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Dipl. Soz. Sascha Riedel

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Referent: Prof. em. Dr. Jürgen Friedrichs

Korreferent: Prof. Dr. Clemens Kroneberg

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Contents

List of Figures

List of Tables

1

The need for improving measures of immigrants' integration

When the Federal Ministry of the Interior released the study "*Lebenswelten junger Muslime in Deutschland*" (Frindte et al. 2011) it triggered an outcry in the German public and media landscape. According to the *BILD-Zeitung* (2012), one of Germany's newspapers with the highest circulation, the study implied that a significant part of young Muslims in Germany refuses integration and embraces radical opinions in religious matters. Most notably, the journalists claimed that approximately 22% of all Muslims in Germany refuse integration and that young Muslims without German citizenship are particularly radical in opposing Germany. This publication ignited an excessive and heated debate on Muslims' and immigrants' adaptation in Germany (Die Welt 2012; Spiegel Online 2012; Süddeutsche.de 2012).

This context has not significantly changed by the beginning of 2016. In 2014, Germany became the second largest receiving country of immigration worldwide (Organisation for Economic Co-operation and Development 2014). In 2015 it received an influx of 476,649 asylum applicants. This number more than doubles the number of asylum applicants in other major immigration countries and makes Germany Europe's main immigration country. In comparison, in 2015 the United States hosted 91,546 asylum seekers, Sweden 162,550, and Hungary as a main transit country received 177,135 asylum applicants (Bundesamt für Migration und Flüchtlinge 2016: 10). Out of the total of 476,649 asylum applications throughout 2015, 441,899 were first-time applications (Bundesamt für Migration und Flüchtlinge 2015). The increasing influx of immigrants to Germany provokes continuing debate on immigration within politics and media. Additionally, the domain of economics got involved in the debate as well, as prominent researchers

publicly discussed the aggregate economic effects of immigration to Germany. Bonin (2014) argued that the influx of immigrants has positive net effects on the German economy at large. However, he also emphasizes that this surplus becomes negative once migrants' effects on the increase of public expenditure, e.g. for defense and roadworks, are included in the calculation (Bonin 2014: 56). Particularly, Sinn (2015) as one of Germany's most renowned economists publicly highlighted this finding and criticized the German immigration policies. Most recently, rallies of protesters against the so called Islamization of the West[1] caught major political and media attention. Besides their fears of increasing Islamism that allegedly accompanies the increasing number of Muslim inhabitants in Germany, the protesters criticize Germany's asylum seeker- and immigration policy (The Guardian 2015). Thus, as discourses on the extent, regulation, and net societal effects of migratory movements to Germany are on the political agenda regularly, so is immigrants' social integration. Therefore, scientific research needs to keep striving to disentangle the complexities linked to immigrants' integration in Germany. Yet, integration is an ambiguous term referring to diverse aspects, such as employment status and educational success (Zhou 2014), interethnic contact (Maliepaard & Phalet 2012), as well as spatial residential patterns (Farrell 2008). Further, as immigrants' integration is mostly a latent trait, theoretical reasoning and the development of adequate measurement instruments has to be conducted deliberately. In order to exemplify common problems of existing research, the introductory example shall be highlighted. The study "*Lebenswelten junger Muslime in Deutschland*" used cluster analysis on Muslim respondents in order to identify groups exhibiting distinct patterns of integration. Notably, the number of 22% of respondents who decidedly reject integration and emphasize their home culture (BILD Zeitung 2012) refers to an analysis including two items (Frindte et al. 2011: 188 ff.):

[1] "Patriotic Europeans Against the Islamization of the West" / "Patriotische Europäer gegen die Islamisierung des Abendlandes" (PEGIDA)

a) "We people from [country of origin] should retain our culture of origin in Germany"[2]
b) "We people from [country of origin] should adopt the German culture in Germany"[3].

Ranging on five-point Likert scales between values of 1 and 5, members of the group rejecting integration exhibit mean values of M = 4.46 for item a) and M = 1.46 for item b) (Frindte et al. 2011: 190). According to these numbers, the authors claim that this group comprises respondents with a strong affinity of separation. The study exemplifies the ability of scientific research to spark and influence public discourse on a highly controversial topic, such as the integration of immigrants in Germany. Yet, it also shows that quantitative studies most frequently rely on simplistic measurements of complex topics. Using two items referring to the ambiguous term of "culture" and deriving general conclusions about immigrants' (in this particular example Muslims') willingness to integrate into German society seems debatable at best. Consistently, the study leader publicly disagreed with the one-sided interpretation of the study's results. Instead, he emphasized that the findings are too complex to be summarized in one headline (Caspari 2012). However, such complexities tend to be neglected in public discourses. Therefore, scientific research needs to be particularly cautious and diligent in handling issues of measurement validity, -reliability and -error in the first place. This dissertation contributes to these collective efforts by critically assessing the quantitative measures of different dimensions of immigrants' integration and presenting advanced measurement instruments and their implications for substantive results. In this regard, the different chapters tackle diverse areas of research on immigrants' integration in Germany.

This dissertation consists of this introduction, three single papers, and a chapter integrating the obtained findings and presenting their limitations. The remainder

[2] "Wir Menschen aus [Herkunftsland] sollten in Deutschland die Kultur unseres Herkunftslandes bewahren."
[3] "Wir Menschen aus [Herkunftsland] sollten die deutsche Kultur übernehmen."

of the first chapter presents a brief theoretical overview, the papers' research questions and the overarching research design of this dissertation. The three subsequent chapters refer to the following studies:

- *Paper 1:* The Problems of Assessing Transnational Mobility: Identifying Latent Groups of Immigrants in Germany Using Factor Mixture Analysis.

