of identification with the host society has received attention in both strands of migration research, old and new. Gordon defined "identificational assimilation" as "the development of a sense of peoplehood based exclusively on [the] host society" (Gordon, 1964). Esser understands identification to be part of the integration process (Esser, 1980). In Esser's writings an individual's identification with a social system is a special kind of attitude in which they see themselves and the social entity as one unit (Esser, 2001). He mentions naturalization as one form of identification with the receiving country's society.

Social psychology views assimilation as one part of the process of an "attitude change", meaning a change on the levels of cognition, behavior, and identification (Phinney et al., 2001). In the process of incorporation, immigrants go through different stages of internal and external changes of knowledge, identification, and behavior. In Ronald Taft's (1957) scheme of immigrant incorporation into a certain country the membership to a social group and identification form the sixth of seven stages. So according to Taft's model identificational assimilation can be found near the end of the whole process. Taft differentiates between an internal change, namely self-identification with the receiving country, and an external change,

meaning identification with the receiving country by members of that receiving country (e.g. through naturalization) (Taft, 1957 in Esser, 1980: 51ff.).

Naturalization is also noted as a key stage of integration within the empirical social science literature. The first major study of naturalization was Portes and Curtis' study focusing on its determinants among Mexican immigrants in the United States in the 1980s (Portes & Curtis, 1987). Many other studies on the socioeconomic and cultural factors of immigrant naturalization in North America followed hereafter (DeSipio, 1987). In Europe, naturalization research has strongly focused on the policy perspective and the political frameworks. Studies on naturalization decisions and plans have viewed naturalization through the lens of rational cost-benefits-calculation (Hochman, 2011). Besides legal requirements which influence the realistic chances of citizenship acquisition, social and identificational factors as well as experiences of discrimination are the observed determinants scholars have based their research on (Bloemraad, 2006; Diehl & Blohm, 2003, 2008; Freeman, 2004; Freeman et al., 2002; Hochman, 2011; Portes & Curtis, 1987).

This dissertation aims at filling the existing gap regarding the interrelatedness of citizenship (acquisition), origin and further dimensions of integration. Even though citizenship per se has been the subject of many studies, these studies mainly followed a single-direction causes-and-effect understanding within their examinations. What is still missing is an investigation of the association between naturalization, contextual factors, origin, and other dimensions of integration with the conception that integration is not a one-way street, but rather a conglomerate of individual developments and interdependencies. This conception is taken up in this dissertation and hence it aims to generate knowledge about the connection between single integration dimensions, more specifically about the connection between citizenship status and other dimensions, amended with origin-specific characteristics. Furthermore, contextual factors shaped by the immediate living environment and the

somewhat broader, but not less important, policy framework are to be investigated to add to the literature which is highly lacking in this aspect.

Finally, it is important to clarify that the term integration is not used in a normative way in this dissertation. Unlike other sources mainly in the civil or political sphere, here the term integration is used with regard to a bilateral convergence of the receiving country on the one side and immigrants on the other side which is in accordance with Esser's understanding of integration (*Mehrfachintegration*; Esser, 2001) and the EU's Common Basic Principles for Immigrant Integration Policy in the EU (EESC, 2004).

1.3 Summary of the three studies

Each of the Chapters 2 to 4 comprises a self-contained study of aspects of the interrelation between citizenship status as one dimension of immigrant integration, origin and other dimensions. These studies are currently prepared for submission. *Table 1.1* gives an overview of the main aspects and the current status of the studies. The first two studies build on empirical data from the German Socio-Economic Panel (SOEP; Goebel et al., 2019) while addressing different research questions and using different methods to answer them. The third study uses data from the European Union Statistics on Income and Living Conditions (EU-SILC) and the Migrant Integration Policy Group (MIPEX; Ingleby et al., 2019).

Chapter 2, *Ethnic Composition of the Neighborhood and Inter-ethnic Friendships as Determinants of Immigrant Naturalization Intentions in Germany: A Multilevel Analysis*, examines how insights from inter-ethnic contact add to the explanation of naturalization intentions among immigrants in Germany. Until now, research has mainly dealt with connecting legal requirements and demographic factors to immigrant naturalization. I hypothesize that inter-ethnic contact reduces the barrier of citizenship change and therefore encourages naturalization. In addition to previous research focusing on the link between direct contact and naturalization the first study of this dissertation also tests the effect of

neighborhood characteristics. The neighborhood is thought to have a two-fold function. First, it works as an opportunity structure in which inter-ethnic contact can take place. Second, the mere fact that immigrants live in close proximity to Germans may have a positive effect on their naturalization behavior. Due to the lack of scholarly work on the influence of the ethnic makeup of the neighborhood on naturalization behavior, this study aims at closing the resulting gap.

The Contact Hypothesis states that contact between groups can reduce intergroup prejudice, with the addition that increased contact also reduces prejudice which can also be applied to the group level. Furthermore, ethnically concentrated neighborhoods promote negative out-group attitudes and reduce inter-group contact. Hence, mixed neighborhoods provide opportunity structures for inter-ethnic contact which possibly result in mutual understanding. This mutual understanding and learning from each other makes the boundary, which citizenship as a symbol for group membership poses, less salient. Therefore, boundary crossing by naturalization might be regarded as less problematic when the other group is not perceived as foreign, but one might already have regular contact to group members and is familiar with group-specific characteristics.

The sample of this study is derived from data of the German Socio Economic Panel (SOEP). It comprises immigrants with non-German citizenship, regardless of their country of birth. The sample is derived from the 2010 and 2012 panel waves and contains 1,938 observations by 1,362 individuals. The association of inter-ethnic contact and the ethnic makeup of the neighborhood on the one side and naturalization intentions on the other side is examined by making use of logistic multilevel modelling.

The results indicate that country of origin, family structure and the personal economic situation are more strongly associated with immigrants' intentions to change citizenship than inter-ethnic contact or neighborhood composition. In the present sample, living in a neighborhood with a majority of Germans actually decreases immigrants' naturalization

intentions. The positive effect of having an all-German friendship network was, however, not significant and therefore we cannot draw any valid conclusions from this association. What we learn from the obtained findings is that factors of social integration do not add to the explanation of naturalization beyond economic and demographic factors. Additionally, origin appears to be very strongly linked to naturalization. Immigrants with non-EU citizenship have higher odds to have positive naturalization intentions. For this immigrant group legal integration seems to be very attractive.

Chapter 3, *Locating immigrants' naturalization in the integration process in Germany: a longitudinal multichannel sequence analysis*, investigates whether naturalization is a catalyst for or the crown of immigrants' integration into the new country. More specifically, this study examines whether naturalization takes place at the beginning or the end of overall integration, or whether integration trajectories are possibly more diverse. The focus is on the location of naturalization within the integration process and on the identification of distinct groups of immigrants with similar trajectories.

According to prominent theories, integration is seen as a one-way street where earlier stages are causal determinants of the timing and occurrence of later stages (Esser, 2001; Gordon, 1964). Within these theories, naturalization is regarded one of the last stages of integration. Contemporary quantitative studies either adopt this conjecture by analyzing the association between other dimensions of integration as determinants of naturalization, or they hold the view that naturalization, in turn, is a determinant for other dimensions (Ersanilli & Koopmans, 2010). Either way, naturalization is regarded to be positioned at an early or a late stage in the integration process. The possibility that integration actually has manifold facets and can be subject of a highly individual interplay of many factors is not regarded within scholarly research. However, qualitative research shows that the interplay of different integration dimensions is indeed dependent on many factors. It finds that naturalization and

feelings of belonging, for example, are more or less connected to each other depending on the country of residence and the immigrant group (Aptekar, 2016; Howard, 1998; Riegler, 2000).

This study is based on data from the German Socio-Economic Panel Study (SOEP) from 1984 to 2013. The sample includes individuals who report having any other citizenship than German at the time point of their first interview and resulted in 7,164 respondents. Other than citizenship acquisition, language proficiency, inter-ethnic friendships and labor market participation were observed as indicators of different integration dimensions. By making use of sequence analysis, several dimensions of integration are combined by using matching and clustering techniques. They allow for a disentanglement of different integration patterns and make certain typical trajectories more visible.

The results show that seven groups of immigrants with similar integration patterns can be identified, displaying distinct characteristics when it comes to citizenship, language skills, inter-ethnic contact, and labor market participation. The results suggest that naturalized immigrants are better integrated and that naturalization functions as a catalyst for integration in other areas of everyday life. However, highly unique patterns are visible for different immigrant groups making integration a highly individual process. The data structure and the results of this study suggest that origin might be a key factor determining the location and timing of each step in the integration process as well as their inter-relatedness.

The aim of Chapter 4, *Access to health care among immigrants and migration related policies in European countries. A multilevel analysis*, is to examine the connection between origin and health integration with respect to different origin groups and the political integration regime. Study 1 of this dissertation shows that origin is a relevant factor when it comes to legal integration and Study 2 suggests that further research into the association between origin and integration is necessary. Study 3 picks up this notion and attempts to further investigate the relationship between origin and integration. This study builds on previous findings which showed that immigrants and the general population have different

access to health care and the odds of not getting medical treatment when needed (so-called unmet need) is even different between immigrant groups (Busetta et al., 2018; Butow et al., 2013; Fjær et al., 2017; Howe Hasanali, 2015; Ku & Matani, 2001). A legal status or origin bias can largely be explained by differences in socio-economic factors (Goldman et al., 2005). However, access to health care is vital for immigrants and the general population alike because it determines how overall health is shaped (Koolman, 2007; Mielck et al., 2007). Health can be understood as a domain of integration (Ager & Strang, 2008; Ndofor-Tah et al., 2019), which has so far been gravely underrated. Good health is important for being an active member in society and therefore also vital for immigrants in order to be socially and economically integrated. On the country level, access to health care is shaped by certain policies which can be more accommodating or might even be an obstacle for integration (Sainsbury, 2006). Based on these considerations and previous findings, we take into account characteristics of the welfare state regarding health integration on the collective level and origin on the individual level, controlling for potential effects of socio-economic characteristics. We hypothesize that more accommodating policies are associated with better health care access and hence less unmet need alongside reducing potential origin-specific differences within unmet need.

Data from the European Union Statistics on Income and Living Conditions (EU-SILC) and the Migrant Integration Policy Index Group (MIPEX) is used. EU-SILC is a recurring survey which collects microdata on income, poverty, social exclusion and living conditions and the individual and on the household level in Europe. MIPEX data obtains information on country specific integration policies within eight different fields. Here, we use the area of health. On a potential scale ranging from 1 to 100, the health score measures the extent of how accommodating health-related policies are. Due to the nested structure of the data in countries we conduct multilevel analyses. The sample comprises 224,274 individuals with in 25 countries.

Results show that individuals who were born in the current residence country are the ones with lowest odds for unmet medical need. Contrarily, individuals born in a non-EU country have a higher chance than the aforementioned group to report unmet need. The association between origin and unmet need persists when taking the political accommodation of immigrant needs in the area of health into account. In countries with high accommodation individuals have a lower risk of having unmet medical need. When examining the interaction of origin and degree of accommodation, we see that immigrants from non-EU countries are particularly affected here as well. What is astonishing and contrary to the expected access-promoting effect of more accommodating immigrant policies is the finding that in more accommodating countries the odds for unmet need are higher than in less accommodating countries. Hence, integration policies are not capable of reducing the gap in unmet need between immigrants and the general population. Overall, however, it can be said that for all origin groups, the risk for unmet need is lowest in countries with high levels of immigrant accommodation.

Summarizing the findings of this chapter, immigrants' health journeys are not only potential determinants of health problems in later life, but unequal access to medical care in periods of life when this care is needed can exacerbate health disparities between origin groups even more. Additionally, we find that migration-related policies operate as structural determinants of health that shape access to health care for immigrants and thus might affect their health in addition to individual factors such as education and labor market participation. What we learn above all is that the relevant integration policies at the country level fail when it comes to mitigating the effects of origin on unmet need.

Table 1.1: Overview of the studies included in this dissertation

	Study 1 (Chapter 2)	**Study 2 (Chapter 3)**	**Study 3 (Chapter 4)**
Title	Ethnic Composition of the Neighborhood and Inter-ethnic Friendships as Determinants of Immigrant Naturalization Intentions in Germany: A Multilevel Analysis	Locating immigrants' naturalization in the integration process in Germany: a longitudinal multichannel sequence analysis	Access to health care among immigrants and migration related policies in European countries. A multilevel analysis
Research Question(s)	How is inter-ethnic contact via the friendship network and the neighborhood associated with naturalization intentions?	When in the integration process does naturalization take place? Can distinct groups of integration trajectories be identified?	Do differences in origin determine differences in access to health care? Do country-specific differences in policies regarding health mitigate the association between origin and health care access?
Dependent Variable	Naturalization intentions	-	Unmet medical need
Core Independent Variables	Ethnic composition of the neighborhood, ethnic composition of the close friendship network	-	Origin (immigrant, residence country) Degree of immigrant health care accommodation (MIPEX)
Data	SOEP, years 2010+2012	SOEP, years 1984-2012	EU-SILC 2019, MIPEX 2019
Statistical Units	Timepoints nested within individuals nested within neighborhoods	Timepoints nested within individuals	Individuals nested within countries (grouped)
Statistical Method	Multilevel analysis	Multichannel sequence analysis	Multilevel analysis
Current status	In preparation for journal submission	In preparation for journal submission	In preparation for journal submission

Note: SOEP=Socio Economic Panel Study; EU-SILC=European Union Statistics on Income and Living Conditions; MIPEX=Migrant Integration Policy Index.

1.4 Conclusion

Within the societal sphere successful integration of immigrants has long since been discussed. Public discourse tends to talk about *the* integrated immigrant or, on in contrast, about failed integration. What has largely been neglected is debating what exactly constitutes successful integration or the lack thereof. One of the central findings this dissertation presents is that there is not one way of successful integration – at least not when shifting away from populist rhetoric and when simply observing how immigrants' trajectories actually develop within their life courses. Contrary to theoretical considerations by early migration scholars, the studies presented in this dissertation confirm its theoretical understanding of integration not being a one-way street where certain areas develop earlier than others and ending as one goal called successful (or full) integration. If anything, integration is highly sensitive to the interplay of many areas within individuals' lives and also depends upon how effective societal and political institutions are in incorporating immigrants.

Concentrating even more on the multifaceted nature of integration this dissertation adds to the understanding of individual trajectories. Previous research largely sees naturalization as either positioned at the beginning or the end of the integration process. By investigating chronological sequences in multiple dimensions of integration this dissertation shows that the timing and location of naturalization is highly individual and varies between immigrants who can be grouped by certain other characteristics, for example origin. This work draws a picture of naturalization as a catalyst for social, economic and cultural integration. Furthermore, the fact that naturalized immigrants are better integrated is an important finding which confirms the notion of naturalization being a key juncture in overall integration.

Previous research has not yet successfully incorporated the understanding of integration as a construct in which many factors are intertwined. This dissertation approaches integration research exactly with this understanding of intertwining. On the individual level, it

could be shown that socio-cultural and economic factors as well as personal characteristics such as family ties and origin are stronger determinants than social factors or the living environment. However, I was able to show that integration in different areas of everyday life differs by immigrant group which, with regard to the neighborhood as a structure determining the living environment, is also differently sensitive to varying ethnic concentrations and origins of immigrants. This shows that integration trajectories differ between origin groups and that immigrants who are EU-citizens are more sensitive to social factors and living conditions than non-EU immigrants. The latter rather act according to cost and benefits considerations, which goes in line with previous research (Hochman, 2011). Hence, another central aspect we learn from this dissertation is that origin is a factor which is highly associated with integration trajectories. This per se is not new, but what we can see here is that origin is a factor that is complemented by many others to create a picture of diverse life realities. This dissertation differentiates between immigrants from EU or non-EU countries, amended with those being born in the respective country of residence in Chapter 4. This represents the starting point for further research to progress the scope of the research with further detailed analyses of the impact of different origin groups, their interplay with other factors and the resulting association with integration outcomes.

Chapter 3 of this dissertation identifies distinct clusters of immigrants by analyzing similarities with regard to social, economic, cultural and legal integration. However, these patterns are subject to varying data. Here, the data is based on immigrants in Germany who immigrated within the last thirty years or more. Therefore, the respective findings presented in this particular chapter refer to only one country, and comprise a long observation period with immigrants of many different backgrounds. This is helpful when actually focusing on Germany with its unique migration history and characteristics, but of course generalization to other country settings is limited. Germany has a unique history of migration, comprising immigrants from different regions of the world who migrated because of very distinct

motivations. Both aspects, regional origin and motivation to migrate, differ from those present in other countries, even within Europe. The patterns identified here are sensitive towards specific immigrant groups, their origin and reasons for migration. However, immigrants in other countries may potentially come from other countries and with other motivations. The limitation that the data used might yield results which have restricted potential for generalization beyond Germany's borders also applies to Chapter 2 which analyzes the association between legal integration, social integration and the ethnic concentration in the neighborhood. Even though the results are meaningful in the German context, the insight of limited international generalization leads to the necessity of further research to investigate potential, and suspected, country-specific differences. In spite of this, it might also be the case that the results obtained in these two studies can be reproduced in other countries. If this is the case it would be interesting to find out what characteristics these countries have in common in contrast to countries with other patterns (most similar systems).

Methodologically, two central points contribute to the impact of this dissertation to the field. The first is the multilevel approach to investigating the interdependence of different dimensions of integration and macro-level characteristics possibly influencing immigrants via their living environment and the structures which are created by policies and shape their everyday lives. Two of the three studies within this dissertation build on multilevel analyses (studies one and three). The first largely examines the association of social integration on the micro and the macro level and naturalization. The second focuses on the connection of origin, health-related integration policies and integration in the health sector by observing factors on both the individual and the collective level. Using this approach proves to be fruitful because both studies explain what characteristics on the living environment level and also how country-specific policies are associated with immigrant integration, respectively. Another central methodological contribution of this dissertation is the use of sequence analysis within study number two. Sequence analysis originated in the study of genes, but scholars found out

that it can be used for the analysis of social scientific data as well. Research making use of this way of analyzing time series, however, is still scarce, especially in the field of migration studies. This dissertation uses this method to investigate immigrants' integration trajectories and could show that even though these trajectories tend to be unique, certain patterns with regard to integration characteristics are visible. Hence, it could be demonstrated that sequence analysis in this strand of research can be a relevant tool to analyze panel data for answering certain research questions. Therefore, future research is advised to increasingly make use of this technique of analysis.

The purpose of this work was to test traditional as well as more recent theories of migration sociology by questioning whether integration actually has the postulated one-way character. Rather, the research presented here emerged from the understanding that immigrants have multiple life realities and thus generalizing about their integration trajectories not only does not reflect reality, but is also not appropriate for certain strands of research or research questions. Of course, theories represent ideal types to a certain extent, which due to their very nature have the purpose of depicting a simplified picture of reality by means of comparison. In many contexts this has its justification and is very useful for certain research of defined phenomena. However, some contexts, including the field of immigrant integration research, should be approached with the premise of multiplicity and diversity. One concept which takes up this perspective is the notion of 'super-diversity'. It describes the interplay of a "multiplication of significant variables that affect where, how and with whom people live" (Vertovec, 2007: 1025). Vertovec (2007) created this term to sensitize public discourse, policy-makers, and academia to the fact that ethnicity does not determine the lives of immigrants alone, but that an understanding is needed which links ethnicity to other factors that influence residential environments, trajectories, interactions, and public service needs. Other scholars also see the need of reconsidering the concept of integration altogether in order to open up thinking of immigrant adaptation and settlement as a multi-dimensional process

(Grzymala-Kazlowska & Phillimore, 2018). This dissertation supports that very understanding. It created an initial but somewhat detailed insight into the fabric that results from the interplay of different dimensions of integration. The results of this dissertation show that integration trajectories can be very diverse and are influenced by a variety of factors. Thus, this work underscores the importance of advancing further research in the area of super-diversity, especially with regard to immigrant accommodation and integration. While this concept was not originally part of the theoretical foundation of this dissertation, the results put forth here are evidence that it is time for it to join the ranks of recent migration and integration theories.

Finally, policy implications have arisen from the studies and their results presented here. As mentioned above integration trajectories are highly individual and their unfolding depends upon a myriad of factors. However, certain patterns are visible for certain groups of immigrants. To date, immigration and integration related policies are largely aimed at all immigrants as a homogeneous group. What could be more fruitful in promoting immigrant integration is potentially a more differentiated approach aimed at different groups of immigrants. Here, policy maker have to be cautious not to choose an approach which is too differentiated in order to not make policies and regulations too complicated for government executives, the affected immigrants and the general population. What is necessary in order to promote behavior leading to more integration are incentives for immigrants to get more involved in the mainstream society by seeking encounters with members of the general population which generally leads to an improvement of language skills which is a central factor in the overall integration process. Additionally, what must not be left out of consideration is the perspective of the general population. Integration is not something that is entirely the responsibility of immigrants, but a concept and practice which describes a mutual approach between the immigrants and the receiving society. The receiving society here consists at least of its institutions and members of society. In order to promote integration

efforts from societal institutions, more offers should be created that facilitate immigrants' engagement in society and bring people of different backgrounds together. For the integration efforts on the part of members of society it is important that first of all the understanding exists that immigrants and their descendants represent a new part of the society. Therefore, people who do not have an immediate immigrant background (sometimes also called native or autochthonous population) should make an effort to reach out to new members of society. This understanding of integration should be consistently considered in all policies, similar to the "Health in All Policies" approach (Geene et al., 2019).