- *Paper 2:* The Interrelation of Immigrants' Interethnic Ties and Socioeconomic Status in Germany. An Autoregressive Panel Analysis.

- *Paper 3:* Exploring and Committing. Using Mixed Methods to analyze two Dimensions of Immigrants' National Identification in Germany.

The fifth chapter consists of three parts. First, the findings of the preceding articles are briefly summarized. Second, two general challenges for future research are derived. In this respect, the findings imply that prospective studies on immigrants' integration need to engage in problems of generalizability and causality. The challenges are further summarized in two corresponding key conclusions. In doing so, the fifth chapter embeds the substantive results into existing theoretical and empirical research. Finally, the last chapter presents this dissertation's limitations and ends with an overall conclusion.

1.1 The concept of immigrant integration and its predecessors

This chapter delivers a theoretical introduction to the relevant concepts of this dissertation. Primarily, immigrants' integration, as the central concept is specified. In this regard, two theoretical aspects are of particular relevance. On the one hand, this chapter presents relevant dimensions of immigrants' integration. Thus, the phenomenon's scope is narrowed to a set of concrete subdomains. Further, in order to keep the tackled problems manageable, all subsequent articles refer to distinct dimensions of immigrants' integration rather than to the overall phenomenon. On the other hand, as two of the papers tackle problems of

causality, this chapter presents the causal ordering of these dimensions as proposed by several theoretical concepts.

This dissertation refers to immigrants as members of ethnic minorities. Those are not characterized by a foreign citizenship or individual migratory experiences, but by a shared ethnic heritage. Ethnicity, as proposed by Weber (2006: 367), is usually defined as a subjective sense of belonging that is induced by the belief of a common origin and shared culture (Wimmer 2008: 973; Yinger 1976: 200). Thus, the findings of this dissertation generalize not only to individuals with personal migratory experiences, but also to their children and grandchildren. The discussion of immigrants' integration is almost as old as sociology's academic establishment in Germany. Thomas and Znaniecki (1918) published the first volume of their work on the polish peasant in Europe and America in 1918. This publication, although being considered a classic work of immigration literature, referred to already established concepts and notions, such as cultural assimilation (Thomas & Znaniecki 1918: vii). Besides the work of Simmel (1908: 685ff.), focusing on the *stranger* and his position in receiving societies, classic concepts of migration research and immigrants' assimilation originated in the *Chicago School of Sociology*. Particularly, Park's (1914, 1928) work sustainably affected common everyday conceptions of assimilation. It is understood as a "process that goes on in society by which individuals spontaneously acquire one another's language, characteristic attitudes, habits, and modes of behavior" (Park 1914: 606). Additionally, assimilation is sometimes perceived as a group-level process, describing the incorporation of smaller into larger groups. The combination of these two understandings of the term and its all-encompassing account largely perpetuated its controversial discussion. However, assimilation does not necessarily imply a unidirectional adaptation of the minority to the majority's ways. While this unidirectional assimilation, implicitly assuming a "positive evaluation of the values of the majority group, and a negative one of the values of the minority group" was termed *monistic assimilation*, the work of Taft (1953: 45ff.) also comprised the concept of *pluralistic assimilation*. The latter is based upon mutual understanding and agreement to tolerate differences between

majority and minority (Taft 1953: 47). Thus, in order to not perpetuate the common misunderstanding of assimilation as *monistic assimilation*[4], this dissertation relates to a broad definition of assimilation as "a *process of becoming alike*" (Taft 1953: 45, emphasis in original). In contrast, the term of integration is sometimes used synonymously with a dual and mutual accommodation of majority and minority whereat no group dominates the other (Berry 1997: 10f.). In this sense, it equals the aforementioned pluralistic assimilation, where "the dominant group must be prepared to adapt national institutions (e.g. education, health, labour [sic!]) to better meet the needs of all groups now living together in the plural society" (Berry 1997: 11). This understanding of integration is based on the psychological model of immigrant acculturation (Berry 1974, 1997). This framework defines acculturation strategies as depending on *cultural maintenance* and *contact and participation*. Thus, besides immigrants' wish to maintain sending society's cultural traits, both interethnic contacts and participation in the host society affect immigrants' acculturation patterns. Again, these parameters are mutually influenced by both, host society- and ethnic minority members. The four possible strategies are termed with integration, assimilation, separation and marginalization (Berry 1997: 9f.). Integration, as previously presented, refers to individuals who seek to maintain their heritage culture, but also tend to strongly engage in interaction with the host society. In contrast, individuals pursuing an assimilation strategy distance themselves from the heritage culture and embrace the host society entirely. Separation mirrors the preceding scenario. Separated individuals strongly engage in their own ethnicity, but avoid contact with the majority. Finally, marginalization refers to a strategy "when neither cultural maintenance nor interaction with others is sought" (Berry et al. 2006: 306). This typology has been numerously extended and applied to sociological and psychological questions (Baek Choi & Thomas 2009; Benet-Martinez & Haritatos 2005; Geschke et al. 2010; O'Flaherty et al. 2007: 824).

[4] This misconception is widespread in Germany, where usage of the term of assimilation most commonly initiates societal debates (Rasche 2014; Vates 2014).

Aside from the presented understanding within the framework of acculturation, the term of immigrants' integration commonly splits into *social integration* and *system integration* (Esser 2004: 1129f.). The former term refers to the inclusion of actors, i.e. individuals within the receiving society, into societal subsystems while system integration relates to the relationships between the parts of the overall system, i.e. the host country (Archer 1996; Lockwood 1996; Mouzelis 1974). Thus, social integration implies inclusion of immigrants into social systems such as the labor market, while system integration concerns the "societal integration of a whole society" (Esser 2004: 1130). Therefore, integration and assimilation can be understood as both an individual process and an overall societal pattern describing the general state of the receiving society. Consistently, differences between both terms are of minor relevance today (Vermeulen 2010: 1214). Thus, the terms of assimilation and integration, unless otherwise noted, are used interchangeably in the remainder of this dissertation and refer to the individual process in terms of social integration.

As the common definition of immigrants' integration is very broad, several taxonomies and classifications have been developed. These usually subdivide immigrants' assimilation in distinct dimensions and stages. A prominent model was proposed by Gordon (1964), who identified seven dimensions of assimilation. He considered change in the cultural patterns (cultural assimilation), entrance into cliques, clubs, and institution (structural assimilation), intermarriage (marital assimilation), and the development of a sense of peoplehood based exclusively on the host society (identificational assimilation) as the changes occurring on immigrants' end. Additionally, he considered the absence of prejudice (attitude receptional assimilation), discrimination (behavior receptional assimilation), and value and power conflict between minority and majority (civic assimilation) as inevitable societal preconditions of immigrants' successful assimilation. Regarding the sequence, in which these dimensions are linked to each other, Gordon (1964: 81, emphasis in original) argued that structural assimilation necessarily causes acculturation to occur and once these two processes took place, "*all of the other types of assimilation will naturally follow*". Thus, he specifies

that direct and personal contact initiates the overall process of assimilation. This idea links to the concept of the race relation cycle, which is considered to be a progressive and irreversible consequence of an intensifying division of labor and increasing global interconnections between humans (Park 1950: 150). In this regard, the interpenetration of minority and majority is assumed to follow a distinct pattern of four stages. First, contacts between both groups are established (stage 1), which are followed by a period of competition for scarce resources (stage 2). The latter stage is sometimes associated with conflict between the involved actors (Park & Burgess 1921: 511). Afterwards, the groups accommodate to each other (stage 3), before eventually assimilation (stage 4), as previously defined, takes place (Park 1950: 150). Other approaches formulated comparable models of immigrants' assimilation. Taft (1957: 144ff.) proposed a sequence of seven stages, which he linked in a causal manner to each other. First, immigrants obtain knowledge of majority's culture (stage 1) and therefore develop favorable attitudes towards the members and norms of the receiving society (stage 2). Afterwards, they attain negative attitudes to their own group (stage 3) and thus conform to the role requirements of the majority (stage 4). Consistently, immigrants' obtain social acceptance of majority members in return (stage 5) and start identifying with the receiving society (stage 6). Finally, members of ethnic minorities adopt majority's group norms (stage 7). The original proposal did not view this prototypical sequence as the only one possible, although the presented ordering "roughly represent(s) a likely progression" (Taft 1957: 144). A comparable and, in the German context, very influential framework of immigrants' assimilation was developed by Esser (1980). The most cited version of his model stated a sequence of four successive stages, labeled with cognitive, structural, social, and identificational assimilation (Esser 1980: 231). These relate to the attainment of fluency in the host country language (cognitive), socioeconomic achievement (structural), the establishment of interethnic contacts (social) and a sense of belonging to the receiving context (identificational). A more complex – and probably more realistic – formulation of the model, which additionally includes conditions of the receiving context, failed to gain comparable prominence (Esser 1980: 233). Although all models of assimilation

were numerously criticized, more recent conceptions continue to formulate immigrants' integration as a multidimensional process. Thus, the choice of relevant dimensions of immigrants' integration and their operationalization depends on the chosen theoretical framework. In this regard, several approaches tend to particularly highlight the importance of immigrants' socioeconomic attainment and occupational mobility (Alba & Nee 1997: 835; Waters & Jiménez 2005: 108). Further significant dimensions of immigrants' integration are made up by linguistic patterns, intermarriage, and residential patterns (Waters & Jiménez 2005: 109ff.).

The theory of segmented assimilation expanded the assumption of a uniform straight-line assimilation by claiming that there are three distinct outcomes of assimilation. The first one represents the assumptions of classic assimilation where immigrants experience growing acculturation and parallel integration into host society's middle-class. The second represents assimilation into the underclass, which is accompanied by societal marginalization and permanent poverty (*downward assimilation*). Finally, immigrants' socioeconomic advancement may be accompanied and fueled by their embeddedness into an ethnic enclave (*selective acculturation*) (Portes & Zhou 1993: 82). Further, differences in identification and the relevance of outside discrimination constitute essential ingredients of immigrants' assimilation process (Portes & Zhou 1993: 95). Particularly perceived discrimination is assumed to be the driving force of the newly introduced outcomes of *downward assimilation* and *selective acculturation*. Several studies have exposed the problems and limitations of the diverse approaches of straight-line and segmented assimilation and the discussion continues (Alba et al. 2011; Haller et al. 2011; Koopmans 2016). Further, it was problematized whether the three proposed outcomes of assimilation may be expanded beyond the U.S.-context for which segmented assimilation was originally developed (Thomson & Crul 2007; Vermeulen 2010). However, in empirical research on immigrants' integration approaches of assimilation remain influential, as they allow for the formulation of hypotheses and the specification of relevant dimensions and predictors.