1.5 Status of the studies and contribution of co-authors

Chapter 2: ***Ethnic Composition of the Neighborhood and Inter-ethnic Friendships as Determinants of Immigrant Naturalization Intentions in Germany: A Multilevel Analysis*** and Chapter 3: ***Locating immigrants' naturalization in the integration process in Germany: a longitudinal multichannel sequence analysis*** are currently prepared for journal submission. As the single author, for each of these two articles I developed the research question and the theoretical framework, prepared the data for analysis, conducted the analyses and wrote the manuscript.

Chapter 4: ***Access to health care among immigrants and migration related policies in European countries. A multilevel analysis*** is currently prepared for journal submission. As the leading author I developed the research question and a major part of the theoretical framework, prepared the data for analysis, conducted the analyses and prepared the manuscript. Co-author Dr Tilman Brand contributed to the development of the theoretical framework, the approach to data analysis, and the interpretation of the results. He commented on different versions of the manuscript throughout the whole process.

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Chapter 2: Ethnic Composition of the Neighborhood and Inter-ethnic Friendships as Determinants of Immigrant Naturalization Intentions in Germany: A Multilevel Analysis

Abstract

This article addresses the question as to whether inter-ethnic contact adds any further insights into the explanation of naturalization intention among immigrants in Germany. Until now, research has mainly dealt with connecting legal requirements and demographic factors to immigrant naturalization. This study hypothesizes that inter-ethnic contact lowers the barrier of citizenship change and therefore encourages naturalization. In addition to the influence of direct contact, which has been dealt with in several previous studies, this study also tests the effect of neighborhood characteristics based on a multilevel analysis of data from the German Socio-Economic Panel. The results indicate that country of origin, family structure and the personal economic situation are stronger determinants of immigrants' intentions to change citizenship than inter-ethnic contact or neighborhood composition.

2.1 Introduction

Immigrant integration is a big concern in European societies nowadays. For a long time, politicians have been trying to react to the recurrent influxes of immigrants, who are diverse in terms of their time of migration, region of origin and individual characteristics. Receiving countries in Europe can mainly be categorized by the characteristics of their immigrant populations, such as their origin and reasons for migration. Whereas immigrants in Great Britain, France, and the Netherlands predominantly originate from these countries' former colonies in Africa, Asia, and the Caribbean, the largest immigrant groups in Germany come from Southern and South-Eastern Europe, as well as Turkey. Recent figures show that Germany has the highest number of non-native citizens in Europe and the number of foreign

citizens has been continuously increasing over the last ten years (Eurostat 2014). The high number of immigrants and the observable development over the years makes the question as to how immigrants can be integrated into German society more imperative.

It is only in the last fifteen to twenty years that German policy makers came to recognize that many immigrants call Germany their home and want to stay forever (Bendel, 2014). Hence, politicians began to realize the importance of the issue of the integration of immigrants and that it should occupy a much larger space in official integration agendas than had been the case previously. Hence, special integration policies and agendas for immigrant integration were called for. Among the measures to promote integration, attaining German citizenship is central to accommodating immigrants because it, firstly, grants legal rights and, secondly, contributes to a more intense feeling of connectedness to the receiving country (Ersanilli & Koopmans, 2010; Simonsen, 2017). All of this is crucial to successful integration in the receiving country.

The German naturalization law was originally aimed at individuals who were either married to a German citizen or were ethnic German repatriates (*Spätaussiedler*). The latter generally automatically acquired German citizenship after being issued a repatriation certificate, while the former can naturalize when, among other factors, they have been married to a German citizen for at least two years, they have resided in Germany for at least three years, and they have shown sufficient knowledge of the German language, laws and culture. The requirement standards for citizenship attainment for other immigrants were relatively high, e.g. residence in Germany for at least fifteen years.

There are studies that contribute to a better understanding of why some immigrants naturalize and others do not, by showing that naturalization is a function of individual cost-benefits-calculations and is influenced by political interest (Diehl & Blohm, 2008; Hochman, 2011). When looking at the influence of contact to native Germans, most research to date has only examined direct contact via friendship networks. Some of these studies found that inter-

ethnic contact in the neighborhood reduces prejudices towards people of different origins (Gijsberts & Dagevos, 2007). Hence, being spatially close to Germans may reduce the perception of group boundaries and diminish hesitations with regard to a change of citizenship.

This paper contributes to existing research by not only examining direct inter-ethnic contact, but also taking the neighborhood level into account. It hypothesizes that the neighborhood has a two-fold function. First, it works as an opportunity structure in which inter-ethnic contact can take place. Second, the mere fact that immigrants live close to Germans may have a positive effect on their naturalization behavior. Naturalization is highly intertwined with other dimensions of immigrant integration such as education, economic activity, language, identity and belonging (Aguirre & Saenz, 2002; Alvarez, 1987; DeSipio, 1987; Diehl & Blohm, 2008; Evans, 1988; Hochman, 2011; Liang, 1994; Portes & Curtis, 1987; Portes & Mozo, 1985; Portes & Rumbaut, 1996; Simonsen, 2017; Yang, 1994a, 1994b). Since there is no previous work on the influence of the ethnic makeup on naturalization behavior, this study aims to address the question as to whether the ethnic composition of the neighborhood adds any further insights into how social contacts influence naturalization among immigrants. Because of the inter-relatedness between naturalization and other integration outcomes, the study further aims to assess whether the ethnic composition of the neighborhood acts as an important factor in overall immigrant integration.

The following section discusses existing research on the relationship between inter-ethnic contact and integration outcomes. More specifically, the implications of the Contact Hypothesis and Social Identity Theory are connected in order to form hypotheses about the promotion of inter-ethnic contact and naturalization. An overview of the dynamics of ethnic housing segregation concludes the theoretical considerations of this work. Subsequently, resulting hypotheses are formulated to test the claim that inter-ethnic contact on the micro and macro levels promotes naturalization. Following this, the data and operationalization of

variables are discussed and the results of multi-level regressions are presented. The study concludes that inter-ethnic contact has a positive impact on naturalization through friendships, but that origin, strong family ties, and economic situations are even more powerful predictors.

2.2 Inter-ethnic contact and integration

2.2.1 Contact Hypothesis

Which strategy immigrants pursue when it comes to accustoming themselves in their new surroundings is highly interrelated to social dynamics between groups, and is hence a function of inter-group contact. Allport's Contact Hypothesis states that contact between groups can effectively reduce intergroup prejudice if the contact situation occurs under certain optimal conditions, namely, equal status between the respective groups, support by authorities, local atmosphere, and common goals (Allport, 1954: 281). Although some social psychologists have confirmed that under these conditions mutually negative attitudes are reduced, other researchers have found that these positive conditions do not necessarily have to be present (Pettigrew & Tropp, 2006). Regarding the latter, it could be shown that intergroup contact leads to more positive out-group attitudes, despite the absence of Allport's conditions. Intergroup contact does not only reduce intergroup prejudice per se, but an increase in contact lowers the prejudicial attitudes even more. Unlike scholars who argue that contact may reduce prejudice only at the individual level (Forbes, 1997), other studies reveal that the positive effect of contact on prejudice can also be applied to the group level (Pettigrew & Tropp, 2006).

The question that arises is whether these results are transferable to ethnic groups in particular. And the answer is yes. Research on different ethnic groups has shown that contact promotes mutual acceptance and understanding (Brown & Hewstone, 2005; Forbes, 1997; Hamberger & Hewstone, 1997; Pettigrew & Tropp, 2006). The more contact there is, the fewer prejudicial attitudes there are regarding each other. In order to get in direct contact,

opportunities for contact must exist. While the workplace offers space for encounters between people of different ethnic backgrounds, the living environment is of equal importance. Neighborhoods also provide opportunity structures for inhabitants to meet people with different backgrounds. Therefore, the neighborhood composition defines the opportunity structure for contacts. As one can only interact with other ethnic group members if they are present in the neighborhood, the ethnic makeup of the neighborhood is of major importance when it comes to intergroup contact.

Complimentarily, research shows that ethnically concentrated neighborhoods foster negative out-group attitudes (Gijsberts et al., 2004; Quillian 1995; Scheepers et al., 2002; Semyonov & Glikman, 2009) and reduce the extent of inter-group contacts (Gijsberts & Dagevos, 2007; Semyonov & Glikman, 2009). On the other hand, we know that contacts between immigrants and natives are key factors in the integration process, because they promote mutual acceptance, reduce prejudice and even encourage the language proficiency of the host country's language (Gijsberts & Dagevos, 2007). In accordance with these findings, it is important to have a close look into the relationship between the ethnic concentration of the neighborhood and inter-ethnic contact. Here, studies come up with different results (Bürkner, 1987: Drever, 2004; Esser, 1986; Farwick, 2009; Haug, 2003, 2005; Kremer & Spangenberg, 1980; Schöneberg, 1982, 1993; Vervoort et al., 2011), which might be due to samples stemming from different countries in which neighborhood dynamics might work differently, and possibly differing neighborhood-specific characteristics which influence the link between the ethnic makeup of the neighborhood and contact. Nevertheless, mixed neighborhoods are primarily opportunity structures where it is easier to build friendships between Germans and other ethnic groups than in ethnically concentrated neighborhoods, although the presence of more Germans does not automatically mean that more inter-ethnic contact will occur.

One other aspect of further importance regarding the idea of the neighborhood as an opportunity structure is that merely being around Germans provides the chance to observe

their daily activities. The same applies for Germans who can, in return, learn more about the immigrant population. Even this small piece of shared life-spheres might have a positive effect on out-group attitudes.

2.2.2 Social Identity Theory and boundary crossing

Now, the question is how inter-ethnic contact between immigrants and Germans, and the associated positive attitudes, influence immigrants' naturalization behavior. Here, Tajfel's Social Identity Theory comes into play (Tajfel, 1982; Tajfel & Turner, 1979). He states that individuals constantly strive toward a positive social identity. Members of social groups compare themselves to other groups in terms of their position in the social hierarchy and use several strategies to improve their group's social status. This is especially true for minority group members, who tend to evaluate their identity by assessing their group's social position in comparison with other groups (Tajfel, 1978). There are several options at hand for individuals who are members of a group with a less privileged status: change of the reference group, change of the dimension of comparison or the quality of the reference group's characteristics, or lastly, leaving one's own group in order to join a group of higher social status (Tajfel & Turner, 1979).

Individuals who have foreign citizenship are a disadvantaged group in Germany when it comes to certain rights and privileges. Being allowed to vote in their respective country of residence is important for many immigrants. However in Germany, for example, EU-citizens can only participate in municipal elections. Taking part in state and federal elections is exclusively reserved for German citizens. Following this line, it has been found that immigrants who are interested in politics are more likely to naturalize than immigrants who are not (Diehl & Blohm, 2003). Further benefits of naturalization mainly involve getting access to resources which are only available to native citizens. Welfare benefits are often not paid to residents with foreign citizenship. The benefits of naturalization also depend on

individual characteristics concerning education and status on the labor market. Getting certain jobs in the civil service sector, e.g. appointment as a civil servant, is often conditional on having native citizenship. Hence, being German is highly connected to a more positive social identity. This theoretical consideration is supported by literature. Some scholars argue that immigrants' naturalization rates can, to a large extent, be explained by ethnic group membership (Diehl & Blohm, 2003; Yang, 1994b). Membership in an ethnic group, which is viewed as being disadvantageous compared to other ethnic groups in a given society, strengthens the wish among group members to at least legally belong to the majority. Additionally, immigrants who are quite assimilated at the individual level particularly tend to naturalize in order to achieve a better fit between personal success in the new country and their official legal status (Diehl & Blohm, 2003). Hence, naturalization cannot only be thought of a consequence of a strong feeling of belonging to the host country. It can also be an instrument of bettering one's status with regard to rights (e.g. voting) and resources (e.g. access to certain segments of the labor market) or aligning self-perception and external perception.

Naturalization means a formal change of citizenship group membership. Therefore, it can be understood as a form of boundary crossing (Alba, 2005; Wimmer, 2009). Boundary crossing is always associated with certain implications, such as sanctions by members of the group one is leaving, as well as the benefits one obtains by becoming a citizen of the resident country. Immigrants might judge fellow co-ethnics who want to change citizenship or have already done so as having violated the ethnic group's value system, and they might harbor feelings of betrayal. However, already having social contacts to natives through work or in one's neighborhood might decrease the perceived severity of possible sanctions by members of the former citizenship group, because the natives can operate as a support network in case of sanctions. Furthermore, the boundary might be very salient for an immigrant who has little or no contact to natives. Having gained knowledge about the receiving country's culture and

society through native friends and neighbors subjectively blurs the citizenship boundary ("boundary blurring", Zolberg & Long, 1999).

According to previous findings on the influence of social integration via inter-ethnic contact, having natives among their close friends promoted naturalization intentions among Turkish and Yugoslav ethnics in Germany (Diehl & Blohm, 2008). However, in another study, it was observed that having more co-ethnics in the friendship network fostered the intention to naturalize (Hochman, 2011). Therefore, the link between social and legal integration has yet to be precisely illustrated. Nevertheless, what has been found is that naturalized immigrants show higher rates of identification with Germany, use the German language more regularly and show higher German language proficiency (Ersanilli & Koopmans, 2010). Thus, cultural integration seems to be intertwined with naturalization. While social integration appears to be a crucial reason for immigrants of Turkish origin to seek naturalization (Diehl & Blohm, 2008), this finding needs further and more detailed investigation.

2.2.3 Ethnic segregation

Integration is largely dependent on living conditions, not only at the national level, but also at the neighborhood level (Friedrichs & Blasius, 2001). Embeddedness in a certain environment might not only be important for naturalization tendencies when focusing on friendships, but structures which favor or hinder social contact to natives might be vital as well. Living environments offer excellent opportunities for immigrants to get in touch with natives and therefore provide a basis for building inter-group friendships, which seem to be of great importance for immigrants' naturalization tendencies. In Germany, the existing ethnic segregation is due to the country's labor migration history since the 1960s (Farwick, 2012). Labor migrants mainly came from Turkey, Italy, the former Yugoslavia, Spain, and Portugal. The workers, who were mainly male, first came without their families and were

accommodated in barracks. After their families joined them, they settled in old houses in the city centers which had been abandoned by German natives because they needed renovation. The immigrants mainly chose this type of housing because it was significantly cheaper than in the suburbs. After some time, when it became clear that they would not be returning to their countries of origin in the near future, the immigrants started to establish their own institutions and ethnic economies grew steadily. Consequently, they did not have to leave their neighborhood to receive specific services, leading to the formation of clearly distinguishable ethnic enclaves (Farwick, 2012).

When investigating the impact of the degree of ethnic segregation on naturalization, it might be argued that those immigrants who already have integrative tendencies prefer living in the proximity of natives, and therefore strong self-selection might be present. It could be hypothesized that immigrants who plan to naturalize make the conscious decision to move into a neighborhood with a relatively high degree of natives. Additionally, those immigrants who are integrated in other spheres of life, for example in the labor market or in the educational system, might want to distance themselves visibly from their less integrated co-ethnics by moving away from ethnic neighborhoods. However, research finds that the contrary is true. There is a strong self-selection process present when immigrants prefer to live among co-ethnics (Tezcan, 2000). This might be because of a shared background regarding migration history, cultural practices, traditions, and language. One would assume that it is the mere fact that immigrants want to live among ethnic co-members, but several studies have found that there is no such housing homophily. Turks do not choose mainly Turkish neighborhoods because they primarily want to live among fellow Turks. They rather want to live close to family members and friends (Tezcan, 2000). These network members are more likely to live in ethnically concentrated neighborhoods because of the housing processes of labor migrants in Germany that was mentioned in the previous section. Therefore, ethnic residential segregation is primarily due to low housing prices in certain areas. Most

immigrants, among them the largest immigrant groups, are typically blue-collar workers who do not have a lot of money at their disposal and who have larger families than the native population. Furthermore, ethnic residential aggregation takes place because newly arrived immigrants tend to move close to network members already residing in the receiving country. They seek the proximity of family and friends who represent a support network, helping them with daily chores and giving advice with regard to receiving-country-specific practices. Furthermore, network members operate as sources of information because they know where new immigrants can get an apartment or a house (Farwick, 2009; Gestring et al., 2006). These are usually in the close living environment of the advising network members.

In order to perform research on contextual influences on integration outcomes, it is important to clearly identify salient spatial borders. Sometimes the characteristics at the national or state level constitute important determinants. These spatial delimitations are meaningful when focusing on the impact of (different) integration policies, policy changes, or characteristics of the educational system. An example of a regional characteristic is the respective housing policy. Scholars in neighborhood research have found that "neighborhood effects may vary by spatial delimitation" (Hipp, 2007; Lersch, 2014). If the space ascribed to a neighborhood is too large and encompasses too many individuals or households, this definition might not portray the importance of smaller neighborhood units that might have a higher significance. If the neighborhood is understood as a very small spatial unit encompassing only a few individuals or households, it is possible that this unit might be meaningless, because the chances that people only spend little time in it and orientate themselves towards larger spatial units are high (Lersch, 2014). It has been found that smaller neighborhood delimitations such as housing blocks or streets are better suited for analysis than larger ones such as city districts or municipalities (Hipp, 2007).

2.2.4 Hypotheses

Summarizing all of the above mentioned theoretical considerations and empirical findings on the connection between inter-ethnic contacts, the living environment, inter-group prejudice, and integration, this study postulates that direct inter-ethnic contact and indirect contact via the neighborhood foster naturalization. It is hypothesized that direct contact to Germans through friendship networks positively influences immigrants' naturalization intentions. In particular those immigrants whose friendship networks mostly consist of Germans are most likely to seek naturalization.

Hypothesis 1 (Micro-level hypothesis): Immigrants who have more German friends are more likely to naturalize.

An additional hypothesis is that the proportion of Germans in the neighborhood also has a positive effect. It is assumed that the likelihood of an immigrant to adopt German citizenship is increased by more native Germans living in his/her environment, more positive attitudes he/she has towards Germans, and also by a less salient citizenship boundary. Hence, those living in neighborhoods with a high proportion of non-natives, among them the so-called ethnic enclaves, are least likely to have positive naturalization intentions.

Hypothesis 2 (Macro-level hypothesis): Immigrants who live among more Germans are more likely to naturalize.

2.3 Data and Method

In order to test the previously mentioned hypotheses, a sample of immigrants in Germany is needed, which includes individual characteristics as well as information on features of the neighborhoods. In the following, the data basis of this study and the methods used to test the hypotheses are described.

2.3.1 Data

The data used in this paper are based on the German Socio-Economic Panel (SOEP). The SOEP is an annual representative panel survey, which was started in 1984 and includes about 20,000 individuals in 11,000 households in Germany. It is an excellent data basis for immigrant research because respondents with non-German citizenship are included in several subsamples. From the beginning, the SOEP has included a sample of 655 households with immigrants (subsample B) and in it 1994 added a sample of 222 households solely including immigrants who have migrated since 1984 (subsample D). SOEP data make it possible to differentiate between foreign born non-nationals and individuals who were born in Germany, but also hold foreign citizenship.

The following analysis is based on a sample which includes all immigrants with a non-German citizenship in the SOEP regardless of their country of birth (first and second generation immigrants). Not only those from subsamples B and D, but also those from other SOEP subsamples, e.g. West and East Germany samples and subsequent refreshment samples, which focus on the German resident population in general and hence include immigrants according to their share in the population, are included here. The analysis includes those without German citizenship, regardless of their country of birth (first and second generation immigrants). It uses the data sets from 2010 and 2012 because the relevant neighborhood information is only available for the years 2004-2006 and 2010-2012, and the dependent variable was only surveyed in even years. The sample comprises 367 individuals who participated in 2010, 419 individuals who participated in 2012, and 576 individuals who participated in both years, summing up to a total of 1,938 observations. 70 individuals moved from one neighborhood to another between 2010 and 2012 and therefore the statistical analysis nested these individuals first in their initial neighborhood and then again in the neighborhood they moved to.

2.3.2 Variables

The dependent variable is derived from the question “Do you intend to apply for German citizenship in the next two years?”. The answer categories are “yes, definitely”, “yes, probably”, “probably not”, and “definitely not”. This variable measures the intention of immigrants to naturalize and displays a concrete plan because of its temporal limitation (“... in the next two years”). This variable was chosen instead of actual naturalization because the dataset unfortunately only contains a very small number of individuals who changed citizenship during the observation period. Other studies on naturalization in Germany also encountered this data problem (Diehl & Blohm, 2003; Hochman, 2011), and similarly chose naturalization intentions as the dependent variable. As was done in the other studies, the responses in this study were transformed into a binary form (positive versus negative naturalization intentions).