More recent theoretical approaches abstain from formulating causal scenarios of immigrants' integration. One example constitutes immigrant transnationalism (Glick Schiller et al. 1995; Portes 2001; Waldinger 2013). This concept refers to cross-border activities and "social connections between receiving and sending countries" (Waldinger 2013: 759). Accordingly, immigrants do not relocate from one country to another for good, but rather engage in continuing cross-border relations or mobility. The original concept of immigrant transnationalism formulated no specific pattern of integration into any societal context. However, subsequent publications examined the relationship between immigrants' transnational engagement and integration (Ley 2013; Schunck 2011; Tsuda 2012). In this regard, research most commonly refers to the above presented approaches of assimilation. Another recent concept in migration literature is "super-diversity". This idea highlights the increasing complexity within modern immigration countries in comparison to former times. Vertovec (2007: 1028ff.) developed this idea by highlighting increasing inflows as well as a greater diversity in languages, religions, countries of origin, migrations channels, and immigration statuses of immigrants in Britain. In addition, the sociodemographic structure of modern migrants has changed along the dimensions of gender, age, residential patterns, and transnational engagement. However, the consequences of "super-diversity" are mostly discussed with reference to existing concepts of integration and assimilation: "In a society where one group forms a clear majority, minorities are expected to adapt to the opinions and customs of the dominant group. If there is no longer an ethnic majority group, everyone will have to adapt to everyone else" (Crul et al. 2013: 14). Adaption constitutes the central subject and problem discussed in publications on super-diversity. Thus, its main implication centers on the question of who defines the core values of super-diverse societies to which its members and groups adapt. Despite increasing diversity and transnational linkages, individuals within immigration countries still need to agree on a minimum consensus of societal parameters, such as language, norms, and values. As long as there is a broad agreement among all groups of the mainstream that e.g. new arriving immigrants need to adapt to the predominant

language regime, integration and assimilation still constitute valid concepts for the study of immigrants' adaption. In the long run, compositions of and relations between minorities and majority will change. Thus, social distances and stereotypes will eventually vanish. Yet, it takes long periods of time for minorities to enter mainstream and for social change to occur on a large scale. The long-standing disadvantaged societal positions of African Americans in the USA (Kasinitz 2008: 261) and Turks in Germany (Kalter 2006) bear witness to this fact. By no means, however, shall integration be understood as a unidirectional process in this dissertation. The specific substantive problems and research question as well as the theoretical foundations are briefly outlined in the following section.

1.2 Research questions: problems and consequences of measurement

The first article, "*The Problems of Assessing Transnational Mobility: Identifying Latent Groups of Immigrants in Germany Using Factor Mixture Analysis*" expounds the problems of quantitatively researching immigrants' return visits. Most recently, a considerable amount of immigrants is labelled as transnational immigrants or transmigrants, "whose daily lives depend on multiple and constant interconnections across international borders" (Glick Schiller et al. 1995). Usually, these interconnections refer to cultural, economic, political, and social activities and transmigrants are assumed to permanently settle in more than one nation state. Empirical studies on transnationalism frequently document it to be interrelated with immigrants' integration (Itzigsohn & Saucedo 2002; Ley 2013; Marcelli & Lowell 2005; Snel et al. 2006). However, while Portes and colleagues (2002) found transnationals to be better educated and to have higher incomes, other studies could not replicate those findings (Ley 2013; Snel, et al. 2006). From a conceptual point of view, four relationships between immigrants' integration in the host society and home country engagement seem plausible (Tsuda 2012: 634ff.). First, involvement in both contexts may be referred to as a zero-sum relationship. Engaging in either context discourages personal investment in the other one. This relationship most strongly resembles classic assimilation theory,

which assumed immigrants to lose ties to their country of origin with proceeding social integration in the host society. Second, immigrants' engagement in both countries might coexist rather unaffected by each other. Third, the involvement of immigrants in one country might positively influence their societal participation in the other. Finally, social integration in the host society and country of origin might mutually reinforce each other in a negative manner. Thus, less engagement in one society would foster a decrease of involvement in the other context. Up to date, it remains unclear which option constitutes the most common one. Yet, except for the second, each option has extensive implications for immigrants' integration process.

Furthermore, empirical research was able to identify socioeconomic factors and dimensions of assimilation where transnationalism interferes. Individuals with a transnational way of living remit more money to their country of origin than traditional immigrants (Marcelli & Lowell 2005). Additionally, a higher parental education and socioeconomic status seems to be positively related to transnational activities (Schimmer & van Tubergen 2014). Yet, some studies also report mixed or counterintuitive findings regarding the linkage between transnational behaviors and social integration (Constant & Zimmermann 2012; Schunck 2011; Snel et al. 2006). According to a Dutch study by Snel and colleagues (2006), transnational activities do not influence the number of majority members in immigrants' close social network. Comparably, only sociocultural activities in their country of origin[5] significantly decrease identification with native Dutch people while transnational economic activities even exert an increasing effect (Snel et al. 2006: 302). As these findings imply, transnational activities might be influencing integration in several regards. Yet, no uniform approach of measuring transnational engagement exists.

One prominent research area focuses on transnational mobility and usually investigates immigrants' return visits to their country of origin (Constant

[5] Sociocultural activities refer to e.g. return visits to the sending country or frequent contacts with family in the country of origin (Snel et al. 2006: 292).

& Zimmermann 2012; O'Flaherty, et al. 2007; Schimmer & van Tubergen 2014; Schunck 2011). Commonly, more frequent and longer trips are assumed to come "closest to what is described as transnational modes of living" (Schunck 2011: 269). Yet, this assumption reflects theoretical ideas and no empirical study thus far explicitly tested whether frequency and length of return trips actually represent a common latent construct of transnational mobility. Thus, the first article explores the following questions:

Are regular and persistent trips between countries an adequate indicator of transnational mobility across all immigrants? Are regular and enduring cross-border trips a distinctive feature of transmigrants separating them from immigrants?

This article discusses whether immigrants and transmigrants need to be substantially distinguished. Therefore, the first paper sets the stage for the following studies as in the presence of significantly different groups general theories might not be applicable to the entire immigrant population in Germany. Further, it illustrates the consequences of simplified measurement models that do not account for the complexities of transnational movements.

The second article "*The Interrelation of Immigrants' Interethnic Ties and Socioeconomic Status in Germany. An Autoregressive Panel Analysis*" disentangles the interrelation between two comparatively well-researched aspects of immigrants' integration. Myriads of studies have been published on immigrants' socioeconomic status, e.g. education (Fleischmann et al. 2013; Kroneberg 2008) and employment (Kogan 2007), interethnic friendship ties (Schlueter 2012; Windzio & Bicer 2013), and the interrelation of both phenomena (Kanas et al. 2011, 2012; Lancee 2012; Mouw 2003). With regard to the causal relationship between immigrants' socioeconomic status and their social networks, social capital theory predicts a positive effect of interethnic ties on socioeconomic status (Lin 2001). Yet, due to social homophily a reverse causality might apply as well (Mouw 2003, 2006). Existing studies suffer from two major drawbacks and,

therefore, fail to satisfactorily solve the ambiguities of this interrelation. On the one hand, most studies use single-item measurements, which are prone to measurement error. Therefore, the obtained results might be biased or representing statistical artifacts. The second article counters this problem by utilizing latent constructs. In line with the overall subject of this dissertation, construct measurements are discussed explicitly and constitute a central part of the study. Yet, the central aim of the second paper is to minimize the impact of measurement error in analyzing the interrelation of socioeconomic status and interethnic ties. Thus, the study contributes to disentangling the causal relationship between these two phenomena. On the other hand, existing studies usually seize causal problems in a unidirectional way (Kanas et al. 2011, 2012; Lancee 2012). Therefore, they tend to neglect severe problems such as reverse causality and simultaneity. The second paper accounts for these problems by applying and comparing the results of fixed effects panel regressions and autoregressive cross-lagged panel models. The following questions are formulated and answered:

> *In what sequence are socioeconomic status (SES) and the establishment of interethnic contacts (IEC) linked to each other? Are socioeconomic resources of immigrants facilitating contacts to members of the host society or do bridging social networks positively influence the occupational and educational progress of immigrants?*

The third article: "*Exploring and Committing. Using Mixed Methods to analyze two Dimensions of Immigrants' National Identification in Germany*" focuses on the deficiencies of existing quantitative measurements of national identification. Immigrants' identification is commonly considered a multidimensional and latent construct (Phinney & Ong 2007), which influences diverse aspects of social life (Benet-Martinez & Haritatos 2005; Berry et al. 2006; Waters 1994). Yet, despite knowledge about the complexities of surveying identities, a large body of German quantitative studies relies on simplistic measurements (Diehl & Schnell 2006;

Esser 2009). Particularly, German findings (Esser 2009) profoundly contradict international results using more sophisticated survey tools (Berry et al. 2006). As this demand for more reliable quantitative measures of identification has been recently recognized (Fischer-Neumann 2013: 358; Leszczensky 2013: 785), corresponding research projects have been initiated, e.g. the project: *Friendship and Identity in School* located at the *«The Mannheim Centre for European Social Research»* (MZES). However, despite this very recent progress (Leszczensky & Gräbs Santiago 2014), substantial blind spots remain in German quantitative research on immigrants' identification. Particularly, differences in the causal determinants of distinct dimensions of national identification have not been investigated yet. The third paper contributes to closing this gap by exploring the causal predictors of two distinct dimensions of national identification – *commitment* and *exploration* (Phinney & Ong 2007: 272). In this regard, it discusses and improves a common instrument based on two items collected in the German Socio-Economic Panel Study (GSOEP). Consistent with theoretical reasoning, the two items are labelled *commitment Germany*[6] and *exploration origin*[7]. The additional utilization of qualitative data – 54 semi-structured interviews – allows for extending the analysis to a so far non-existing item measuring *exploration Germany*. After exploring the dimensional structure underlying the chosen items and qualitative codings, chapter 4 examines the causal predictors of identifying with Germany. In this respect, separate analyses for the dimensions of commitment and exploration are conducted. The third contribution tackles the following research questions:

> *(1) Which predictors influence identification with Germany? (2) Are there observable differences in the predictors of different dimensions of national identification? (3) Which bias may be expected by the application of a truncated measurement of immigrants' identification?*

[6] Item: To what extent do you view yourself as a German?
[7] Item: To what extent do you feel that you belong to the culture of the country where you or your family comes from?