The main explanatory variables in this study are direct contact to Germans and the share of immigrants in the neighborhood. The former is a micro-level variable that accounts for the number of direct contacts at the individual level (test of H1), whereas the latter describes a neighborhood (macro-level) characteristic, which accounts for locally differentiated opportunities for contact (test of H2). Direct contact with Germans was assessed based on the number of German respondents counted among their three closest friends, as this was operationalized as the close friendship network in the SOEP. In the survey, respondents are asked to report on their close friendship network and give information on whether or not their close friends have German citizenship. To analyze neighborhood characteristics together with SOEP information on individuals, neighborhood indicators collected by *microm*, a private company that gathers information on small regional units mostly for marketing purposes, were merged. This information is available for different regional units. The unit used here is based on Germany’s zip code regions, which are then split into smaller entities. This was done by clustering small regional units according to shared indicators of function, settlement type, and structural characteristics. For example, these indicators can be house

types or branch of industry (microm, 2014). The resulting regional units are homogenous to a certain degree and can therefore be referred to as neighborhoods. In addition to the indicators, *microm* collects and generates information about the percentage of migrant households for each neighborhood. In this study, this indicator is used as the explanatory variable at the macro level. The ethnic diversity of the neighborhood was assessed based on the percentage of immigrants in the neighborhood. In order to compare neighborhoods that mainly accommodate people with an immigration background to mainly German neighborhoods, the cut off was set at 50 percent immigrants in the neighborhood.

As EU immigrants have more rights in Germany than those originating from non-EU countries, they might not strive as strongly to obtain German citizenship. EU membership is hence introduced as a control variable. A further set of control variables included accounts for formal naturalization requirements in Germany: duration of stay, German language proficiency and non-reliance on welfare benefits. Those meeting these requirements might be more motivated to obtain German citizenship. It is assumed that immigrants who have not been in Germany for a long period either do not consider citizenship change soon after migration, or are aware that they do not meet the requirement of an eight-year minimum duration of stay and, therefore, do not intend to apply for German citizenship in the near future. Individuals who have been in Germany much longer than the required eight years and who have nevertheless not applied for naturalization probably do not plan to do so. Those who have been in Germany between six and ten years are hypothesized to be the ones with the highest probability to consider naturalization, as they will either be reaching the eight-year requirement in the next two years or have recently done so. German language proficiency is assessed based on written and spoken knowledge of German as reported by the respondent. To this end, respondents indicated their language proficiency on a five-point scale (e.g., 1 not at all, 2 fairly bad, 3 not bad, 4 good, 5 very good). Language proficiency was then dichotomized, with a score of 3 or higher being categorized as “rather good”, and everything

else as “rather poor”. Dependence on welfare benefits was assumed if the respondent received income support payments (*Arbeitslosengeld II, Sozialhilfe).*

Building on findings of previous research regarding the socio-demographic determinants of naturalization, gender and education were also included as control variables (Constant et al., 2007; Martinovic et al., 2011). Educational level was coded according to the International Standard Classification of Education (ISCED) which comprises six categories ranging from 0 (still in school) to 6 (completed higher education). Additionally, the respondent’s age was included not only as a standard demographic control, but also because findings suggest that younger immigrants are more likely to naturalize since they can profit from having German citizenship for a longer time (DeVoretz & Pivnenko, 2005; Zimmermann et al., 2009). Additional controls measure possible strong ties to the host society ("roots"; Portes & Curtis, 1987) including whether the respondent is married to a German citizen and whether he/she has children.

The robustness of the sample and the obtained results were checked by various means: First, the sample was divided by EU-origin in order to avoid a possible heterogeneity of effects. Second, respondents who were not eligible to naturalize at the time point of the interview were excluded since including them in the full sample might lead to an over-estimation of negative naturalization intentions and hence bias the estimated effects of the neighborhood and inter-ethnic friendships. Along the same lines being born in Germany was introduced as a control variable. Third, certain variables were calibrated differently in order to reveal possible differences in effects due to calibration. Here, the cut-off point for Germans in the neighborhood was raised from 50 to 70 percent and the variable measuring inter-ethnic friendships was dichotomized. The results of these analyses can be found in the supplementary material.

2.3.3 Multilevel Modelling

When hypothesizing that on the one hand direct contact to Germans and on the other hand the share of migrants in the neighborhood influence immigrants' naturalization intentions, it is essential to take the hierarchical structure of the data into account. First of all, even though the dataset is an unbalanced panel, it includes longitudinal information for most individuals at two different points in time. Second, the analysis includes a macro level indicator. Therefore, both the panel character of the data and the embeddedness of the individuals in neighborhoods lead to statistically dependent observations. Hence, the data was modelled as having a three-level structure, with time points nested in individuals and individuals nested in neighborhoods.

Multi-level modelling (Hox, 2010; Snijders & Bosker, 2012) allows for the consideration of both individual-level and contextual effects and the examination of how they mutually influence each other. Furthermore, it "makes it possible to examine whether the effects of ethnic concentration are organic or merely the result of compositional effects at the individual level. Multilevel analyses allow simultaneous modelling of individual-level and contextual neighborhood-level effects and their interactions" (Gijsberts & Dagevos, 2007). Effects can either be fixed or random. The effect of the number of Germans among the three closest friends was assumed to vary randomly across neighborhoods. In order to retain a large enough sample size, a complete case analysis was conducted. Due to fact that the hypotheses were directional, one-tailed tests were used (Ruxton & Neuhäuser, 2010).

2.4 Results

The sample for this study included 1,938 observations from 1,432 individuals in 846 neighborhoods. Respondents originated from 83 different countries, with the majority coming from Turkey, Italy, and Greece. More than half of the respondents came from non-EU countries (*Table 2.1*). Naturalization intentions and the average number of Germans in the close friendship network were relatively low across the sample, whereas almost ninety percent lived in mainly German neighborhoods. In general, the educational level of the respondents

was rather low, with more than 30% having attained only general elementary schooling (ISCED level 2) or less. More than 80% of the respondents had been in Germany for more than ten years, and about three-quarters reported rather good German speaking and writing skills. Furthermore, most of the respondents were economically independent, i.e. did not receive welfare benefits.

Table 2.1: Sample description.

Variable	Categories	Percent/ Mean
Naturalization intention	Negative	78.38
	Positive	21.62
Lives in Mainly German neighborhood	Yes	89.16
	No	10.84
No. of German friends	None	49.09
	One	16.46
	Two	14.85
	Three	19.60
Non-EU origin	Yes	53.45
	No	46.55
Years of residence	Less than six years	5.29
	Between six and ten years	7.80
	More than ten years	86.91
Spoken language skills	Rather good	91.68
	Rather poor	8.32
Written language skills	Rather good	75.21
	Rather poor	24.79
Education	In school (ISCED 0)	1.68
	Inadequately (ISCED 1)	8.38
	General elementary (ISCED 2)	25.37

	Middle vocational (ISCED 3)	35.37
	Vocational + college entrance certificate (ISCED 4)	7.84
	Higher vocational (ISCED 5)	4.16
	Higher education (ISCED 6)	17.20
Dependent on welfare	Yes	8.57
	No	91.43
Partner	No partner	59.69
	Partner is not German	25.07
	Partner is German	15.24
Has children	Yes	72.70
	No	27.30
Age	Years mean (SD, range)	45.86 (15.91, 18-93)
Gender	Male	46.08
	Female	53.92

No. of observations: 1,938; No. of individuals: 1,432; Complete case analysis: no. of observation varies across variables, percentages refer to valid observations.

A descriptive analysis of the naturalization intentions across levels of ethnic concentration in the neighborhood shows that the share of positive naturalization intentions decreases with increasing share of Germans in the neighborhood. However, the sample only included few observations for neighborhoods with a high share of foreigners (60% or above). This shows that those living around many Germans are actually the ones who have the lowest intentions to naturalize (see *Table 2.2*), which is a surprising observation since it was hypothesized that the opposite would be the case.

Table 2.2: Distribution of naturalization intentions across ethnic composition of the neighborhood (in percent).

Percentage of Germans in the neighborhood	Positive naturalization intention	Share of all observations
0-10 %	0	0
10-19%	33.33	0.46
20-29%	38.46	0.67
30-39%	31.58	2.94
40-49%	30.53	6.76
50-59%	23.41	15.43
60-69%	20.10	21.31
70-79%	17.87	20.79
80-89%	21.64	17.65
90-100%	19.93	13.98
N(observations)	419	1,938

The multilevel analysis set out in *Table 2.3* confirms this finding. Immigrants who live in neighborhoods with a majority of Germans are less likely to apply for German citizenship than those who live in non-German dominated neighborhoods. The chance of having positive naturalization intentions is significantly reduced among immigrants in neighborhoods mainly populated by Germans by 73% (M1) and 69% (M2), respectively. Hence, the hypothesis that the presence of more Germans in a neighborhood promotes positive naturalization intentions (H2) must be rejected. M2 included additional coefficients for direct contact to Germans through the friendship network. Having one or three German friends seems to promote

intentions. The chance of having positive naturalization intentions is more than double among the ones with an all-German close friendship network compared to those without any close German friends (M3). However, this association was not statistically significant. Hence, the hypothesis stating that immigrants with a high number of Germans in their close friendship network show higher naturalization intentions (H1) can also not be confirmed. Since *Table 2.2* suggests that most immigrants live among more than 50% Germans, half of them even living in neighborhoods with more than 70% Germans, it was checked as to whether cutting off this variable at 70% and not 50% would change the results of the regression (see supplementary material). The results mainly point in the same direction with the main difference that the neighborhood coefficient shows a positive association with naturalization in the full model. However, this cannot be generalizable due to a lack of statistical significance. Hence, the 50% cut-off is not only preferable due to theoretical considerations, but is also backed up in the analysis. Introducing having German friends as a dichotomous variable in the analysis shows that having at least one German friend is positively associated with positive naturalization intentions over all models. Overall, this operationalization does not meaningfully change the results. The same applies when controlling for identification or being born in Germany (see supplementary material).

Table 2.3: Logistic multilevel analysis of determinants of naturalization intention.

	M_0	**M_1**	**M_2**	**M_3**
Majority German neighborhood		.270*	.308*	.714
Number of German friends in close network (Ref.: None)				
One friend			1.473	1.191
Two friends			.808	.962
Three friends			1.827	2.099

Non-EU origin				6.773***
Duration of stay				
(Ref.: Between 6 and 10 years)				
Less than 6 years				.311*
More than 10 years				.633
Speaks German well				.820
Writes German well				1.291
Welfare benefits				3.287**
Education (Ref.: inadequately completed, ISCED 1)				
In school (ISCED 0)				.946
General elementary (ISCED 2)				.820
Middle vocational (ISCED 3)				.833
Vocational + university entrance qualification (ISCED 4)				.598
Higher vocational (ISCED 5)				2.287
Higher education (ISCED 6)				1.521
Partner's citizenship				
(Ref.: Partner is not German)				
No partner				2.343**
Partner is German				2.011*
Has child(ren)				1.167
Female				.829
Age				.902***
Constant	.030***	.097***	.053***	1.229
Log Likelihood	-919.378	-916.876	-910.127	-758.419
AIC	1844.756	1841.751	1836.253	1578.839
BIC	1861.464	1864.029	1880.809	1751.491

ICC				
Neighborhoods	.475	.467	.418	.348
Respondents in neighborhoods	.843	.844	.814	.671

Source: German Socio-Economic Panel 2010+2012 (unweighted data). N(observations)=1938, n(neighborhoods)=846, n(individuals)=1432. Odds ratio coefficients. AIC=Akaike Information Criterion; BIC=Bayesian Information Criterion. One-sided tests, * p<.05 ** p<.01 *** p<.001.

What seems to be a highly meaningful and significant predictor for naturalization intentions is region of origin. Among non-EU immigrants, the odds for naturalization intentions were more than six times higher than among those who were EU citizens. This shows that EU-immigrants do not perceive German citizenship as necessary to live there. EU-membership already equips them with a large set of rights so that a change of citizenship does not add any needed benefits. In order to test the consistency of the findings, separate analyses were conducted for EU and non-EU citizens (see supplementary material). The results were predominantly similar to those from the main analysis. However, there seems to be heterogeneity regarding the influence of the neighborhood composition. Among EU citizens, living in a German-majority neighborhood increased the odds for positive naturalization intentions after controlling for all other variables. This was not the case among non-EU citizens. However, in both instances the association was not statistically significant.

Furthermore, M3 includes other factors regarding eligibility for naturalization, as well as personal background. Here, it can be seen that immigrants who have just recently met the requirement of eight years of residence, which among other factors makes them eligible for naturalization, are indeed the ones who have the highest naturalization intentions. Intentions among individuals who have lived in Germany for more than ten years are lower on the other hand, probably because they have realized that having a German passport is not necessarily a pre-requisite for living in Germany on a long-term basis. Results of the analyses with only those in the sample that are eligible for naturalization point in the same direction. Therefore,

the 82 respondents who are bot eligible do not seem to bias the results and might also contain immigrants who give positive answers Surprisingly, recipients of welfare benefits showed a threefold increase in the odds for naturalization intentions compared to those who can provide for themselves. This might be due to the perception that becoming German might help to end the dependence on the state, possibly via better chances on the labor market. No clear trend was observable for the association between education and naturalization intentions. Only those with vocational education plus a university entrance qualification (ISCED level 4) or higher vocational education (ISCED level 5) showed increased odds, but the coefficients were not significant. As indicated by the literature, having a German partner was positively associated with naturalization intentions. Having a German partner is related to the roots-hypothesis, which states that having roots in the destination country increases the desire to attain citizenship there, and hence become even more integrated in society. However, also having no partner compared to having a non-German partner increases the odds of positive naturalization intentions. Hence, immigrants with a non-German partner have the lowest probability to plan naturalization. The roots-hypothesis can be confirmed with respect to having a German spouse as well as to having children. However, the children-effect is not significant. Interestingly enough, an analysis performed to test robustness showed that the statistical significance of the partnership coefficients disappear as soon as identification with Germany is controlled for. In that analysis, identification is strongly positively associated with naturalization, but does not significantly change the effects of other predictors. Regarding further demographic factors, naturalization intentions decrease with increasing age, confirming the assumption that younger immigrants perceive citizenship acquisition as more rewarding than older individuals, because they have more time to enjoy the possible benefits of being a domestic citizen.

2.5 Conclusion

This paper investigated how direct contact to Germans and the ethnic makeup of the neighborhood explain immigrants' intention to apply for German citizenship. Building on Contact Hypothesis and Social Identity Theory, it was hypothesized that having more Germans in the close friendship network and being around Germans in the neighborhood increase naturalization intentions. However, the analyses showed that in the present sample, living in a neighborhood with a majority of Germans actually decreased immigrants' naturalization intentions. Furthermore, while naturalization intentions tended to be higher among those whose three closest friends were all German, the association was not statistically significant. Thus, the data could not confirm this hypothesis. A possible explanation for this is that living among a German majority helps immigrants feel sufficiently integrated into German society, so that attaining German citizenship is not necessary for identifying with Germany and its society. Theoretical considerations have indicated that the barrier of becoming a German citizen is lowered by inter-ethnic contact and exposure to the host society via the neighborhood. Here it becomes apparent that there are strong processes of self-selection into certain neighborhoods, which can be confirmed by previous work on the neighborhood choice of Turkish immigrants (Tezcan, 2000).

An important contribution that this paper makes towards understanding why certain immigrants tend to naturalize and others do not is the observation that inter-ethnic contact does not add to the explanation as to why naturalization differs between certain immigrant groups. This paper was able to connect the two strands of neighborhood and integration research more closely because it connects immigrants' embeddedness in the neighborhood with integration outcomes. It demonstrates that it is not sufficient for immigrants to live among Germans, but that actual engagement in personal relationships is key to promoting citizenship acquisition. Hence, this study's contribution to existing literature lies beyond confirming previous findings, but it adds important insight into the (lack of) connection

between the living environment and integration, on the one hand, and the dynamics of social integration and naturalization on the other hand. Social integration seems to be less important in the decision making process, whereas origin, family ties, and the economic situation are strong predictors for naturalization intentions.

A limitation of this study concerns the dynamics of segregation, which were not included in this analysis. As individuals with little income may live in more ethnically diverse neighborhoods that have lower housing prices, selection effects may have had an impact on the results of this study. Those receiving welfare benefits were the ones with a high intention to naturalize. This fact might explain why immigrants in ethnically diverse neighborhoods were observed to have higher naturalization intentions than those living in predominantly German neighborhoods. Additionally, well-off immigrants can presumably afford more expensive housing in higher income, German-majority neighborhoods. Should these mechanisms be at work, naturalization intentions might not be so much a function of the share of Germans in the neighborhood per se, but rather of socio-economic background. Furthermore, the finding that those living around many Germans are the ones who have the lowest intentions to naturalize may also originate from another selection effect. It might be the case that those who live in a neighborhood with a German majority and have not already naturalized are cases of negative selection as those who had already naturalized prior to the observation period were deleted from the sample. The selection effect explaining why immigrants end up in certain neighborhoods and how this is associated with their intention to naturalize could, however, not be controlled within this study's design.

In an optimal design, to assess the causal effect of the neighborhood composition on naturalization intentions, one would have to analyze whether moving from a non-German-majority neighborhood into a German-majority neighborhood changes naturalization intentions or vice-versa. However, this was not possible with the available data. Another limitation is the small number of observations from non-German majority neighborhoods and

the low prevalence of positive naturalization intentions. Both decreased the statistical precision of the analysis and thus may explain why no statistically significant influence of the variables of interest was found in the full models. Another limitation of this study could be the fact that naturalization intention, as opposed to not actual naturalization, was used as an outcome variable. While using naturalization intention as a proxy may indeed less than ideal, it has been shown to be a good predictor for actual naturalization (Diehl & Blohm, 2008).

Further research is required to gain a better insight of the specific mechanisms. It would indeed be fruitful to investigate how interaction between friendship, kinship and family networks influences naturalization among immigrants, since the characteristics of the family were found to influence naturalization intentions. Furthermore, it might not be the distribution of ethnicities within the neighborhood as a quantitative indicator which fosters naturalization, but rather available social capital within the neighborhood as a network. Also, an investigation of the role of host country and origin country specific feelings of belonging should be within the scope of further research. Having larger sample sizes would also enable better differentiation of the immigrants' ethnic origins. Some scholars have conducted studies on Turkish and Yugoslav immigrants, two of the largest immigrant groups in Germany (Diehl & Blohm 2003, 2008; Hochman, 2011). Both however belong to the immigrant groups that came to Germany already in the 1960s as so-called "guest-workers". In recent years, immigration waves have, to a considerable extent, been driven by financial and economic crises and the flight from war and persecution. This has resulted in diverse groups of immigrants from different countries and with different characteristics seeking a better future, mainly in Europe. When it comes to neighborhoods, it is possible that the effect varies among immigrants depending on their duration of residence in the particular neighborhood. Having previously lived in a neighborhood with a high immigrant density for a long time, and then living in a neighborhood dominated by Germans for a short time, possibly determines naturalization intentions differently than if someone had lived in the German-dominated

neighborhood longer than in the former one. Therefore, neighborhood sequences might be of importance when trying to explain the effect of the ethnic composition of the neighborhood on naturalization. In this case, the analysis of longitudinal data with a focus on naturalization intentions among individuals who moved from minority to majority German neighborhoods is needed.

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2.7 Supplementary material

Table 2.4: Logistic multilevel analysis of determinants of naturalization intention, EU immigrants only.

	M_0	M_1	M_2	M_3
Majority German neighbourhood		.805	.779	2.192
Number of German friends in close network (Ref.: None)				
One friend			1.539	1.089
Two friends			.733	.995
Three friends			2.508	4.226
Duration of stay (Ref.: Between 6 and 10 years)				
Less than 6 years				3.253
More than 10 years				.404
Speaks German well				.445
Writes German well				.892
Welfare benefits				25.532**
Partner's citizenship (Ref.: Partner is not German)				
No partner				3.681*
Partner is German				4.903*
Has child(ren)				1.264
Female				1.634
Age				.914***
Constant	.0000008***	.00001***	.0000008***	.000000001**
Log Likelihood	-295.034	-295.019	-294.210	-254.991
AIC	596.1	598.0	604.4	568.0
BIC	610.5	617.2	642.8	707.1
ICC				
Neighbourhoods	.492	.492	.490	.317

Respondents in neighbourhoods	.973	.974	.971	.748

Source: German Socio-Economic Panel 2010+2012 (unweighted data). N(observations)=896, n(neighbourhoods)=444, n(individuals)=646. Odds ratio coefficients. AIC=Akaike Information Criterion; BIC = Bayesian Information Criterion. One-sided tests, * p<.05 ** p<.01 *** p<.001. Education (ISCED level) was controlled for, but not reported. This was due to the lack of sufficient observations with no naturalization intentions and low education.

Table 2.5: Logistic multilevel analysis of determinants of naturalization intention, non-EU immigrants only.

	M_0	M_1	M_2	M_3
Majority German neighbourhood		.396	.428	0.613
Number of German friends in close network (Ref.: None)				
One friend			1.614	1.293
Two friends			1.291	1.116
Three friends			2.103	.920
Duration of stay (Ref.: Between 6 and 10 years)				
Less than 6 years				.108**
More than 10 years				.652
Speaks German well				.577
Writes German well				1.657
Welfare benefits				25.532***
Education (Ref.: inadequately completed, ISCED 1)				
In school (ISCED 0)				.276
General elementary (ISCED 2)				.383*
Middle vocational (ISCED 3)				.472

Vocational + university entrance qualification (ISCED 4)				.563
Higher vocational (ISCED 5)				1.020
Higher education (ISCED 6)				.830
Partner's citizenship (Ref.: Partner is not German)				
No partner				1.974*
Partner is German				.957
Has child(ren)				1.131
Female				0.659
Age				.894***
Constant	.158***	.350*	.133***	52.208**
Log Likelihood	-576.942	-575.712	-568.874	-469.418
AIC	1159.9	1159.4	1153.7	996.8
BIC	1174.7	1179.2	1193.2	1140.0
ICC				
Neighbourhoods	.440	.431	.363	.475
Respondents in neighbourhoods	.793	.794	.773	.609

Source: German Socio-Economic Panel 2010+2012 (unweighted data). N(observations)=1,029, n(neighbourhoods)=439, n(individuals)=780. Odds ratio coefficients. AIC=Akaike Information Criterion; BIC = Bayesian Information Criterion. One-sided tests, * p<.05 ** p<.01 *** p<.001.

Table 2.5: Logistic multilevel analysis of determinants of naturalization intention, excluding those who are not eligible because of lacking time spent in Germany.

	M_0	**M_1**	**M_2**	**M_3**
Majority German neighbourhood		.188**	.217*	0.638
Number of German friends				

in close network (Ref.: None)		
One friend	1.446	1.132
Two friends	.651	.741
Three friends	1.696	1.842
Non-EU origin		8.840***
Duration of stay (Ref.: Between 6 and 10 years)		
More than 10 years		.608
Speaks German well		.799
Writes German well		1.290
Welfare benefits		2.954**
Education (Ref.: inadequately completed, ISCED 1)		
In school (ISCED 0)		1.103
General elementary (ISCED 2)		.779
Middle vocational (ISCED 3)		.763
Vocational + university entrance qualification (ISCED 4)		.547
Higher vocational (ISCED 5)		2.512
Higher education (ISCED 6)		1.744
Partner's citizenship (Ref.: Partner is not German)		
No partner		2.410**
Partner is German		1.831
Has child(ren)		1.021
Female		0.797
Age		.896***

Constant	.022***	.094***	.055***	2.041
Log Likelihood	-856.398	-853.002	-848.118	-693.322
AIC	1718.8	1714.0	1712.2	1446.6
BIC	1735.4	1736.1	1756.4	1612.2
ICC				
Neighbourhoods	.495	.487	.453	.410
Respondents in neighbourhoods	.862	.864	.846	.694

Source: German Socio-Economic Panel 2010+2012 (unweighted data). N(observations)=1,841, n(neighbourhoods)=804, n(individuals)=1,350. Odds ratio coefficients. AIC=Akaike Information Criterion; BIC = Bayesian Information Criterion. One-sided tests, * p<.05 ** p<.01 *** p<.001.

Table 2.6: Logistic multilevel analysis of determinants of naturalisation intention, cut-off at 70 percent Germans in neighbourhood.

	M_0	**M_1**	**M_2**	**M_3**
Majority German neighbourhood (70%+)		.652	.627	1.281
Number of German friends in close network (Ref.: None)				
One friend			1.535	1.185
Two friends			.813	.954
Three friends			1.830	2.027
Non-EU origin				7.042***
Duration of stay (Ref.: Between 6 and 10 years)				
Less than 6 years				.304*
More than 10 years				.630
Speaks German well				.784
Writes German well				1.315
Welfare benefits				3.365**

Education (Ref.: inadequately completed, ISCED 1)				
In school (ISCED 0)				.944
General elementary (ISCED 2)				.797
Middle vocational (ISCED 3)				.801
Vocational + university entrance qualification (ISCED 4)				.567
Higher vocational (ISCED 5)				2.116
Higher education (ISCED 6)				1.444
Partner's citizenship (Ref.: Partner is not German)				
No partner				2.352**
Partner is German				1.959
Has child(ren)				1.175
Female				.822
Age				.901***
Constant	.030***	.039***	.024***	0.886
Log Likelihood	-919.378	-918.696	-911.613	-758.329
AIC	1844.8	1845.4	1839.2	1578.7
BIC	1861.5	1867.7	1883.8	1751.3
ICC				
Neighbourhoods	.475	.471	.420	.353
Respondents in neighbourhoods	.843	.842	.813	.671

Source: German Socio-Economic Panel 2010+2012 (unweighted data). N(observations)=1,938, n(neighbourhoods)=846, n(individuals)=1,432. Odds ratio coefficients. AIC=Akaike Information Criterion; BIC = Bayesian Information Criterion. One-sided tests, * p<.05 ** p<.01 *** p<.001.

Table 2.7: Logistic multilevel analysis of determinants of naturalisation intention, German friends dichotomous.

	M_0	M_1	M_2	M_3
Majority German neighbourhood		.270*	.305*	.729
German friends present			1.359	1.400
Non-EU origin				6.570***
Duration of stay (Ref.: Between 6 and 10 years)				
Less than 6 years				.309*
More than 10 years				.628
Speaks German well				.812
Writes German well				1.346
Welfare benefits				3.273**
Education (Ref.: inadequately completed, ISCED 1)				
In school (ISCED 0)				.915
General elementary (ISCED 2)				.811
Middle vocational (ISCED 3)				.804
Vocational + university entrance qualification (ISCED 4)				.573
Higher vocational (ISCED 5)				2.220
Higher education (ISCED 6)				1.462
Partner's citizenship (Ref.: Partner is not German)				
No partner				2.364**
Partner is German				2.020*

Has child(ren)				1.174
Female				.817
Age				.901***
Constant	.030***	.097***	.052***	1.294
Log Likelihood	-919.378	-916.876	-910.731	-759.256
AIC	1844.8	1841.8	1833.5	1576.5
BIC	1861.5	1864.0	1866.9	1738.0
ICC				
Neighbourhoods	.475	.467	.420	.357
Respondents in neighbourhoods	.843	.844	.817	.672

Source: German Socio-Economic Panel 2010+2012 (unweighted data). N(observations)=1,938, n(neighbourhoods)=846, n(individuals)=1,432. Odds ratio coefficients. AIC=Akaike Information Criterion; BIC = Bayesian Information Criterion. One-sided tests, * p<.05 ** p<.01 *** p<.001.

Table 2.8: Logistic multilevel analysis of determinants of naturalisation intention, control for identification with Germany.

	$\mathbf{M_0}$	$\mathbf{M_1}$	$\mathbf{M_2}$	$\mathbf{M_3}$
Majority German neighbourhood		.270*	.308*	.690
Number of German friends in close network (Ref.: None)				
One friend			1.473	1.083
Two friends			.808	.817
Three friends			1.827	1.573
Non-EU origin				6.996***
Duration of stay (Ref.: Between 6 and 10 years)				
Less than 6 years				.440
More than 10 years				.542

Speaks German well				.693
Writes German well				.982
Welfare benefits				3.443***
Education (Ref.: inadequately completed, ISCED 1)				
In school (ISCED 0)				.824
General elementary (ISCED 2)				.734
Middle vocational (ISCED 3)				.641
Vocational + university entrance qualification (ISCED 4)				.527
Higher vocational (ISCED 5)				1.514
Higher education (ISCED 6)				1.322
Partner's citizenship (Ref.: Partner is not German)				
No partner				1.553
Partner is German				1.776
Has child(ren)				1.297
Female				.848
Age				.904***
Feels German (Ref.: Not at all)				
Little				1.850
In some ways				5.470***
Predominantly				12.134***
Absolutely				14.783***
Constant	.030***	.097***	.053***	.526
Log Likelihood	-919.378	-916.876	-910.127	-733.144
AIC	1844.8	1841.8	1836.3	1538.3

BIC	1861.5	1864.0	1880.8	1738.8
ICC				
Neighbourhoods	.475	.467	.420	.360
Respondents in neighbourhoods	.843	.844	.817	.654

Source: German Socio-Economic Panel 2010+2012 (unweighted data). N(observations)=1,938, n(neighbourhoods)=846, n(individuals)=1,432. Odds ratio coefficients. AIC=Akaike Information Criterion; BIC = Bayesian Information Criterion. One-sided tests, * p<.05 ** p<.01 *** p<.001.

Table 2.8: Logistic multilevel analysis of determinants of naturalisation intention, control for born in Germany.

	M_0	M_1	M_2	M_3
Majority German neighbourhood		.270*	.308*	.719
Number of German friends in close network (Ref.: None)				
One friend			1.473	1.199
Two friends			.808	.951
Three friends			1.827	2.075
Non-EU origin				6.824***
Duration of stay (Ref.: Between 6 and 10 years)				
Less than 6 years				.301*
More than 10 years				.614
Speaks German well				.812
Writes German well				1.278
Welfare benefits				3.269**
Education (Ref.: inadequately completed, ISCED 1)				
In school (ISCED 0)				.942

General elementary (ISCED 2)				.812
Middle vocational (ISCED 3)				.821
Vocational + university entrance qualification (ISCED 4)				.604
Higher vocational (ISCED 5)				2.129
Higher education (ISCED 6)				1.479
Partner's citizenship (Ref.: Partner is not German)				
No partner				2.209**
Partner is German				2.089*
Has child(ren)				1.203
Female				.834
Age				.905***
Born in Germany				1.160
Constant	.030***	.097***	.053***	1.109
Log Likelihood	-919.378	-916.876	-910.127	-757.649
AIC	1844.8	1841.8	1836.3	1581.3
BIC	1861.5	1864.0	1880.8	1765.1
ICC				
Neighbourhoods	.475	.467	.420	.356
Respondents in neighbourhoods	.843	.844	.817	.666

Source: German Socio-Economic Panel 2010+2012 (unweighted data). N(observations)=1,938, n(neighbourhoods)=846, n(individuals)=1,432. Odds ratio coefficients. AIC=Akaike Information Criterion; BIC = Bayesian Information Criterion. One-sided tests, * p<.05 ** p<.01 *** p<.001.

Chapter 3: Locating immigrants' naturalization in the integration process in Germany: a longitudinal multichannel sequence analysis

Abstract

Naturalization can either boost or crown immigrants' integration into the new country. This claim is the central question of this study. It investigates whether naturalization takes place at the beginning or the end of overall integration, or whether integration trajectories are possibly more diverse. The focus is on the location of naturalization within the integration process and on the identification of distinct groups of immigrants with similar trajectories. By analyzing data from the German Socio-Economic Panel Study (SOEP) and making use of sequence analysis, several dimensions of integration are combined by using matching and clustering techniques. Seven groups of immigrants with similar integration patterns can be identified, displaying distinct characteristics when it comes to citizenship, language skills, inter-ethnic contact, and labor market participation. The results suggest that naturalized immigrants are better integrated and that naturalization functions as a catalyst for integration in other areas of everyday life. However, very unique patterns are visible for different immigrant groups making integration a highly individual process.

3.1 Introduction

In early immigration research, scholars have viewed immigrant integration as having fixed stages which do not vary in their order, but rather in how fast an immigrant passes through each stage (e.g., Gordon, 1964). Nowadays, researchers acknowledge that outcomes that have been theorized to take place later in the integration process can influence presumed earlier stages and hence a reciprocal relationship is assumed. However, within the current literature possible interdependencies are mostly neglected. Rather, scholars investigate dependencies between different areas of integration by treating one as the dependent variable and others as

independent variables in their analyses in order to find out which factors are influenced by others. These studies concentrate on economic and labor market integration (Fertig & Schurer, 2007), social contacts and employment status (Kanas et al., 2011), acculturation and language (Haug, 2005; Yagmur & van de Vijver, 2012), and naturalization (Diehl & Blohm, 2008; Street, 2017). Hence, in theory, interdependencies in the integration process are considered, but are largely neglected within the literature.[2]

This paper follows the notion that integration is not stage-sequential, but rather regards integration as a multidimensional process in which mutual influence takes place (Castles et al., 2002). The main focus is on naturalization and where in the integration process it occurs. Even though most national policies require a certain degree of integration in other areas of life (e.g., language competence) before immigrants can apply for naturalization, integration may not have that presumed one-way street nature. In contrast, naturalization might further encourage overall integration because immigrants have access to certain resources and may have increased motivation to integrate after becoming a citizen. The current analysis uses data from immigrants in Germany, since Germany is a country with a long and diverse history of immigration, has a unique naturalization law, and suitable longitudinal data is available for the observation of different integration areas.

The following questions shall be addressed: When in the integration process does naturalization take place? How strong is integration in other dimensions of integration before and after naturalization? Do immigrants show different patterns of naturalization behavior? If so, can distinct groups be identified? No strict causal mechanism is imposed here because doing so can lead to contradictory findings, as we can learn from the literature discussed in the following section. Rather, the display of the timing of naturalization and its interplay with other areas of integration is in focus. Most data are suitable to cross-sectionally observe

[2] Alex Street, however, compared political interest and party identification before and after naturalization and found that naturalization promotes political integration among second generation immigrants who learned about political engagement during early adulthood (Street, 2017).

citizenship status, but this study adds an important factor, namely the development of different integration dimensions within the same set of immigrants and the timing of naturalization therein. To the author's knowledge, this is the first paper to apply multichannel sequence analysis as the appropriate method of choice within a research question of immigrant integration, thus substantially contributing to existing research. Thereby, it makes an important first step into a better understanding of immigrant integration trajectories by casting an explorative look at different integration dimensions and their chronology.

This paper is organized as follows. The next section provides an overview of theories and the dimensions of integration, as well as the development of naturalization laws in Europe in general as well as the German law in particular. Section three presents the data and the empirical methodology. Section four presents the results. The paper concludes with a discussion of the findings and offers further outlook in the field.

3.2 Naturalization in the Integration Process

3.2.1 (Dimensions of) Integration

Migration scholars argue that integration, i.e. orientation towards the mainstream society, is a process in which earlier stages are causal determinants of the timing and extent of occurrence of later stages. For them cultural integration comes first, followed by structural, social, and identificational integration (Esser, 2001; Gordon, 1964).[3] Cultural integration comprises the knowledge and competence to successfully interact in society. Migrants must know certain rules of social interaction and be able to act according to these rules. Possibly, the most important cultural asset is language because it facilitates social interaction. Additionally, language proficiency is key to successful participation in the educational system (Esser, 2001; Gordon, 1964). According to Esser, developing emotional attachment and identification with

[3] Here it is noteworthy that Esser and Gordon had different definitions of structural integration. For Esser structural integration is the placement in the labor market and the educational system (Esser, 2001: 40ff.). Gordon, however, defines structural integration as entrance into host society specific social groups (Gordon, 1964: 70f.).

the new country is the last step in the integration process. Identifying with a social system means that individuals see themselves as one entity with it (Esser, 2001), which can either mean that identification leads to immigrants' aspirations to acquire the new country's citizenship or the other way around. That can be true in certain countries, but not necessarily in others. For example, among immigrants in Austria, the close emotional relationship between naturalization and identity becomes obvious. There, naturalized immigrants are eager to stress that, despite adopting Austrian citizenship, their feelings of belonging to their heritage country remains unchanged (Riegler, 2000). By contrast, interviews of immigrants who are in the process of acquiring American or Canadian citizenship show that naturalization is not necessarily connected to strong feelings of belonging. Respondents identify naturalization as a natural step in the process of living in a certain country. They point to the fact that after having lived in the USA for some years and having family and jobs there, naturalization is a normal thing to do. Almost none of the interviewed immigrants in Canada and the USA mention that "naturalization would make them more Canadian or American" (Aptekar, 2016: 1157). Civic leaders in Canada with immigration backgrounds state that they felt Canadian the very moment they arrived in Canada, even though they also identify with their countries of origin. The length of stay in Canada, raising children and buying a home increase their feeling of being Canadian even more (Howard, 1998). This reinforces the notion that feelings of belonging can be detached from official citizenship.

In the literature we find several dimensions of immigrant integration which mostly overlap, resulting in three main spheres: economic, social, and political integration into the host country (Castles et al., 2002; Carens, 2005; Hainmueller et al., 2015; Huddleston et al., 2014; OECD, 2015). These dimensions comprise certain indicators which scholars and policy makers use to explore and carry out research on immigrants' everyday lives. Researchers mainly retain the prominent view that certain dimensions are more distinct before others even occur. Studies on the influence of language proficiency find that immigrants who have good

language skills are more embedded in the school system and the labor market (Münz et al., 1999), have more inter-ethnic partnerships and friendships (Haug, 2002, 2004), and higher identification with the receiving country (Diehl & Schnell, 2005). Inter-ethnic friendships are determined by educational success and a cross-ethnic partner (Martinovic et al., 2011). Other scholars approach integration research from the other side and observe the effect of presumably later integration stages on earlier ones, hence assuming a reciprocal effect. The new country's language can be learnt successfully by maintaining inter-ethnic friendships. Friendships with Germans facilitate immigrants' transition to employment, especially for immigrants with a low level of education (Lancee & Hartung 2012).

3.2.2 Naturalization and the development of naturalization law

The presence or absence of rights is a central dimension of citizenship (Bloemraad, 2000; Bloemraad et al., 2008). Granting citizenship to immigrants and hence legally integrating them into society means giving them full rights, formally making them equal partners (Castles et al., 2002). In most European countries, rights connected with citizenship are, e.g., the right to vote in all elections, participate in certain areas of the labor market, and the right to receive welfare support. In the 1990s, most European citizenship laws had three commonalities which made them relatively liberal: the adaption of *ius soli* (citizenship based on place of birth), reduction of naturalization requirements, and toleration of dual citizenship (Joppke, 2008). Bauböck et al. (2006) compared the policies of 15 European countries and found that there has been a paradigm shift from naturalization as one of the first stages of integration to naturalization as "the crowning of a completed integration process" (Bauböck et al., 2006: 24). Countries with large immigrant numbers have made it particularly hard for foreign nationals to obtain citizenship, but it is, however, far from being impossible (Joppke, 2008; Ersanilli & Koopmans, 2010). All in all, developments in citizenship laws all over Europe have shown no clear trend, or any trend toward more complexity (Bauböck et al., 2006).

Germany is now the home of many labor migrants (so-called guest workers) and their families who immigrated in the 1950s and later (Bendel, 2014). Furthermore, there are numerous ethnic repatriates from countries of the former Soviet Union who came back to Germany and immigrants from Central and Eastern Europe who came to Germany due to the EU's implementation of freedom of movement. In 2017, about 19 million people, roughly 24% of the resident population, had an immigration background, meaning that either they immigrated themselves, or one or both parents immigrated. Almost half of them hold German citizenship (Destatis, 2018a). German naturalization law was traditionally based on *ius sanguinis*. Except for a few exceptions, immigrants could only apply for German citizenship under certain strict requirements. In the year 2000 the Act on the Reform of Nationality Law introduced the acquisition of German nationality by *ius soli*, reduced the required years of residence from thirteen to eight, and established requirements such as sufficient knowledge of the German language among others, that have to be met in order to apply for German citizenship (Hailbronner, 2006, 2012).

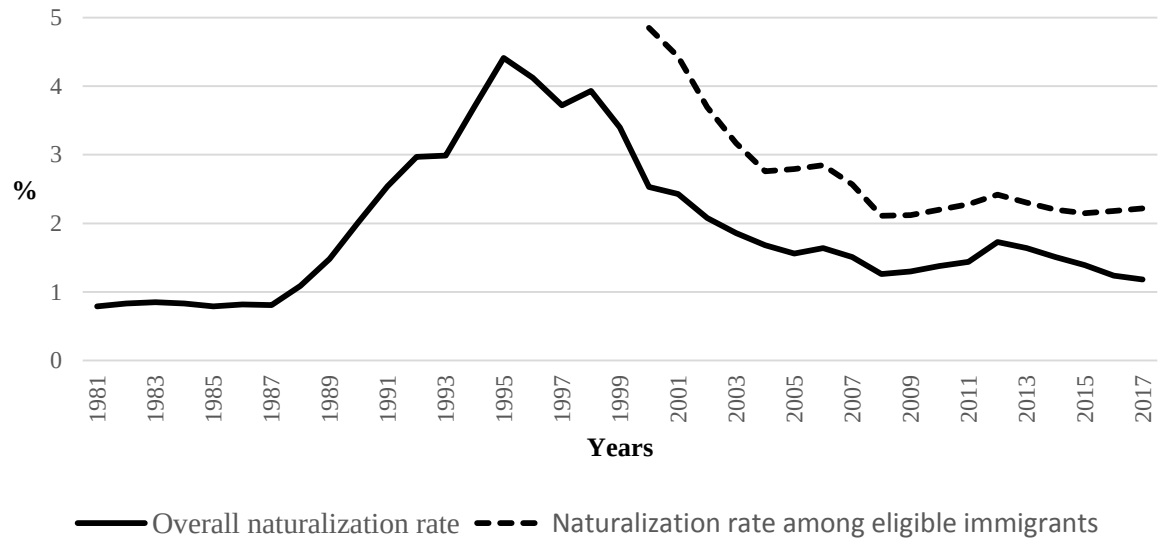

Figure 3.1: Naturalization rates in percent. Information on the rate of eligible candidates is known since 2000. Source: (Destatis, 2018b).