1.3 Research designs: Observed indicators for latent constructs

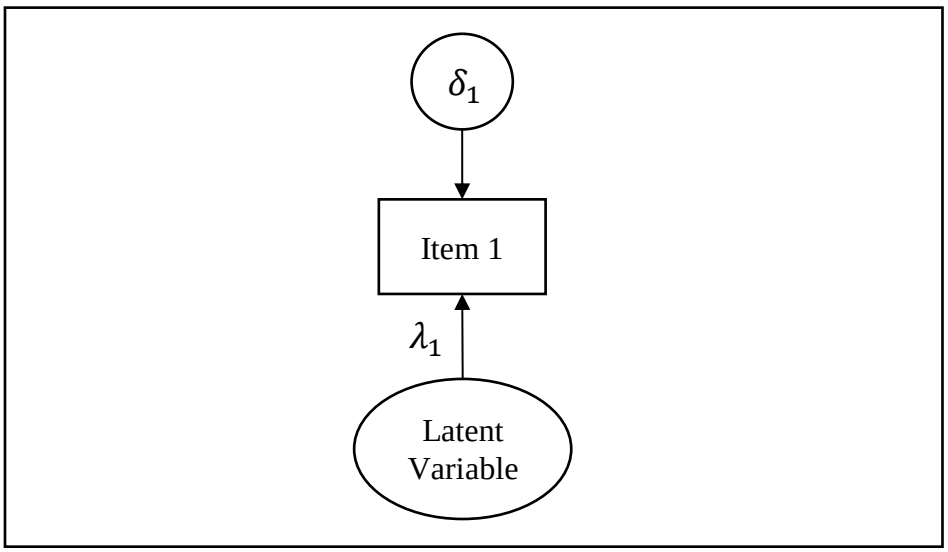
Many concepts in immigration research are latent in nature. Thus, they cannot be flawlessly observed by single manifest items. In this respect, the term of *'latent'* has two distinct implications. First, a latent concept is not measured directly, but has to be approximated by one or more indicator variables. Second, latent constructs are the most distilled and error-free representations of a theoretical concept (Collins & Lanza 2010: 4). This section presents and discusses three different strategies of operationalizing latent construct, whereby the most reliable one is chosen for this dissertation. This discussion is kept concise, as the methodological specifications of each applied method are discussed more detailed in the subsequent chapters.

1.3.1 Perfect measurement

Given perfect measurement, the phenomena of interest could be accurately approximated by single items. Figure 1.1 displays such a model in conceptual terms. The value of item 1 is determined by the underlying latent variable and an error term δ_1. In utilizing single items, the researcher has to assume that the measurement error equals zero ($\delta_1 = 0$) and the factor loading equals one ($\lambda_1 = 1$). The variance of the latent construct, then, perfectly equals the item's variance. This strategy may be conveniently applied to a variety of topics, e.g. employment status (Kanas et al. 2009; Lancee 2010), income (Lu et al. 2013), and homeownership (McConnell & Marcelli 2007). In these cases, bias due to measurement error can be assumed to be small in size. Thus, if error in measurement is randomly distributed within the sample population, the strategy of applying single item measures yields valid and reliable results. With regard to a variety of other issues, however, this strategy is inherently problematic. Thus, serious bias may accompany single item measurements in research on latent concepts such as immigrants' attitudes (Mau et al. 2008), language proficiency (van Tubergen & Kalmijn 2009), and identities (Diehl & Schnell 2006). Even worse, due to measurement error, studies based on single items are prone to

producing statistical artifacts. Therefore, this strategy has to be utilized cautiously in research on immigrants' integration.

Figure 1.1: Single item measurement – conceptual depiction



Source: own depiction

1.3.2 Indices

Second, social scientists commonly construct indices in order to research immigrants' integration. Bias due to measurement error is most likely mitigated in this approach. Hence, studies using indices on e.g. immigrants' ethno-cultural practices (Maliepaard et al. 2010: 457f.), acculturation attitudes (Baek Choi & Thomas 2009), interethnic contact (Martinovic et al. 2009), and sociocultural transnationalism (Itzigsohn & Saucedo 2002) seem to be less prone to produce biased results than studies based on single items. However, severe problems remain. The construction of indices and scales are commonly justified by high correlations (Maliepaard et al. 2010) and measures of reliability, e.g. (Cronbach's) α (Baek Choi & Thomas 2009; Gonzales et al. 2006). However, it remains debatable whether these composite scores are suitable for identifying common underlying constructs. Particularly, α as a commonly applied coefficient of composite reliability assumes that all included items measure the factor equally sensitively. This means that the items' covariances are all equal and the item

means differ only by additive constants (Kelley & Cheng 2012: 41f.). Essentially, in order to construct a valid index of integration – either with regard to a specific dimension or a general one – all of its items have to be of comparable relevance for the unobserved trait. Further, the items used for constructing α have to be independent in the sense that answering one item does not influence the answer pattern of the others (Cronbach & Shavelson 2004: 402). As these assumptions are almost never met in applied research, the construction of indices itself is a problematic endeavor.

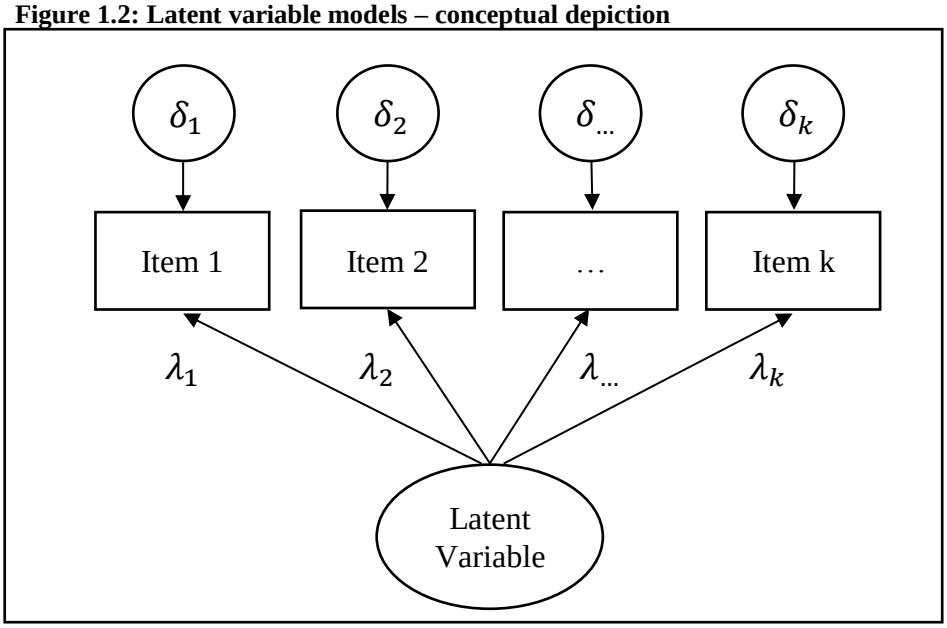
1.3.3 Latent structure modelling

Therefore, third, latent structure modelling constitutes the most elaborate strategy to account for measurement error. In this approach, latent constructs are approximated by two or more observed indicators. In general, there are two distinct classes of latent variables that are considered in this dissertation. On the one hand, the latent variable may cluster units of observation, as e.g. respondents or households. In this case, the unobserved trait denotes group membership. A common application of this case constitutes latent class analysis, in which the latent variable is categorical, indicating as many groups as the variable has categories. The methodology was formalized by Goodman (1974) and establishes regression relations from a categorical latent variable to observed indicators. On the other hand, latent variables may also serve to investigate the covariance of survey items. These common factor models usually establish continuous latent traits, on which respondents differ in degree. Therefore, this second type of models clusters indicators, such as survey items, instead of respondents.

Figure 1.2 displays a general conception of a simple latent structure model. It represents a *reflective*, principal factor model, "where covariation among the measures is caused by, and therefore reflects, variation in the underlying latent factor" (Jarvis et al. 2003: 200). These most common latent variable models differ from *formative*, composite models with regard to the causality between observed indicators and latent variable. In *formative* models, the indicator variables are

assumed to causally influence the latent construct. In this regard, observed indicators can, but do not have to be uncorrelated with each other, e.g. representing mutually exclusive behaviors. Thus, dropping an indicator may substantially alter the latent construct's meaning in *formative* models (Jarvis et al. 2003: 201f.). This dissertation utilizes *reflective* models, when referring to latent variables. In these, regression relations between the unobserved variable and the observed indicators are established, indicating a causal influence from the former to the latter. Yet, as the latent concept represents the covariance/correlation among a set of k items, and not just the variation of a single one, no perfect measurement has to be assumed.

Figure 1.2: Latent variable models – conceptual depiction



Source: Collins & Lanza 2010: 44; Lubke & Muthén 2005: 25, own depiction

Rather, the variance of each item is split in one part being caused by the shared underlying concept and one unique part of variance, which it does not have in common with the other indicators. The latter part of the variance is displayed by the error terms $(\delta_1, \delta_2, \delta_{...}, \delta_k)$ in figure 1.2. As the latent construct refers only to the shared part of variance of all items, it represents a distilled and error-free

representation of the theoretical concept. However, as indicated by the differing λ's ($\lambda_1, \lambda_2, \lambda_{...}, \lambda_k$) observed indicators may relate to varying extent to the latent construct.

The presented approaches of latent structure modelling allow for categorical and continuous latent variables, as well as for clustering respondents and survey items. Furthermore, recently developed methods allow for combining latent class and common factor models, thus accounting for categorical and continuous latent variables that cluster both respondents and items (Clark et al. 2013; Lubke & Muthén 2005). In order to most conclusively consider measurement error, latent structure modelling constitutes the superior of the three presented strategies for quantifying theoretical constructs. All chapters of this dissertation, implicitly or explicitly, account for problems attached to the unobservable nature of immigrants' integration. Subsequently, this overarching idea of accounting for the latent nature of immigrants' integration is explicated for each article of this dissertation.

The first paper utilizes factor mixture analyses to explain the latent structure underlying the number of immigrants' trips between their country of origin and Germany, the mean length of each trip, the time since the last trip, and the period of movements between the two countries. Factor mixture analyses combine categorical and continuous latent variables in order to identify unobservable structures. The results of chapter 2 exemplify that applied individually, latent class and common factor models oversimplify issues. Thus, only the combination of both categorical and continuous latent variables yields reliable results. The results imply that there are different groups of immigrants engaging differently and probably for diverging reasons in return visits to their country of origin. Therefore, the findings emphasize that existing studies, utilizing return visits as a uniform single item measurement of transnational mobility, might be producing biased results by not acknowledging these differences.