Since the naturalization law became more lenient in 2000 and fewer requirements were imposed for potential new citizens, one would assume that more immigrants would have naturalized and hence the naturalization rate would have increased. However, rather the opposite was the case (*Figure 3.1*). The overall peak occurred in the 1990s; around four percent of all immigrants became German citizens. Over the years naturalization rates decreased steadily, so that in 2015 only a little over one percent of immigrants naturalized.

3.3 State of current research on naturalization

Many naturalization researchers position themselves in the range between the incentive and the reward function of naturalization: they either investigate if certain other dimensions of integration determine naturalization or the other way around. Unfortunately, researchers rarely portray long-term integration trajectories. They find that among immigrants in Germany, France and the Netherlands identification with the host country and frequency and proficiency of the host country's language are linked with the constellation of naturalization status and ethnic group origin (Ersanilli & Koopmans, 2010). However, naturalization does not seem to have an effect on cultural or employment integration for immigrants in the Netherlands (Bevelander & Veenman, 2006). When it comes to long-term political integration of immigrants in Switzerland, it can be seen that naturalization improved political participation, political knowledge, and political efficacy (Hainmueller et al., 2017). Furthermore, naturalization leads to stronger labor market positions among immigrants in the U.S.A., Canada, and France which also lead to higher earnings (Bratsberg et al., 2002; DeVoretz & Pivnenko, 2005; Fougère & Safi, 2008). Several studies have found that those with close German friends show higher naturalization rates or are more willing to naturalize when not already naturalized (Diehl & Blohm, 2003, 2008; Zimmermann et al., 2009). Schaeffer and Bukenya (2014) conducted a study on immigrants in Germany assuming that naturalization equates to full integration because they presume that citizenship change is only performed if

an immigrant already feels integrated into the host society. So, in scientific research which focuses on one-directional influence of one factor on another, naturalization is seen as the final stage of the integration process. Immigrants are expected to be integrated in social, political, and economic spheres before they become native citizens. Even though the mentioned studies make use of methodological tools which may allow for posing statements about causes and effects, we are still in the dark when it comes to understanding what integration trajectories look like since previous research only presents a portion of the picture.

A recent study by Hainmueller, Hangartner, and Pietrantuono (2017) in Switzerland contributes to the understanding naturalization as a phenomenon amongst other areas of immigrant integration. It poses the question whether naturalization is a catalyst or the crown of the integration process and approaches this question by first investigating the long-term impact of naturalization on different measures of social integration. In a second step, the authors divide their sample by immigrant group. Finally, they investigate the effects of the timing of naturalization after immigration. They find that naturalization improves social integration and that naturalization is especially strong among marginalized immigrant groups like those originating from Turkey and former Yugoslavia. Furthermore, they find that earlier naturalization is accompanied by more positive effects. The previously cited study starts off by addressing the question whether naturalization is the incentive or reward of integration, but in the analysis the authors only test the impact of naturalization on social integration. By finding a positive effect of naturalization they conclude that naturalization must be a catalyst. To confirm this claim it is, however, necessary to look at the development of integration leading up to naturalization and following naturalization in order to display trajectories. Not to mention that answering this research question only by looking at social integration is insufficient. Other pieces of literature at least acknowledge the complex nature of the relationship between access to citizenship and integration and admit that “naturalization is

both a final step in a process and a tool to further improve integration in several areas of life" (Huddleston et al., 2014: 6).

Building on previous literature, this contribution asks where naturalization is located within the integration process. Knowledge of the receiving country's language, inter-ethnic contact, and labor market participation are already present to a certain degree before naturalization because most immigrants can only naturalize once certain requirements have been met. However, this does not necessarily mean that they are fully integrated. To analyze processes across the life course it is necessary to apply a method that is sensitive to life conditions which comprise shorter or longer periods. This can be done through sequence analysis (Abbott, 1992; Blanchard et al., 2014; for an overview see Brzinsky-Fay & Kohler, 2010; King, 2013). For each individual, a sequence resembling empirically observed traces of temporarily ordered events is established. These events occur in any order and timing depending on one's specific characteristics. Sequence analysis compares sequences to identify similarities and differences. This paper uses sequence analysis as an explorative tool to compare individual integration trajectories. On the one hand, it shows that most immigrants can be allocated into specific groups based on similar trajectories. On the other hand, there is also a considerable share of immigrants whose interplay of integration indicators over the life course are too distinct to be able to group them in any empirically derived group.

3.4 Data and Method

3.4.1 Sample and variables

This study used data from the German Socio-Economic Panel (SOEP). The SOEP is a longitudinal study which has been in operation since 1984 containing about 20,000 respondents. Oversampling was used to achieve a sufficient representation of immigrant groups in the panel. With its focus on socio-economic living conditions, the SOEP offers comprehensive information regarding immigrant integration from a long-term perspective.

This study used SOEP data from the 1984 to 2013 waves. All immigrants who have entered the panel at some point in time were included in the analysis. Participation in the study was on a voluntary basis. The default mode of data collection was face-to-face in paper-and-pencil interviews (PAPI) or computer-assisted personal interviews (CAPI) (Goebel et al., 2019).

Individuals were included in this study if they did not report German citizenship at their first interview. This inclusion criterion was set because the aim of the analysis was to investigate the dynamics of integration outcomes before and after naturalization. Consequently, most (all) German repatriates were excluded from the analysis because they were automatically granted German citizenship upon arrival (Haberland, 1991). This approach resulted in a sample size of 7,164 respondents.

This study used four indicators for integration outcomes: naturalization, language proficiency, inter-ethnic friendship, and labor market participation. Naturalization was defined as acquisition of German citizenship. This included cases where German citizenship was acquired while discarding their former citizenship and where German citizenship was acquired in addition to their former citizenship (dual citizenship). The SOEP contains information about citizenship for each year since panel entry. Therefore, it is possible to create a variable indicating whether an individual has German citizenship or not, and whether this person has naturalized in the observation period. As a result, the dataset contains information about citizenship status from year of immigration until panel exit.

Language proficiency was measured for spoken German with five response options, ranging from 1 (not at all) to 5 (very good). This item was part of the yearly questionnaires until 1987, then every other year from 1988 to 2005, and then returned to yearly until 2013, with the exception of 2012. Since there were no questions for obtaining retrospective information for years before panel start, data on language proficiency are only available since panel entry. For the analysis of inter-ethnic friendships, SOEP respondents provided information about their three closest friends starting in 1996 in five-year intervals by reporting

whether each friend is German or not. Labor market integration was assessed using a binary variable indicating whether an individual was employed or not.

Since the year of immigration to Germany is known, years from immigration to panel entry were added because the research question focuses on the development of integration starting with immigration. The earliest time point of immigration was 1949 and the last wave was 2013. To have yearly data, information which was not collected in a survey year was obtained from the closest valid value. Most respondents immigrated several years before panel entry and thus there is a lack of integration information on integration outcomes between year of immigration and the first interview. Therefore, we assigned the label "before first observation" to the according missing information.

3.4.2 Method

Sequence analysis can be used to determine the duration, the order, or merely occurrence of states or events. In this study sequence analysis was used to explore how integration outcomes develop over time. First, each integration outcome indicator was analyzed separately in so-called single channels, then they were combined and compared. In sequence analysis, combining several indicators (channels) in this manner is called multichannel analysis (Gauthier et al., 2010). With multichannel sequence analysis it is possible to disentangle different integration patterns by creating clusters with the help of optimal matching techniques (MacIndoe & Abbott, 2004). Optimal matching compares sequences and creates a distance matrix which indicates how (dis)similar sequences are (Studer & Ritschard, 2014). With the resulting distance matrix, it is possible to create clusters of sequences with similar characteristics. These clusters – here groups of immigrants – should have a rather small within variation and be as distinct from each other as possible. Setting the number of clusters is a subjective decision which should be based on objective stopping rules (Pollock, 2007). The number of clusters was determined using Duda and Hart's Je(2)/Je(1) stopping-rule index,

where Je(1) is the sum of squared errors within the group that is to be divided and Je(2) is the sum of squared errors in the two resulting subgroups. Additionally, the corresponding pseudo-T-squared and Calinski and Harabasz' pseudo F stopping-rules (Calinski & Harabasz, 1974; Duda & Hart, 1973), in which a distinct jump in values indicates the cluster cut-off, were applied.

In most studies using sequence analysis, the time period for which sequences are displayed is based on the observation period or age of the respondents (Fasang & Raab, 2014), but it is also possible to concentrate on processes which start with a significant event in an individual's life course such as marriage, first permanent job, or childbirth (Colombi & Paye, 2014). Setting an external event as the starting point of the sequences is called exogenous synchronization. Here, immigration indicated the start of the integration process in the new country and was hence designated as the starting point of the sequences for the current study.

This study observed the integration outcomes, mainly naturalization, of immigrants starting at immigration, identified similar groups of immigrants based on these outcomes, clustered and compared them with those who did not naturalize at three different time points: five years before the average time point of naturalization in each cluster, at naturalization, and five years after naturalization. Doing so shows how integration develops before naturalization and afterwards, as well as how integrated naturalizers compare to non-naturalizers.

3.5 Results

The following two sub-sections present the obtained results. Since the research question focused on naturalization and its location within the integration process, findings regarding the development of naturalization are displayed in more detail. After that, results are combined with the data on inter-ethnic friendships, language proficiency, and labor market

participation that were used to develop clusters of similar immigration patterns in all integration dimensions combined.

3.5.1 Single channel sequence analyses

The sample comprised of 7,164 immigrants of whom the majority (6,712) remain foreign citizens and 452 acquired German citizenship. There is an approximately equal representation of men and women (49.4%/50.6%) in the sample, with an average of 7.28 yearly observations per respondent, ranging from 1 to 30. The average age at the first interview was 24 years. The main countries of origin were Turkey (1,906 respondents), Italy (875 respondents), former Yugoslavia (708 respondents), Greece (615 respondents), Spain (478 respondents), Poland (323 respondents), Romania (231 respondents), and Russia (205 respondents). The number of years spent in Germany ranged from just immigrated to a maximum of 62 years, whereas the average duration of stay was on average 20 years at the time of the last interview. On average, immigrants naturalized after having been in Germany for 19 years.

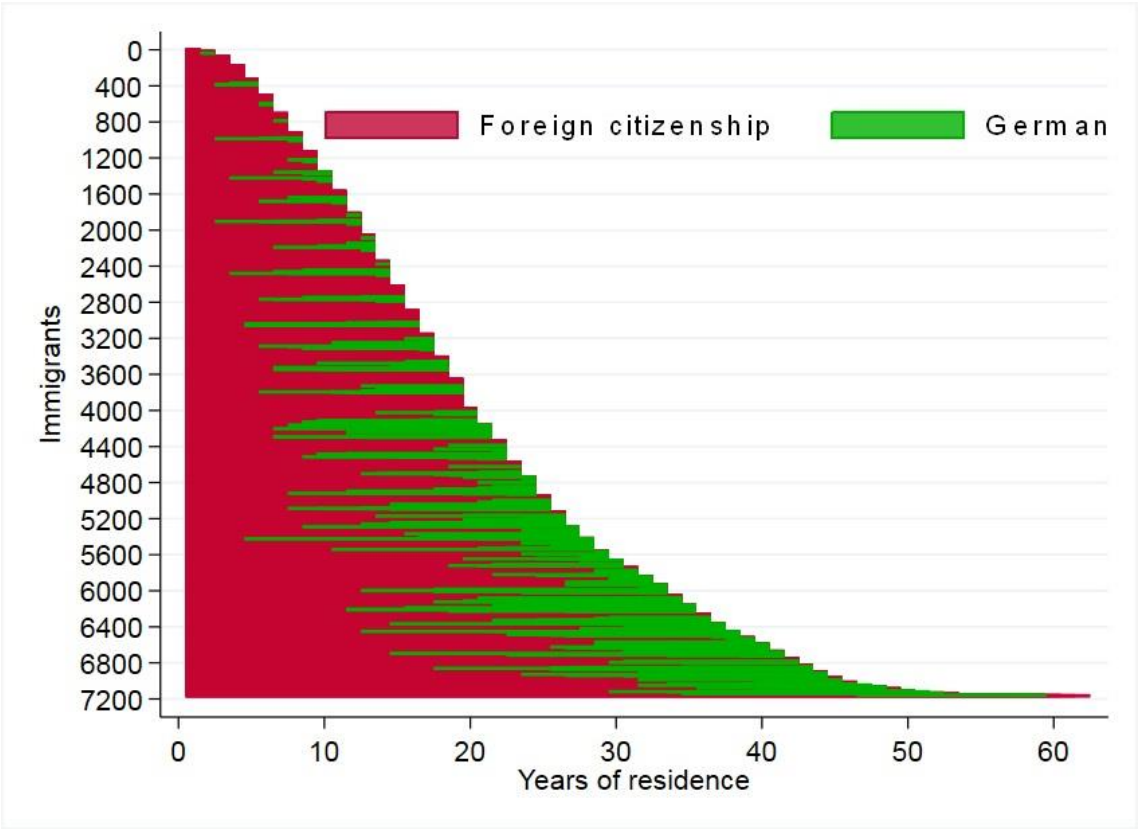

Figure 3.2: Sequence index plot of citizenship (N=7,164).

The sequence index plot shows whether immigrants kept their foreign citizenship or if they became German citizens, beginning with immigration and ending with the end of their panel study participation (*Figure 3.2*). Since this plot depicts all immigrants in the sample, regardless if they naturalized at any time point, we attain a good overview of all naturalizations or the lack thereof. However, "with many observations, there is a tendency to overplot the lines, which has the effect of overrepresenting elements with higher category values (levels)" (Brzinsky-Fay et al., 2006: 145), meaning that naturalized immigrants seem to be overrepresented in this figure. The plots are ordered by years of residence, so not only can we see if naturalization takes place, but also at which time point it occurred after immigration. There is an even distribution of naturalization among all immigrants. Some immigrants naturalize quite shortly after immigration, whereas others become German citizens after more than 30 years of residence in Germany. What is also visible is the fact that there are immigrants who stay in Germany for more than 60 years but keep their foreign citizenship. Hence, for some immigrants staying in Germany for a long period of time does not necessarily equal an adaptation of citizenship. When keeping in mind that there are fourteen times as many immigrants who keep their foreign citizenship, it becomes increasingly obvious that immigrants are rather reluctant to acquire a German passport. It is therefore of further interest to investigate which characteristics naturalizers hold in comparison to non-naturalizers, especially, if distinct patterns which show whether the observed naturalization patterns align with integration outcomes in other dimensions of integration can be identified.

For the other three dimensions, language proficiency, inter-ethnic friendship and labor market participation, the respective sequence index plots (see supplementary material) show that in particular, language proficiency improves early in the integration process, so that immigrants report very good language skills towards the end of the observation period. Regarding German friends within the close friendship network, the picture is a rather mixed

one. Many respondents report having an all German friendship network, but there are also many who only have non-German friends or mixed networks. Most immigrants report not being unemployed over all waves. Naturally, immigrants who have been in Germany for many decades report the least unemployment since they are probably already retired. The respective graphs can be found in the supplementary material.

3.5.2 Multichannel sequence analysis

Multichannel sequence analysis is a type of analysis which combines the integration trajectories in the different dimensions of integration with the aim of identifying distinct groups of immigrants with similar integration patterns. Hence, the resulting groups or clusters combine immigrants who are similar in their integration processes. The analysis leads to seven distinct clusters. This number of clusters was chosen because of empirical reasons and characteristic attributes: the largest jump in cut-off parameters can be observed from six to seven clusters and the seven clusters also clearly differ from each other with regard to occurrence, timing and development of the considered integration variables. Of the 7,164 immigrants included in the original sample, 4,766 immigrants could be clustered into one of these seven groups. The remaining 2,398 immigrants were too distinct in their integration trajectories and hence could not be matched reasonably.

The results show that in all seven groups naturalization numbers are quite low (*Table 3.1*). However, they vary considerably between 1.79 % (Cluster 4) and 16.54 % (Cluster 6). Also, the distribution of male and female respondents varies between clusters, with Cluster 4 showing the biggest difference and Clusters 3 and 5 being comprised of an equal share of men and women. A remarkable difference can be observed with regard to the timing of naturalization. Immigrants in Clusters 6 and 7 naturalized comparably early, after eleven years of residence in Germany, whereas the ones in Clusters 1 and 2 became German citizens only after having lived in Germany for an average of 34 and 31 years, respectively. Immigrants in Cluster 7 represent the youngest group of naturalizers with a mean age of 36 years, the ones in

Cluster 1 naturalized at the age of 53 on average. Here it must be mentioned, however, that the timing of and age at naturalization may vary within the groups.

Table 3.1: Characteristics of naturalizing and non-naturalizing immigrants.

	Naturalizers (%)	Year of naturalization (mean)	Age at naturalization (mean)	Female (%)	Female (%) among non-naturalizers
Cluster 1 (N=375)	6.13	33.70	52.78	39.13	39.49
Cluster 2 (N=573)	3.32	31.16	48.47	36.84	36.28
Cluster 3 (N=465)	4.30	28.05	51.15	50.00	44.94
Cluster 4 (N=223)	1.79	28.50	52.50	75.00	71.69
Cluster 5 (N=1,176)	8.33	25.88	37.52	50.00	40.26
Cluster 6 (N=1,554)	16.54	13.54	38.74	51.36	55.67
Cluster 7 (N=400)	7.25	16.00	35.59	48.28	59.03

In order to investigate whether naturalization boosts further development in other dimensions of integration, the respective levels were observed five years prior to naturalization, at naturalization, and five years afterwards. The results show a diverse picture. Integration outcomes can differ to a great extent between clusters, but also between the observed dimensions. Language proficiency is on a rather high level across all clusters, Cluster 7 showing the highest score after naturalization (

Figure 3.3). This cluster also showed the highest increase of language proficiency. There was a visible increase of language skills for some other clusters as well, but there were also clusters which reported a stagnation or decrease of scores on a high (Cluster 5) or low (Cluster 4) level.

When it comes to economic activity, unemployment among immigrants in Cluster 4 was non-existent (*Figure 3.4*). Immigrants in Cluster 2 showed the highest unemployment rate which happens to be observable at naturalization. Only Cluster 3 reported a decrease in unemployment leading up to naturalization. However, for most clusters, unemployment decreased after naturalization, especially in Clusters 2 and 7.

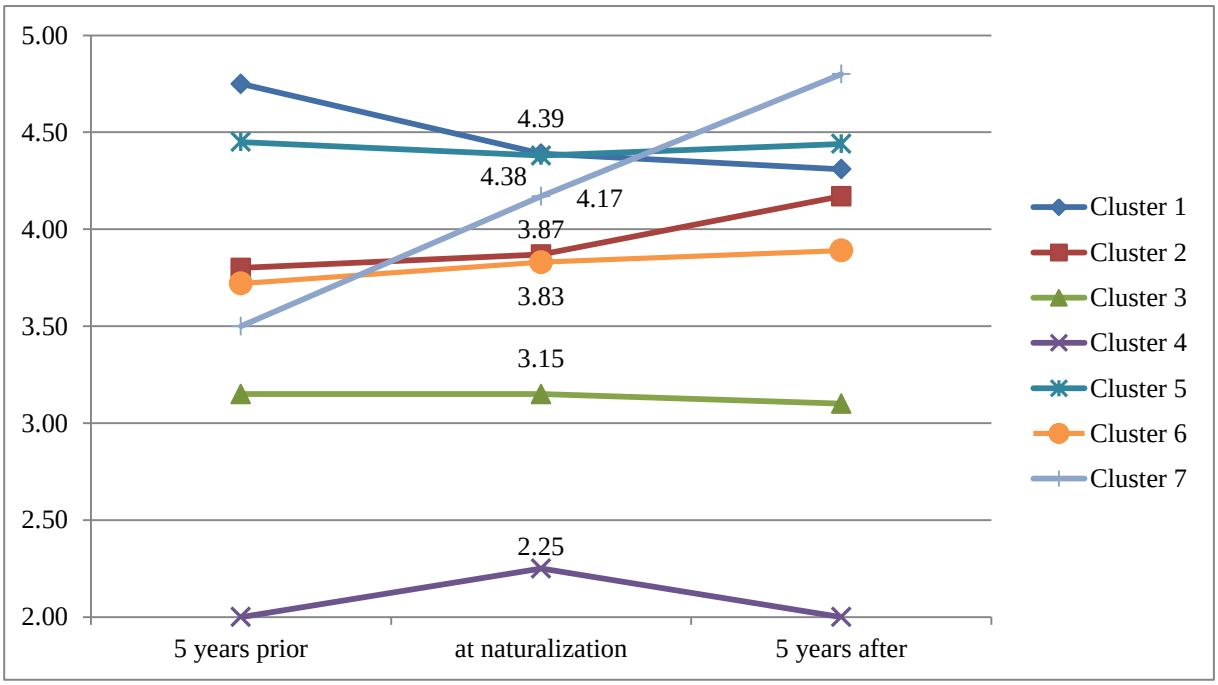

Figure 3.3: Average language proficiency at three different time points in the integration process (prior: N=246; at naturalization: N=414; after: N=229; 1=not at all, 5=very good).[4]

[4] Different numbers in responses are due to immigrants not yet being in the panel 5 years prior to naturalization or/and 5 years afterwards. Displaying exclusively those with complete information leads to a lack of numbers in several clusters, but no differences in the remaining clusters.

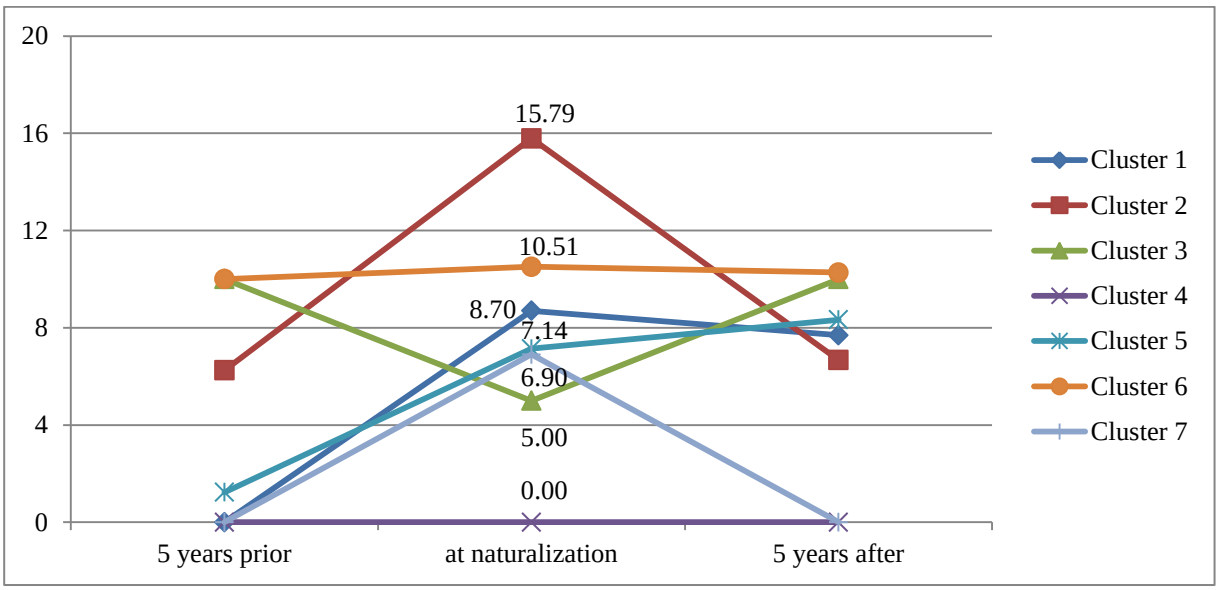

Figure 3.4: Percentage of unemployed respondents at different time points in the integration process (prior: N=282; at naturalization: N=450; after: N=238).

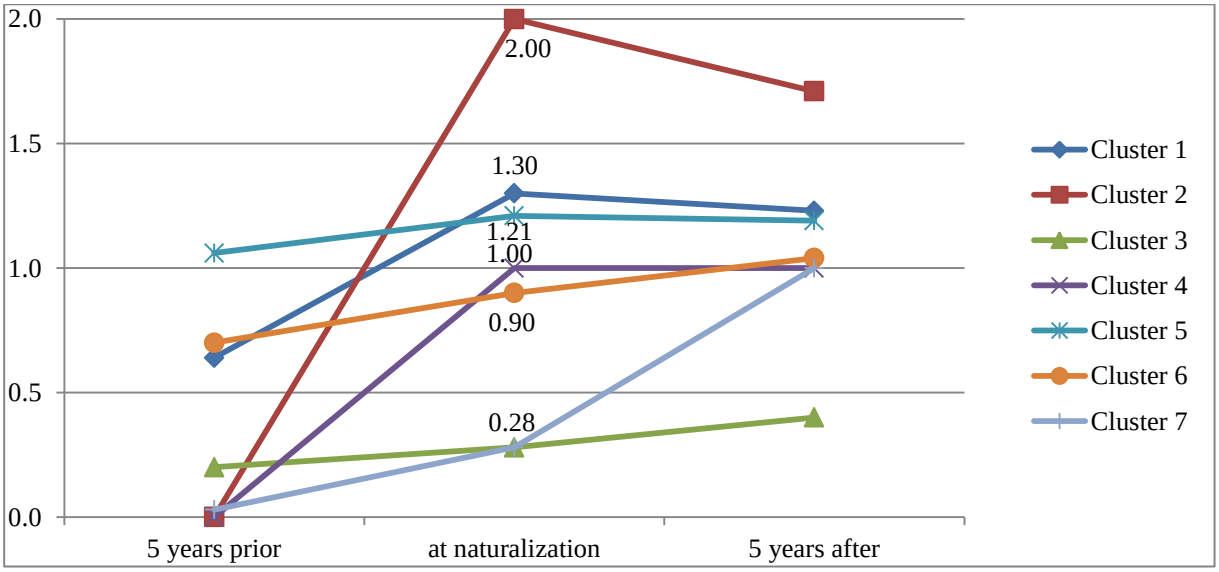

Figure 3.5: Average number of German friends at different time point in the integration process (prior: N=250; at naturalization: N=409; after: N=227).

The average number of German friends was quite low across all immigrants (*Figure 3.5*). However, there are large, visible differences between clusters. At the starting point five years before naturalization, the average number of German friends ranged between zero and just

over one (out of a maximum of three German friends). In the year when naturalization happens, all clusters reported an increase, Cluster 2 representing immigrants whose close friendship networks consisted of two out of a possible three friends being German. For most clusters a further increase in German friends following naturalization was observed, with only Clusters 1 and 5 reporting descending averages. Due to the low number of naturalizing immigrants and panel mortality, some outcomes suffer from low observation numbers which might distort them to a certain extent. Nevertheless, these findings still show the direction of integration developments.

Table 3.3 shows averages of those who did not naturalize. These numbers represent the levels at the average time point of naturalization among those who actually naturalized within their respective cluster. This offers the opportunity to compare levels of integration between naturalizing and non-naturalizing immigrants. The resulting pictures show that for most clusters and dimensions, integration outcomes were higher among those who acquired German citizenship than among those who kept their foreign passport.

Overall, it was possible to characterize some of the clusters based on their integration scores, demographic factors, and parameters concerning non-naturalizers. One distinctive cluster is Cluster 7 where an overall increase in integration scores was visible, even though German friend scores were relatively low.

Table 3.3: Parameters of integration dimensions by cluster.

	Language proficiency mean (SE; 95% CI)		Unemployed %		German friends mean (SE; 95% CI)	
	Naturalizers	Non-Naturalizers	Naturalizers	Non-Naturalizers	Naturalizers	Non-Naturalizers
Cluster 1 (N=375)	4.39 (.1833; 4.03, 4.75)	4.03 (.0936; 3.85, 4.22)	8.70	11.88	1.30 (.2304; .85, 1.76)	.46 (.0597; .34, .58)
Cluster 2 (N=573)	3.87 (.2153; 3.44, 4.29)	3.39 (.0516; 3.29, 3.49)	15.79	11.62	2.00 (.3162; 1.38, 2.62)	.79 (.1567; .49, 1.10)
Cluster 3 (N=465)	3.15 (.1094; 2.93, 3.37)	3.04 (.0441; 2.96, 3.13)	5.00	14.17	.28 (.1354; .01, .54)	.62 (.0705; .48, .76)
Cluster 4 (N=223)	2.25 (.4787; 1.31, 3.19)	2.2 (.0720; 2.06, 2.34)	0.00	11.25	1.00 (.7071; -.39, 2.39)	.45 (.1111; .23, .67)
Cluster 5 (N=1,176)	4.38 (.0710; 4.24, 4.52)	4.11 (.0373; 4.04, 4,18)	7.14	10.38	1.21 (.1393; .94, 1.48)	.85 (.0711; .71, .99)
Cluster 6 (N=1,554)	3.83 (.0636; 3.70, 3.95)	3.61 (.0500; 3.51, 3.71)	10.51	8.35	.90 (.0673; .76, 1.03)	.71 (.0568; .60, .82)
Cluster 7 (N=400)	4.17 (.1410; 3.90, 4.45)	3.78 (.1657; 3.46, 4.11)	6.90	17.39	.28 (.1098; .06, .49)	.06 (.0224; .01, .10)

Additionally, immigrants in Cluster 7 had a low average age at naturalization which coincides with a relatively early naturalization after immigration. Hence, this cluster is made up of young naturalizers who integrated well. Immigrants in Cluster 6 had the highest naturalization rate and naturalized rather early in the integration process at a relatively young age. There are two clusters made up of immigrants whose characteristics are somewhat contrary to those of clusters 6 and 7. First, there is Cluster 1. Immigrants in this cluster naturalized rather late and therefore at an older age. They reported mediocre integration scores for labor market participation and inter-ethnic friendships, their language skills, however, were very high. Second, immigrants in Cluster 4 reported very different characteristics than those in Cluster 7. Cluster 4 is mainly made up of females and non-naturalizers with a rather high unemployment rate and low language skills among those who naturalized.

3.6 Discussion and conclusion

Just as characteristics like origin, migration history, family constellation and many more are highly diverse among immigrants, so are the pathways they pursue on their way to integration into the receiving country. How well they are integrated in the various dimensions of integration, how these levels develop over time and what factors influence them is just as unique. Legal integration in the form of a change of citizenship has mainly be viewed as the crowning of the overall integration process by both policy makers (and reflected in citizenship policies) and scholars in the field of migration research (e.g., Schaeffer and Bukenya, 2014). Integration was seen as some kind of one-way street leading up to naturalization, after language skills, social contact among immigrants and members of the autochthonous group and labor market participation are already highly developed. However, this perspective must be tested since it ignores the possibility of citizenship acting as a catalyst for integration in other areas of everyday life.

This study has three major findings. First, when compared to immigrants who do not change citizenships, naturalizers show better integration outcomes at a comparable time point after immigration. Second, integration trajectories can differ to a large extent between immigrants. Whereas some show improvements in integration outcomes in several dimensions, the trajectories of others are inconsistent. Third, based on similar changes in integration outcomes, immigrants can be put into groups with comparable integration profiles. One medium-sized (N=400) group in particular sticks out regarding improvement of integration outcomes and early naturalization. This can indicate that immigrants of this group profit to a very large extent from their naturalization at a younger age relatively early after immigration. Considering results from all clusters together, this study indicates that naturalization is a catalyst rather than the crown of integration. Hence, this study adds to the existing literature (Hainmueller et al., 2017) by showing how different integration outcomes change prior to and after naturalization. When looking at individual outcomes, notable differences in their dynamics become obvious depending on the nature of the chosen indicator. For example, while one would not expect a negative development in language proficiency, labor market participation depends on various factors which are not under the control of the individual. In fact, some clusters show a decline in labor market participation after naturalization.

The use of sequence analysis could show that immigrants have very unique pathways to integration. Sequence analysis could be used to display immigrant integration. Additionally, matching and clustering techniques were used to lead to meaningful groups of immigrants with similar trajectories. This work could show that viewing naturalization as the crown of the integration process is not a concrete fact. The finding that there are several distinguishable groups of immigrants with similar integration patterns shows that naturalization does not have the same effect on every immigrant. On the contrary, naturalization can function as an incentive for further integration in other areas of every-day

life. However, even though this method is helpful for investigating certain research questions regarding immigrant integration, it is descriptive in its nature and findings are not to be interpreted as causal.

This study contributes to existing research by offering an explorative insight into the dynamics of integration outcomes in different dimensions and the resulting trajectories. It was able to show that there are distinct processes, but also patterns which are similar among immigrants with certain characteristics. The extraordinary length of the observation period of thirty years or more, allowed for a close look at the variations in levels of integration in different areas of life. However, it was not possible to consider immigrants who had naturalized prior to entering the panel study because retrospective information on citizenship acquisition and other integration markers was not available. This unfortunately excludes certain immigrants such as the ones who came to Germany as labor migrants in the 1950s and 1960s, as well as their family members, and those who naturalized rather shortly after the time point of immigration. Hence, there could be an over-representation of non-naturalizing immigrants. This calls for further research that monitors a large number of immigrants starting from the event of immigration. This would make it possible to fully display their integration history and might also link it to other characteristics like timing of immigration and origin.

The cluster analysis used here revealed various patterns of integration trajectories. However, a large proportion of respondents in the data set used could not be matched. Of course, the reasons for this result were examined in detail on the statistical and theoretical side, but a cause could unfortunately not be found. Therefore, it would be useful to validate the results with the help of further data.Even though the underlying variables measuring integration are highly suitable for this kind of research, there could certainly be further factors that adequately describe immigrants and their integration trajectories and can expand on the criteria used to group immigrants into distinct clusters of integration patterns. However, the explorative character of this paper and the variables it uses are a first step into understanding

the multiple manifestations of integration beyond the mindset of integration as a one-way street. Furthermore, we have learned that living in Germany seems to be manageable for many years even without a German passport for many immigrants. Since quite a low number of immigrants naturalize, it is of high interest to further investigate the group of non-naturalizers. Even though they show overall lower levels of integration, this only gives us a glimpse of their integration history. That is why it is even more important for future research to examine possible patterns of integration trajectories of immigrants who keep their foreign passport.

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3.8 Supplementary material

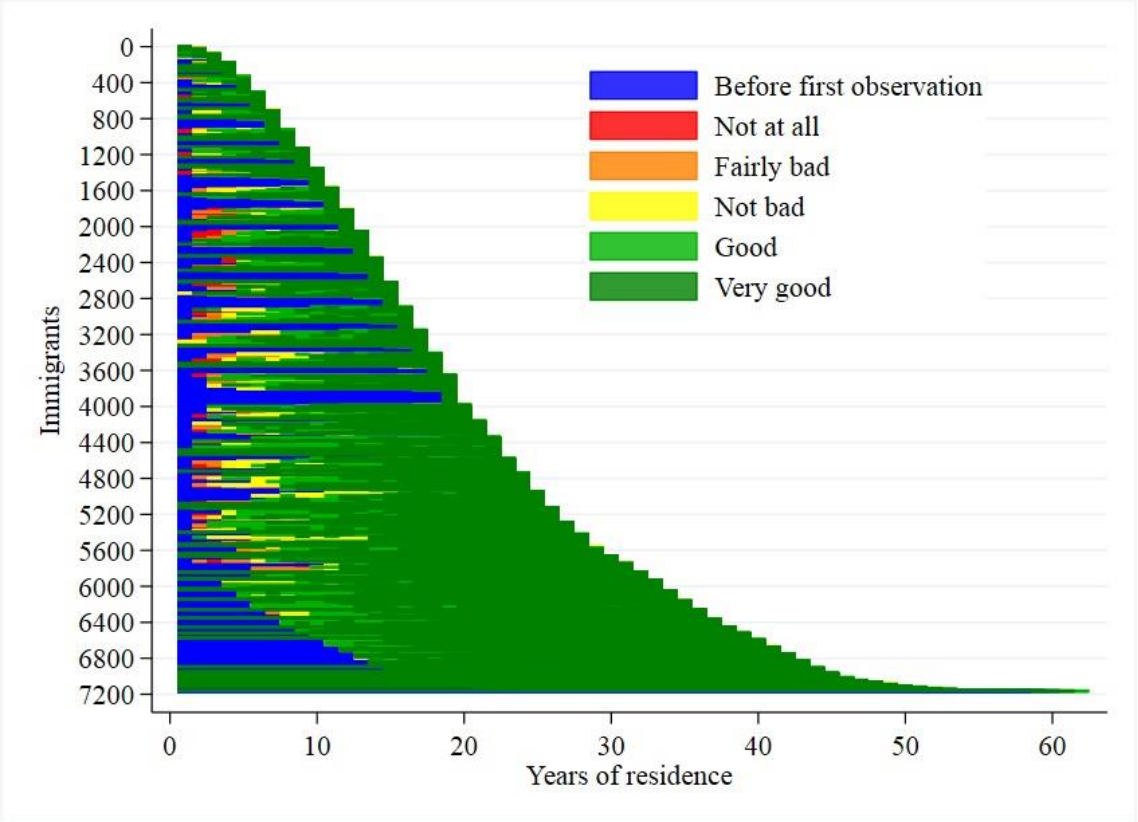

*Figure 3.6.:*Sequence index plot of language proficiency (N=7,164).

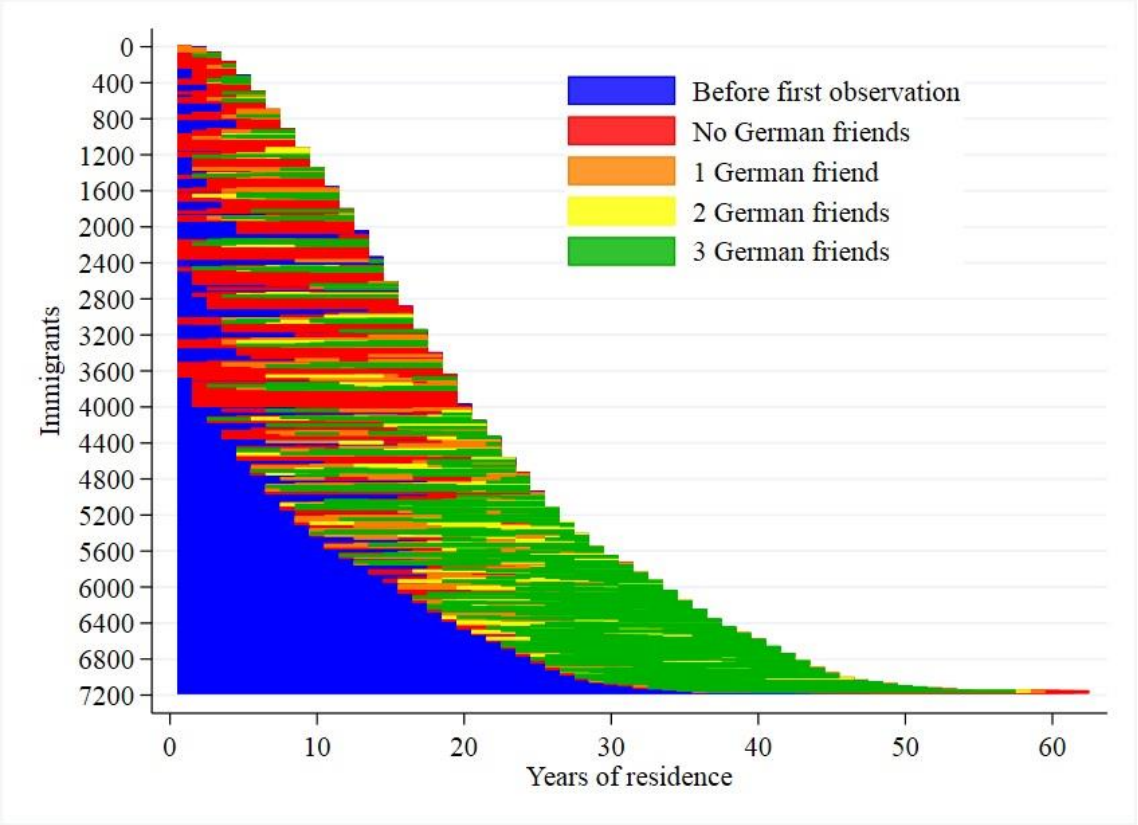

Figure 3.7: Sequence index plot of German friends (N=7,164).

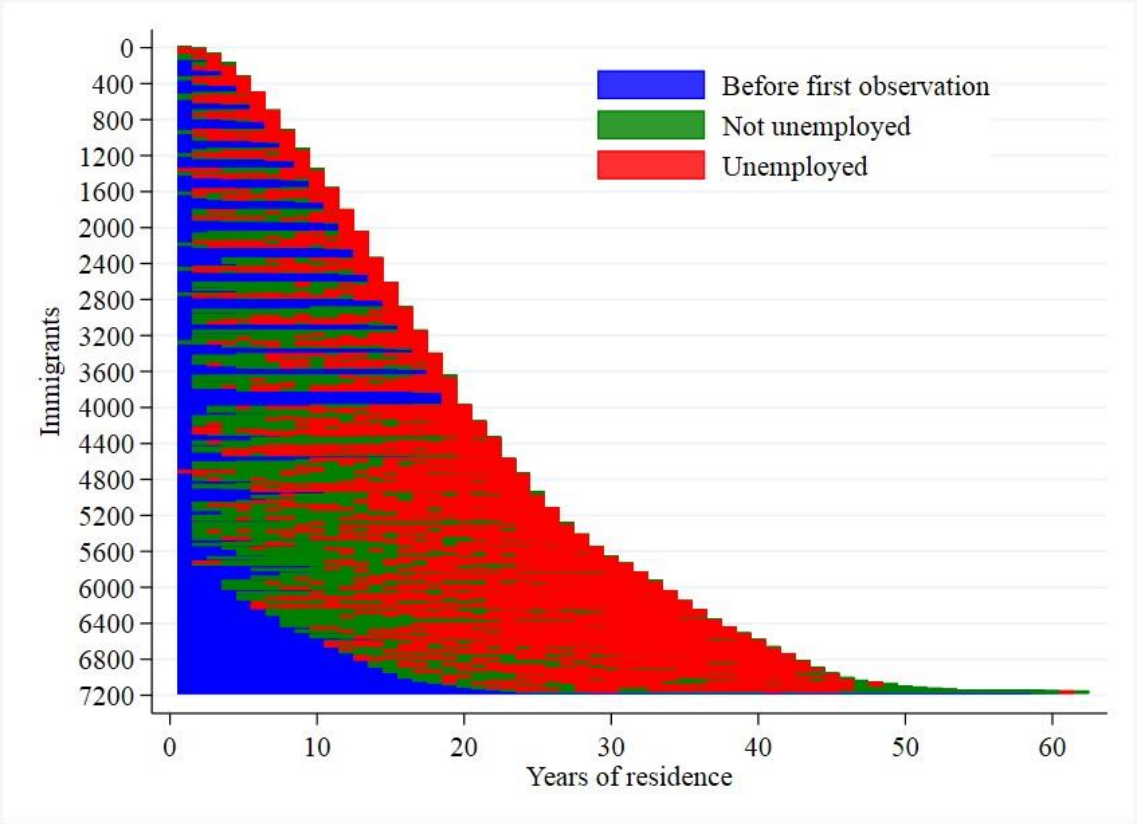

Figure 3.8: Sequence index plot of unemployment (N=7,164).

Chapter 4: Access to health care among immigrants and migration related policies in European countries. A multilevel analysis

Co-authored by Tilman Brand

Abstract

Immigrants have very distinct health patterns which are caused by origin specific risks, the burden of migration, barriers and living conditions. They make less use of health services than the general population which leads to a reinforcement of health disparities. This paper aims to investigate whether access to health care is shaped differently for immigrants than for the general population. Furthermore, we take into account if policies targeting immigrant health integration actually promote health care access and hence contribute to the integration of immigrants. A lack of health care access and hence unmet need is present when individuals need medical treatment, but forgo respective treatment. Our results which are based on data from the EU-SILC survey and MIPEX health scores suggest that immigrants are more likely to report unmet medical need than the general population, especially when they were born in non-EU countries. Health integration policies are associated with unmet medical need over all origin groups. Immigrants in highly accommodating countries do not make use of health care services more than those in less accommodating countries.

4.1 Introduction

Even though European welfare states aspire to universal healthcare coverage, differences in access to healthcare across population groups exist (Cylus & Papanicolas, 2015; Fjær, et al., 2017). According to the WHO framework on social determinants of health, access to healthcare is an intermediary factor that links the influence of structural determinants such as policies with health outcomes (World Health Organization, 2010). Unmet healthcare need can be defined as the difference between services judged subjectively necessary to appropriately

deal with a health problem, and the services actually received (Carr & Wolfe, 1976). Unmet healthcare need is among the core indicators for healthcare access and has been assessed in large-scale European surveys (Allin & Masseria, 2009). Unmet medical needs or forgone care is associated with a lower health status (Koolman, 2007; Mielck et al., 2007), increased odds of emergency care use (Zuckerman & Shen, 2004) and more physician visits (Elofsson et al., 1998; Mollborn et al., 2005). This shows that a lack of initial use of health care services can be followed by even higher health care use at a later stage and therefore entail higher health expenditure. This initial use refers to physician visits or treatments due to a specific health problem and does not mean services of preventive care. Therefore, unmet need equals forgone care when medical care is needed and hence it can be assumed that a non-treated health problem may lead to an even worse health condition with the above mention consequences.

Studies from different countries have shown that immigrants make less use of health services than the general population which possibly reinforces health disparities (Butow et al., 2013; Fjær et al., 2017; Howe Hasanali, 2015; Ku & Matani, 2001). Forgone care among immigrants has mainly be explained by individual level factors like education and income (Goldman et al., 2005), insurance status (Howe Hasanali, 2015), knowledge about the health care system (Dzùrová et al., 2014), length of residence and language skills (Dzùrová et al., 2014; Howe Hasanali, 2015), as well as citizenship or residence status (Busetta et al., 2018; Howe Hasanali, 2015).

What has been largely neglected so far is role that migration-related policies play in explaining the difference in access to health care between immigrants and non-immigrants. As structural determinants of health migration related policies have an impact on access to health care as they provide different groups of immigrants (legal immigrants, asylum seekers, undocumented immigrants) with varying entitlements to services, influence the accessibility and socio-cultural responsiveness of services and may or may not facilitate intercultural opening of services (Ingleby et al., 2019).

One of the few studies which analyzed the impact of the type of migrant integration policy on immigrant health compared exclusionist with assimilationist and multicultural policies showing the highest differential in depressive symptoms between migrants and non-migrants in the exclusionist countries (Malmusi et al., 2017). What is missing so far is a comprehensive analysis of both individual characteristics and the impact of migration related policies across countries. This is the gap this contribution shall close.

We strive to investigate to what extent migration related health policies moderate the differences in unmet healthcare needs between immigrants and non-immigrants. To answer this research question we make use of Multilevel Modeling, analysing data from the European Union Statistics of Income and Living Conditions (EU-SILC) from 25 European countries.

4.2 Access to healthcare and immigrant integrationIndividual and contextual determinants of unmet medical need

Health is shaped by a myriad of factors, including numerous social determinants. The World Health Organization's (WHO) conceptual framework for action addresses these social determinants of health. In order to achieve health equity structural factors of social determinants of health need to be taken into account. These factors mainly refer to the socio-economic position and the political context and are the central determinants of unmet medical need we observe in this contribution.

Both, the individual and the collective level, are shaped by mechanisms generated through the labor market, the educational system and political institutions. At the individual level, socio-economic positions including income, education, occupation, gender and race/ethnicity shape specific determinants of health status reflective of people's position within social hierarchies (World Health Organization, 2010). Income impacts health outcomes through mechanisms: "Allowing access to services, which may improve health directly (such as health services, leisure activities) or indirectly (such as education)" (Galobardes et al.,

2006: 10). Findings in Germany confirm this notion by identifying individuals with higher income and education as less threatened by unmet need. Unemployment and migration status increase the odds of unmet need. Furthermore, middle-aged individuals (30-50 years) report more unmet need. These socio-economic determinants are amended with a negative overall health status as a strong factor (Hollederer & Wildner, 2019). A U.S. based study found that educational attainment and income are strong determinants of health care access disparities (Howe Hasanali, 2015).

On the collective level, health is affected by the societal structures through social interactions, norms, institutions, and policies (World Health Organization, 2010). Furthermore, the distributive characteristics of the welfare state influence population health. Within societies material and other resources are unequally distributed and moderated by policies of the welfare state. However, how successful policies are in reducing the negative impacts of an unequal distribution of resources varies between countries. Previous research shows that the interplay between welfare regimes and immigration policy regimes, amended with forms of immigration, shape immigrants' social rights (Sainsbury, 2006). In comprehensive welfare states non-citizens have more rights than in incomplete welfare states. This, however, can be jeopardized by an exclusionist immigration regime which impedes immigrants' access to citizenship and hence to certain rights that come with it. This shows that policy formations shape immigrants' everyday lives to a large extent.

Different approaches exist to classify policy regimes. In recent years, an interdisciplinary team of researchers of the Barcelona Centre for International Affairs and the Migrant Integration Group has established an index to evaluate migration related policies in several areas (MIPEX). Sub-indices comprise information on labor market mobility, education, political participation, access to nationality, family reunion, health, permanent residence, and anti-discrimination. The overall index and its respective area-specific sub-indices provide the opportunity to assess, compare and improve integration policy.

Additionally, the index serves as a tool for research to analyze the association between integration policy and individual or collective phenomena as well as policy changes and its outcomes.

4.2.2 Unmet need among immigrants

Previous research shows that access to health care is shaped differently between immigrants and the general population. Odds of unmet medical need even differ within the immigrant group based on residence status. More specifically, unmet need is 27 percent higher for regular immigrants and 59 percent higher for irregular immigrants compared to nationals in Italy. These disparities in access to health care are especially visible for those suffering from chronic health conditions (Busetta et al., 2018). Knowing that chronic illnesses are increasing in European societies, unmet need might become a seriously growing problem. Furthermore, the previously cited study found that there is a substantial gender gap with women experiencing greater unmet need than men. However, this is only true for the overall population. For irregular immigrants, females with chronic illnesses have lower odds of unmet need than their male counterparts which could be due to effective gender-sensitive policies targeting the immigrant population. Another study investigating health care access in Europe was conducted by Dzùrová et al. (2014) in the Czech Republic. There, access is determined by residence status, making only those non-EU immigrants eligible for public health insurance if they are in employment or have permanent resident status. Notwithstanding these legal regulations, 30 percent of the immigrant population with eligibility for health care services due to permanent residency were out of public health insurance system and therefore had no access to services. From those who were eligible for health care due to their employment statement only 50% were in the health care system. A major barrier identified as a determinant for staying outside the insurance system was language competence. This finding points to the conclusion that immigrants with a lack of language skills might not be

aware of their eligibility for health care insurance and hence sufficient knowledge about the insurance system is needed to increase health care access among immigrants. This finding goes in line with the WHO's conception of worse access among immigrants to health care services because of, e.g., low language skills and less knowledge of the health care system (World Health Organization, 2010).

Studies in non-European countries also show higher unmet need for immigrants (Butow et al., 2013; Howe Hasanali, 2015; Ku & Matani, 2001). These studies focus mainly on Australia and the U.S. For Australia, exposure to unmet need depends on immigrant group. Immigrants of Chinese and Greek origin are reportedly more threatened by unmet need than Anglo-Australians, whereas the calculated odds for immigrants of Arabic origin are elevated, but not significant. This study also identified a lack of understanding of the health system as increasing the chances of experiencing unmet needs. Arabic immigrants tend to have a better understanding of the system which might be one possible explanation for the finding that other immigrant groups have higher odds in comparison with this group (Butow et al., 2013). Howe Hasanali (2015) investigated unmet need in the U.S. and found that foreign born individuals have higher odds of unmet need than U.S. born individuals. This inequity is explained by differences in age, gender, and racial composition between the two observed groups. In the U.S., Hispanic immigrants are particularly affected by unmet need (Ku & Matani, 2001). The bias between immigrants the general population can partly be explained with differences in socio-economic factors (Goldman et al., 2005; Lebrun & Dubay, 2010) because immigrants tend to have fewer economic resources than the general population.

Health is not only important per se, but can influence other life spheres. The literature discusses whether there is reverse causality between health and, for example, income or education (Galobardes et al., 2006). Thus, it could also be assumed that healthy people have a higher income or better education because their health enables them to fully participate in the education system and labour market. Here, the connection between health and integration

becomes visible. The conceptual framework by Ager and Strang (2008) identifies four overall key domains of integration: citizenship and rights; social connection within and between groups; language, culture and local environment; and finally achievement and access to/in employment, education and health. Here, health is central because "good health [is] an important resource for active engagement in a new society" (Ager & Strang, 2008: 172). Therefore, health can be understood as a domain of integration. However, the previously mentioned scholars also identify three main barriers keeping immigrants from engaging in mainstream health provision. These are language difficulties, a lack of information about available services, as well as gender and cultural perceptions of health care delivery (Ager & Strang, 2008). Based on this framework we conclude that access to health care lays the foundation for integration into the mainstream society by, at best, promoting good health and hence is a dimension of integration itself.

In order to investigate social determinants of unmet medical need among immigrants and the general population defined by the WHO we take into account characteristics of the welfare state on the collective level and socio-economic position on the individual level.

4.3 Method

4.3.1 Data

The analyses conducted are based on data collected within the European Union Statistics on Income and Living Conditions (EU-SILC). EU-SILC collects comparable microdata on income, poverty, social exclusion and living conditions on the individual and on the household level in Europe. This allows for monitoring the development of these characteristics over time in the EU. The EU-SILC project started in 2003 among six EU member states plus Norway and has included more and more European countries over the years. Sampling differs between countries and is based on the structure of the country and the population, existing information and is also subject to budgetary constraints. The most used

sampling design, however, is stratified multistage sampling. Most used sources are variants of microcensus data and municipal registers. Since the aim of this study is to examine differences in unmet need and their connection to integration policies between immigrants and the general population we excluded country samples which contain less than a hundred immigrants in order to make valid statements about potential effects. This approach results in the exclusion of three countries. The resulting sample comprises data from 224,274 individuals collected in 2019 in 25 countries[5]. The smallest sub-sample can be found in Czech Republic (n=2,775), the largest in Portugal (n=24,118).

4.3.2 Indicators and variables

Self-reported unmet medical need was measured through the question: "In the past 12 months, have you once or several times absolutely needed […] medical examination or treatment but did not receive it?" Furthermore, if unmet medical need was reported, participants were asked to indicate the main reason for this from a multiple choice list.

In order to identify who can be considered as immigrants the sample contains information on the country/region of birth, differentiating between the respective survey country, an EU country (other than the survey country) or a non-EU country. For the descriptive analysis we used a two-category-differentiation between immigrants and the general population to provide a better overview of the difference between these two origin groups. The regression analysis uses the original three-category-version to detect potential differences between EU and non-EU born immigrants.

The degree of country specific immigrant integration in the area of health is displayed by its respective Migrant Integration Policy Index (MIPEX) health score, which has a theoretical range from 1 to 100 (Solano & Huddleston, 2020). MIPEX can be used as a tool to

[5] Namely Austria, Belgium, Switzerland, Cyprus, Czech Republic, Germany, Denmark, Estonia, Greece, Spain, Finland, France, Croatia, Hungary, Lithuania, Luxembourg, Latvia, Malta, Netherlands, Norway, Portugal, Serbia, Sweden, Slovenia, and Slovakia.

investigate how policies in eight different areas integrate immigrants. The MIPEX group collects information on integration policies in 52 countries, including all EU member states and now covers the period 2014-2019. The MIPEX score is built on a set of indicators relating to specific policy components and results from consultations with leading scholars and institutions. The MIPEX health care score originates from immigrant health policy experts evaluating health policies in 2014 and 2019. On the 1 to 100 scale they were asked to locate the respective health integration policy of the country they are an expert of compared to the highest European and international standards. These standards were defined by the MIPEX group based on a number of equality standards published, e.g., by the Council of Europe or UN International Conventions. Since national integration policies are compared with the highest standards, it is possible to make statements about the quality of these national policies. We use the MIPEX score of 2019 since this matches the year when the main data from the EU-SILC was collected. In order to be able to more comprehensibly interpret the findings especially with regard to the interaction between policy and immigrant status, the MIPEX score was divided into tertiles with cut-offs at 46 and 65. The subdivision into three MIPEX groups has another benefit which refers to the distribution of immigrants and the general population over countries. In some countries there are either no or few EU or non-EU immigrants which would make an analysis with meaningful results per resident country impossible. Hence, allocating these countries into the three MIPEX groups solves this problem and results in enough cases per origin groups and hence leads to an analysis with meaningful results.

Other central variables refer to the socio-economic status (employment status and highest level of education) and general health as well as age and gender. Employment status refers to the self-defined current economic status being split into a two-category variable which indicates those being unemployed. Highest level of education was measured by

ISCED-level. General health was self-reported on a five-point-scale (1=very bad to 5=very good). We used these variables as controls throughout all our models.

4.3.3 The multilevel approach

The analysis comprises three steps. First, a descriptive analysis aims at a better understanding of the data structure and the distribution of the relevant characteristics. Here, we show the distribution of MIPEX health scores by country among respondents who were born in the residence country or another country, respectively. Furthermore, an overview of the distribution of MIPEX groups, unmet medical needs, and other relevant variables over the two origin groups is provided. Second, a regression analysis is conducted to investigate the association between unmet medical need, country/region of birth (receiving country/EU immigrant/non-EU immigrant), and MIPEX.

Being sensitive to the nested structure of the data where respondents are settled in different countries multivariate multilevel regression analysis is applied. We use a hierarchical approach by first looking at country/region of birth as micro level determinants of unmet medical need and then integrating MIPEX information on the macro level. The most detailed model finally includes a cross-level interaction term between country/region of origin and MIPEX in order to find out whether health care access is better for immigrants in countries with more accommodating health policies. For the entire analysis we use StataCorp's version 15.1 computer program (StataCorp, 2017).

4.4 Results

The distribution of unmet need, migration status, health and socio-demographic characteristics is displayed in *Table 4.4*. About ten percent of the respondents are immigrants (10.51%). The distribution of immigrants shows that the low and high MIPEX groups contain twice the share of immigrants (13.24% and 12.60%) than the medium MIPEX group (6.69%). In low MIPEX

countries, respondents more often report unmet medical need (7.65%) whereas very good general health is more often reported in countries with high levels of health integration (19.46%) and overall health is worse in countries with low levels. Immigrants are more affected by unmet medical need than the general population in the two groups with the larger share of immigrants in the subsamples. Where there are comparatively less immigrants the ratio of unmet need reported among immigrants and the general population is almost equal. Regarding other socio-demographic factors, higher educated individuals live in countries with higher levels of immigrant integration. Countries with low levels of immigrant integration show the highest number of unemployment in the sample (7.17%). The distribution of age and gender over MIPEX groups is similar. The mean age is 55.60, and there are slightly more females in the sample (55.05%).

Table 4.4: Distribution of socio-demographic characteristics over MIPEX groups in percent.

	MIPEX groups			Total
	Low	Medium	High	
Immigrant	13.24	6.69	12.60	10.51
Unmet medical need	7.65	6.49	2.45	5.86
General health				
Very good	13.44	13.05	19.46	14.82
Good	34.88	40.09	50.40	40.89
Fair	33.32	33.07	22.25	30.40
Bad	14.88	11.13	6.39	11.24
Very bad	3.48	2.68	1.50	2.66

Education				
Primary	6.07	24.73	10.14	14.43
Lower secondary	21.00	19.34	23.71	21.04
Upper secondary	41.76	23.68	22.89	29.85
Post-secondary	4.88	3.08	1.13	3.22
Short-cycle tertiary	26.29	29.17	42.12	31.46
Unemployed	7.17	4.70	5.71	5.83
Age (mean)	55.73	56.41	54.18	55.60
Female	56.55	54.91	53.18	55.05
N	79,048	87,990	57,236	224,274

Source: EU-SILC 2019; MIPEX 2019.

Figure 4.6 displays the distribution of MIPEX health scores per resident country. The differentiation between birth countries shows the disparities of the prevalence of unmet need. What the linear trend shows is twofold: First, the level of unmet need is higher among immigrants. Second, unmet need decreases with increasing MIPEX score. Hence, at first glance unmet need appears to be higher among countries with lower MIPEX scores. Overall, the broad scatter visualizes that there are manifold combinations of unmet need and MIPEX scores among the observed countries. There are countries, for example Italy, which have low percentages of unmet need and also low MIPEX scores. By the same token, there are countries such as Sweden with high MIPEX scores and higher shares of unmet need compared to countries with similar health scores.

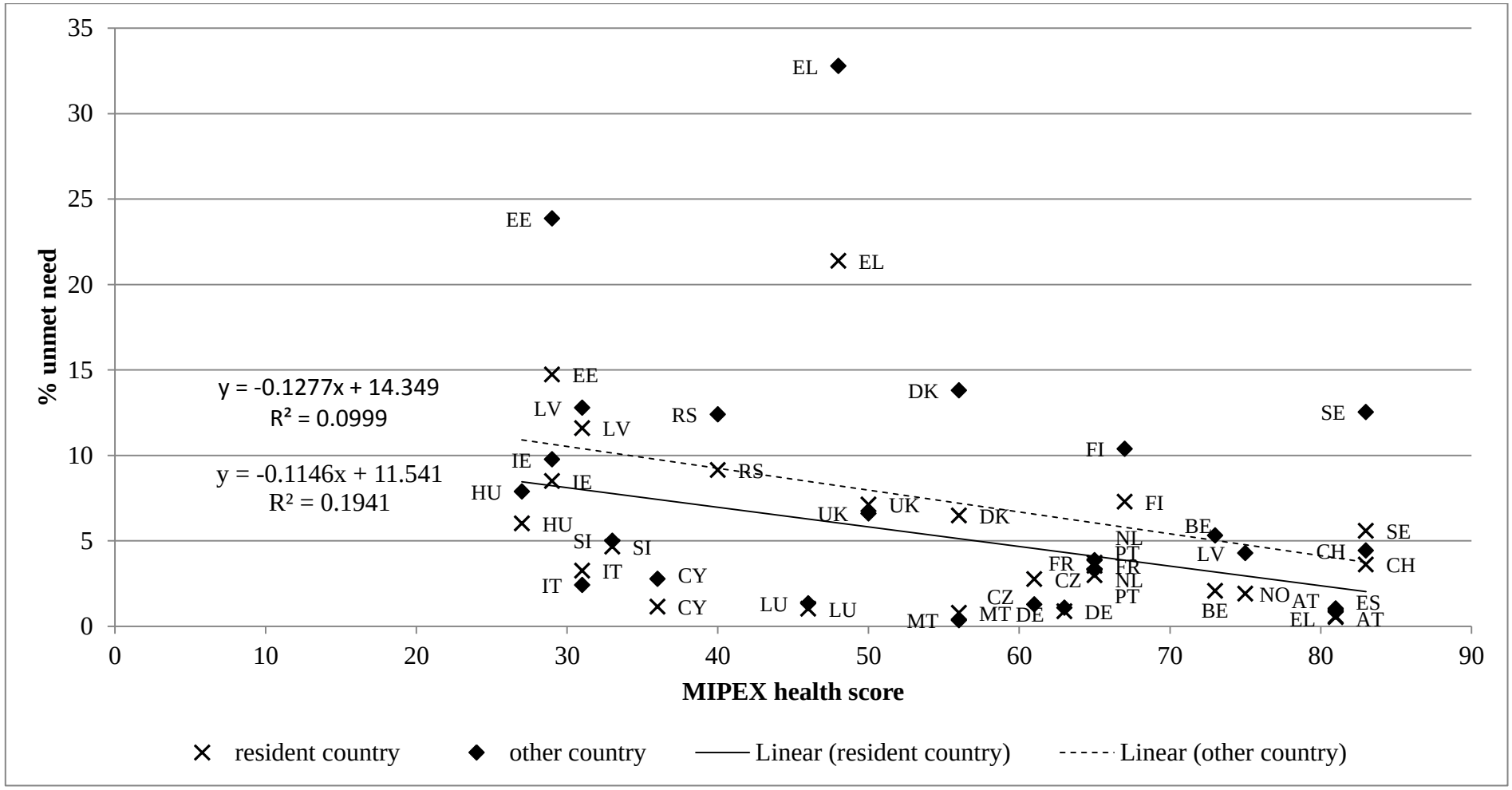

Figure 4.6: Distribution of unmet need over MIPEX by country of birth. Source: EU-SILC 2019; MIPEX 2019. AT=Austria, BE=Belgium, CH=Switzerland, CY=Cyprus, CZ=Czech Republic, DE=Germany, DK=Denmark, EE=Estonia, EL=Greece, ES=Spain, FI=Finland, FR=France, HR=Croatia, HU=Hungary, LT=Lithuania, LU=Luxembourg, LV=Latvia, MT=Malta, NL=Netherlands, NO=Norway, PT=Portugal, RS=Serbia, SE=Sweden, SI=Slovenia, SK=Slovakia.

The multilevel analysis is split into four hierarchically designed models. First, we report the null model in Model 0, which only contains the control variables specified in the previous sub-chapter (*Table 4.2*). The coefficients of these variables for all models are reported in the supplementary material. Second, Model 1 adds information on the country/region of birth, showing that immigrants have higher odds for unmet need than the general population. This finding persists in Model 2 when adding MIPEX groups into the analysis. There is a general trend that both immigrants and the general population report fewer unmet needs in countries with middle and high MIPEX scores than those in countries with low MIPEX scores. Although the point estimates are rather large (OR=.73/.55), these macro-level coefficients are statistically insignificant. Finally, Model 3 contains full information on all variables, including the cross-level interaction between country/region of birth and MIPEX group. Here, the coefficients of country of birth and MIPEX group which are interpreted as main effects in Model 2 now become conditional effects in Model 3 because of their interaction. All interaction coefficients are positive which means that different outcomes in unmet need between origin groups differ with MIPEX group.

Table 4.5: Results of multilevel analysis on unmet medical need.

	Model 0 (null)	**Model 1** (Model 0 + country of birth)	**Model 2** (Model 1 + MIPEX)	**Model 3** (Model 2 + interaction)
Country/region of birth				
Residence		Ref.	Ref.	Ref.
EU		1.26***	1.26***	1.22
		(1.11, 1.43)	(1.11, 1.43)	(.99, 1.51)
Non-EU		1.47***	1.47***	1.33***

		(1.38, 1.57)	(1.38, 1.57)	(1.23, 1.45)
MIPEX group				
Low			Ref.	Ref.
Medium			.73	.72
			(.29, 1.83)	(.29, 1.80)
High			.55	.51
			(.21, 1.46)	(.19, 1.36)
*Country of birth*MIPEX group*				
EU*low/Non-EU*low				Ref.
EU*medium				1.03
				(.76, 1.39)
EU*high				1.13
				(.83, 1.53)
Non-EU*medium				1.13
				(.96, 1.32)
Non-EU*high				1.62***
				(1.34, 1.94)
Constant	.17***	.17***	.23***	.22***
	(.11,.27)	(.11, .26)	(.12, .44)	(.12, .44)

Statistics				
N(Countries)	25	25	25	25
N(Individuals)	224,274	224,274	224,274	224,274
AIC	86066.9	85936.9	85939.5	85922.1
BIC	86201.9	86091.7	86114.9	86138.9
Log likelihood	-43020.461	-42953.443	-42952.736	-42940.063

Notes: Odds ratio (95% CI), * p<0.05, ** p<0.01, *** p<0.001, AIC = Akaike Information Criterion, BIC = Bayesian Information Criterion.
Source: EU-SILC 2019; MIPEX 2019.

In order to better understand the interaction of country/region of origin and the degree of immigrant accommodation in the current country of residence, *Figure 4.7* displays the respective combinations via adjusted predictions. The respective coefficients can be found in *Table 4.7* in the supplementary material. The cross-level interaction indicates that the differences in unmet need between immigrants and the general population increase with rising MIPEX scores. Thus in countries with high MIPEX scores the relative inequality in unmet medical needs between immigrants and the general population is larger than in countries which scored low in MIPEX. This finding is true for all immigrants in this sample. Here again the only significant coefficient accounts for immigrants born outside the EU (see *Table 4.5*). *Figure 4.7* adds the insight that the difference in unmet need between MIPEX groups is smallest for this immigrant group. Hence, for immigrants from non-EU countries it seems that it almost does not matter in which country they reside. However, given that the overall prevalence of unmet need is much lower in countries with high MIPEX scores, (non-EU) immigrants in these countries still have lower odds for unmet needs than immigrants in countries with low MIPEX scores.

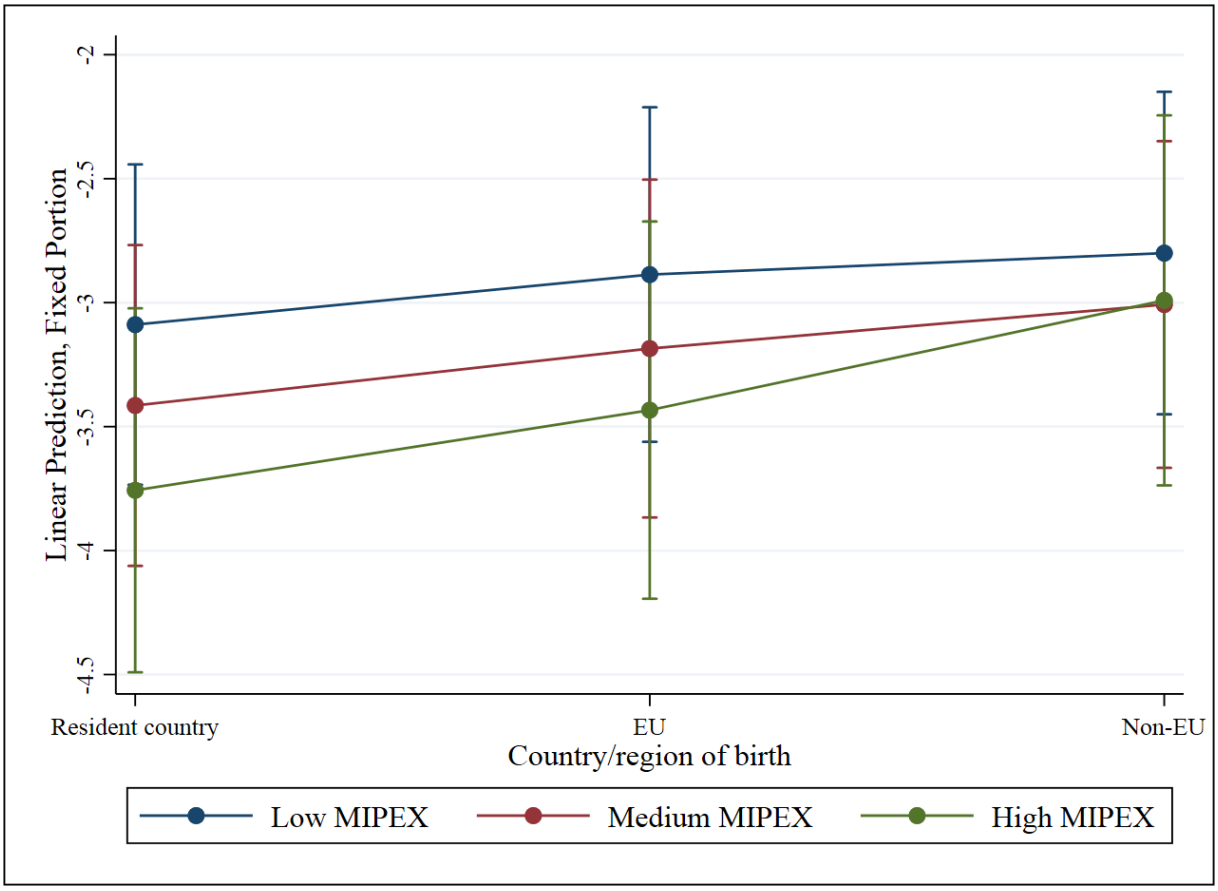

Figure 4.7: Predictions for country of birth by MIPEX group holding all other variables at their means.

Summarizing our findings, it can be said that differences in unmet need are not based on a difference between immigrants and the general population, but rather on a difference between the general population and non-EU immigrants. Those born outside the EU have higher odds for unmet need and hence attachment to the EU via birth country is associated with lower odds for unmet need, irrespective of the exact country of birth within the EU.

The results of the robustness checks, which serve as a check on the validity of the operationalization of the variables, confirm the values emerging from the analysis shown here (see *Table 4.8* in the supplementary material). These checks comprised different ways of incorporating MIPEX: MIPEX health as a continuous variable, the mean of the 2014 and 2019 MIPEX health scores, and the MIPEX 2019 country overall score. The corresponding coefficients are similar and point in the same direction.

4.5 Discussion

This paper addressed the question as to whether immigrants' access to health care services is worse than access for the general population and whether the political framework impacts health care access. By investigating unmet medical need and its association with birth country, as well as its connection to factors of promoting integration in the area of health we find that immigrants from non-EU countries face especially high obstacles with regard to accessing medical care when needed. This association persists when additionally observing the country's overall tendency to accommodate for immigrant needs with regard to health care. The fact that they report higher unmet need than the general population can be seen as highly problematic because it can promote the health disparities between origin groups even more. This goes in line with previous findings on the association between the use of health care services and immigration background (Butow et al., 2013; Howe Hasanali, 2015; Ku & Matani, 2001). Immigrants have diverse health patterns which can be traced back to the time spent in their country of birth or potential transit countries on their way to their current country of residence. This unique health journey which not uncommonly harbors more or less severe health problems in later life which can be further aggravated by unequal use of medical care during periods of life when this care is needed.

Furthermore, what our findings suggest is that the degree of accommodation to immigrants' needs with regard to health within a country does not strongly mitigate the difference in health care access between origin groups. Hence, immigrants use health care services less no matter how easy it objectively seems to be for them to do so in their current country of residence. However, the way policies are shaped to promote immigrant integration in health is associated with unmet medical need over both groups, immigrants and the general population, which implies that integration policies are indeed highly connected with how health is shaped among residents. Even though members of the general population have better health care access no matter where they live, immigrants in highly accommodating countries

have better access than their counterparts in countries with low accommodation. When it comes to health immigrants are better integrated in countries with strong integration policies. This shows that policies promoting immigrant integration in health actually accomplish their purpose. Therefore, migration-related health policies indeed operate as structural determinants of health that shape access to health care for immigrants and might thus affect their health. Altogether, the observed individual and collective dimensions of integration are strongly connected. Health access as one of these dimensions is highly sensitive to influences of factors shaped by a combination of legal and origin specific characteristics as well as the nature of how institutional bodies promote or hinder integration in the health sector.

One limitation refers to the selection of respondents into countries. The underlying mechanism is not clear whether immigrants select more into countries with higher immigrant accommodation or those with low levels of accommodation or whether these countries react differently according to the number of immigrants. A different composition of the immigrant population in these countries based on ethnic membership which calls for different approaches in policy making might also be the case. Furthermore, we have no information on the time point of immigration. Duration of stay, however, was shown to be significant in immigrant integration and can also be a key factor when explaining unmet need. In our analyses, duration of stay could have functioned as a suitable control variable. Another factor which was not measured within the EU-SILC framework is immigrant status which is why we unfortunately were not able to differentiate between documented and undocumented immigrants or distinguish refugees. This differentiation, however, could give more fruitful insights into how access to healthcare is shaped differently between immigrant groups. Furthermore, it is possible that respondents immigrated within the relevant twelve-month period which the reporting of unmet need refers to. Hence, we did not allow for the fact that in a potential earlier country of residence access to health care is objectively worse than in the current country of residence and therefore reported unmet need might therefore be higher. Moreover,

here we did not investigate further on the association between the observed frequency of not using health services when needed and actual health outcomes. However, based on previous research we strongly assume that using health care in urgent situations to a lesser extent has negative effects on the overall health status (Koolman, 2007; Mielck et al., 2007).

The task of further research is to investigate further the connection between immigrant status, unmet medical need and overall health status as well as the role of other factors of immigrant integration. Additionally, analyses which allow for a thorough differentiation between ethnic groups and the immigrant generation is thought to be worthwhile. Access to health care might be shaped differently based on individual and group specific migration experiences, cultural characteristics and socialization in the receiving country.

4.6 References

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4.7 Supplementary material

Table 4.6: Results of multilevel analysis on unmet medical need with display of general health, socio-economic status, age, and gender.

	Model 0 (null)	**Model 1** (Model 0 + country of birth)	**Model 2** (Model 1 + MIPEX)	**Model 3** (Model 2 + interaction)
Country of birth				
Residence country		Ref.	Ref.	Ref.
EU country		1.26*** (1.11, 1.43)	1.26*** (1.11, 1.43)	1.22 (.99, 1.51)
Non-EU country		1.47*** (1.38, 1.57)	1.47*** (1.38, 1.57)	1.33*** (1.23, 1.45)
MIPEX group				
Low			Ref.	Ref.
Medium			.73 (.29, 1.83)	.72 (.29, 1.80)
High			.55 (.21, 1.46)	.51 (.19, 1.36)
*Country of birth*MIPEX group*				
EU/Non-EU country*low				Ref.

EU country*medium				1.03 (.76, 1.39)
EU country*high				1.13 (.83, 1.53)
Non-EU country*medium				1.13 (.96, 1.32)
Non-EU country*high				1.62*** (1.34, 1.94)
General health				
Very bad	Ref.	Ref.	Ref.	Ref.
Bad	.78*** (.71, .86)	.78*** (.72, .86)	.78*** (.72, .86)	.78*** (.72, .86)
Fair	.56*** (.51, .61)	.56*** (.52, .62)	.56*** (.52, .62)	.57*** (.52, .62)
Good	.30*** (.27, .33)	.30*** (.28, .33)	.30*** (.28, .33)	.31*** (.28, .33)
Very good	.18*** (.16, .20)	.18*** (.16, .21)	.18*** (.16, .21)	.18*** (.17, .21)
Education				
Primary	Ref.	Ref.	Ref.	Ref.

Lower secondary	.79***	.78***	.78***	.78***
	(.74, .85)	(.73, .83)	(.73, .83)	(.73, .84)
Upper secondary	.74***	.73***	.73***	.73***
	(.69, .79)	(.68, .77)	(.68, .77)	(.69, .78)
Post-secondary non-tertiary	.71***	.69***	.69***	.70***
	(.64, .80)	(.62, .78)	(.62, .77)	(.62, .78)
Short-cycle tertiary	.69***	.68***	.68***	.68***
	(.65, 74)	(.63, .72)	(.63, .72)	(.64, .73)
Unemployed	1.72***	1.69***	1.69***	1.69***
	(1.61, 1.84)	(1.58, 1.81)	(1.58, 1.81)	(1.57, 1.80)
Female	1.03	1.03	1.03	1.03
	(1.00, 1.07)	(.99, 1.07)	(.99, 1.07)	(1.00, 1.07)
Age	.992***	.992***	.992***	.992***
	(.990,.993)	(.990, .993)	(.990, .993)	(.991, .993)
Constant	.17***	.17***	.23***	.22***
	(.11,.27)	(.11, .26)	(.12, .44)	(.12, .44)
Statistics				
N(Countries)	25	25	25	25
N(Individuals)	224,274	224,274	224,274	224,274
AIC	86066.9	85936.9	85939.5	85922.1
BIC	86201.1.9	86091.7	86114.9	86138.9

Log likelihood	-43020.461	-42953.443	-42952.736	-42940.063

Notes: Odds ratio (95% CI), * p<0.05, ** p<0.01, *** p<0.001, AIC = Akaike Information Criterion, BIC = Bayesian Information Criterion.

Source: EU-SILC 2019; MIPEX 2019.

Table 4.7: Marginal effects of country/region of origin and MIPEX group holding all other variables in the model at their means.

	Marginal effect	Std. Error	95% Confidence Interval	
Residence* low MIPEX	-3.0885	.3296	-3.7346	-2.4425
Residence*medium MIPEX	-2.8866	.3442	-3.5612	-2.2121
Residence*high MIPEX	-2.8001	.3318	-3.4504	-2.1498
EU*low MIPEX	-3.4148	.3301	-4.0617	-2.7678
EU*medium MIPEX	-3.1850	.3476	-3.8664	-2.5038
EU*high MIPEX	-3.0074	.3361	-3.6662	-2.3487
Non-EU*low MIPEX	-3.7569	.3745	-4.4910	-3.0228
Non-EU*medium MIPEX	-3.4335	.3882	-4.1943	-2.6727
Non-EU*high MIPEX	-2.9907	.3807	-3.7370	-2.2445

Source: EU-SILC 2019; MIPEX 2019.

Table 4.8: Results of additional multilevel analyses on unmet medical need with different versions of MIPEX scores as independent variables (robustness checks).

	MIPEX health as continuous variable	**MIPEX health, 2014/2019 average**	**Overall MIPEX score**
Country of birth			
Residence	Ref.	Ref.	Ref.
EU	1.35	1.43	1.52
	(.89, 2.05)	(.97, 2.09)	(.92, 2.52)
Non-EU	1.13	1.16	.97
	(.95, 1.34)	(1.00, 1.36)	(.76, 1.24)
MIPEX health score 2019	.98*		
	(.96, 1.00)		
MIPEX health score 2014/2019 average		.98*	
		(.96, 1.00)	
MIPEX overall score 2019			.99
			(.97, 1.02)
*Country of birth*MIPEX*			
Residence*MIPEX 2019	Ref.		Ref.
EU*MIPEX 2019	.99		1.03
	(.99, 1.01)		(.76, 1.39)
Non-EU*MIPEX 2019	1.01***		1.13

	(1.00, 1.01)		(.83, 1.53)
Residence*MIPEX 2014/2019 average		Ref.	1.13 (.96, 1.32)
EU*MIPEX 2014/2019 average		.99 (.99, 1.00)	
Non-EU* MIPEX 2014/2019 average		1.01*** (1.00, 1.01)	
Residence*MIPEX overall 2019			Ref.
EU*MIPEX overall 2019			.99 (.99, 1.01)
Non-EU*MIPEX overall 2019			1.00*** (1.00, 1.01)
General health			
Very bad	Ref.	Ref.	Ref.
Bad	.78*** (.72, .86)	.78*** (.72, .86)	.78*** (.72, .86)
Fair	.57*** (.52, .62)	.57*** (.52, .62)	.57*** (.52, .62)
Good	.31*** (.28, .33)	.31*** (.28, .33)	.31*** (.28, .33)
Very good	.18*** (.16, .21)	.18*** (.16, .21)	.18*** (.16, .21)
Education			

Primary	Ref.	Ref.	Ref.
Lower secondary	.80***	.78***	.78***
	(.73, .83)	(.73, .83)	(.73, .83)
Upper secondary	.73***	.73***	.73***
	(.68, .78)	(.68, .78)	(.68, .78)
Post-secondary non-tertiary	.70***	.70***	.70***
	(.62, .78)	(.62, .77)	(.62, .78)
Short-cycle tertiary	.68***	.68***	.68***
	(.63, .72)	(.63, .73)	(.64, .72)
Unemployed	1.69***	1.69***	1.69***
	(1.58, 1.81)	(1.58, 1.81)	(1.58, 1.81)
Female	1.03	1.03	1.03
	(.99, 1.07)	(.99, 1.07)	(1.00, 1.07)
Age	.992***	.992***	.992***
	(.990, .993)	(.990, .993)	(.991, .993)
Constant	.55	.53	.25
	(.17, 1.75)	(.18, 1.55)	(.05, 1.21)
Statistics			
N(Countries)	25	25	25
N(Individuals)	224,274	224,274	224,274
AIC	85926.9	85926.0	85929.3
BIC	86112.6	86111.8	86115.1
Log likelihood	-42945.430	42945.018	-42946.654

Notes: Odds ratio (95% CI), * p<0.05, ** p<0.01, *** p<0.001, AIC = Akaike Information Criterion, BIC = Bayesian Information Criterion.

Source: EU-SILC 2019; MIPEX 2019.