Table 1.1 Overview of the articles

	Paper 1	Paper 2	Paper 3
Title	The Problems of Assessing Transnational Mobility: Identifying Latent Groups of Immigrants in Germany Using Factor Mixture Analysis	The Interrelation of Immigrants' Interethnic Ties and Socioeconomic Status in Germany. An Autoregressive Panel Analysis	Exploring and Committing. Using Mixed Methods to analyze two Dimensions of Immigrants' National Identification in Germany
Author(s)	Sascha Riedel	Sascha Riedel	Sascha Riedel
Status of publication	Published in *Social Indicators Research*, DOI: 10.1007/s11205-016-1246-0	Published in *European Journal of Population*, DOI: 10.1007/s10680-014-9334-9	Submitted for review to *Ethnicities*
SSCI[1]	journal listed	journal listed	journal listed
Research questions	Are regular and persistent trips between countries an adequate and uniform indicator of transnationalism across all immigrants?	In what sequence are socioeconomic status (SES) and the establishment of interethnic contacts (IEC) linked to each other?	Which predictors influence identification with Germany? Are there observable differences in the predictors of different dimensions of national identification? Which bias may be expected by the application of a truncated measurement of immigrants' identification?
Method	quantitative	quantitative	mixed-methods
Data analyses	Latent class analysis, confirmatory factor analysis, factor mixture analysis	Fixed effects panel regressions, autoregressive cross-lagged panel models	exploratory factor analysis, qualitative comparative analysis

[1] SSCI = Social Science Citation Index© by Thomson Reuters©, ranks peer-reviewed journals according to its' articles' citations and thus indicates their impact.

The second contribution utilizes latent structure modelling, namely confirmatory factor analyses and structural equation modelling, to analyze the interrelation between immigrants' socioeconomic status and interethnic contacts. As both concepts are latent, measurement error might seriously influence analyses on this topic. Nevertheless, existing studies commonly utilize single-item measurements

and scarcely discuss the limitations and problems of their measurement models. In the second paper, both concepts are operationalized by three items and all analyses are based upon their common variance representing the latent constructs. Thus, the combination of latent constructs and causal models, such as fixed effects panel regressions and autoregressive cross-lagged panel models allows for a large certainty and robustness regarding the substantive interpretation of the results.

The third article discusses immigrants' identification. This concept is usually regarded as latent and multidimensional (Phinney & Ong 2007). Yet, German quantitative studies as e.g. the GSOEP, implicitly presume a unidimensional structure underlying national and ethnic identification. From a theoretical perspective, however, identification with Germany and the country of origin seem to be surveyed with reference to different dimensions: commitment and exploration. Therefore, the third study discusses the implications and shortcomings of this measurement of national identification in Germany and substantially advances it. Although exploratory factor analyses relate the identified dimensions to a common underlying identification factor, the causal determinants of both subdimensions differ considerably. Thus, the third paper outlines problems of studies neglecting the multidimensionality of immigrants' national identification. These are most likely producing biased results. Additionally, chapter 4 proposes an improved measurement instrument for surveying national identification in Germany. Table 1.1 gives an overview of this dissertation's papers. It displays the titles, authors, research questions, status of publication, and analytical strategy.

1.4 Appendix: Contributions of co-authors

The challenges for future research regarding immigrants' identification, presented in chapter 5.2.2, are based upon the joint work "Die identifikative Integration von Migranten" by Prof. Jürgen Friedrichs and me. In this study, I am the second author. The contribution has been published in the reader "*Verhandlungen des 36.*

Kongresses der Deutschen Gesellschaft für Soziologie in Bochum und Dortmund 2012" (Friedrichs & Riedel 2014).

Jürgen Friedrichs

- Conceptualization
- Development of theoretical framework
- Compilation of the research literature
- Discussion of the results

Sascha Riedel

- Compilation of the research literature
- Data collection and preparation
- Empirical analysis
- Development of general subjects and key conclusions
- Discussion of the results

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2

The Problems of Assessing Transnational Mobility: Identifying Latent Groups of Immigrants in Germany Using Factor Mixture Analysis[8]

Sascha Riedel

Abstract: This paper explores immigrants' transnational mobility in Germany. It uses data of the Socio-economic panel study (GSOEP) and four indicators regarding frequency, length, and total duration of visits to the country of origin. The study applies factor mixture analyses (FMA) in order to investigate whether a) the observed indicators refer to a uniform underlying construct of transnational mobility and b) the relationship between the latent construct and the observed indicators establishes in a uniform manner for all respondents. The most reliable model distinguishes three latent classes of immigrants, thus indicating no uniform underlying construct of transnational mobility. Theoretically consistent findings could be derived for about 58% of the 4,019 respondents. However, the relation between the observed indicators and the latent variable diverges substantially for the remaining 42%. Thus, the findings indicate that the commonly applied indicator of return visits largely fails to assess transnational mobility. Rather, different groups of immigrants engage very diversely in visits to the country of origin. The findings stimulate a variety of conceptual problems future theoretical and empirical research needs to tackle.

Keywords: Transnational, Mobility, Germany, Immigrants, Quantitative, Factor mixture analysis

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2.1 Introduction

By the end of the last millennium the transnational turn struck research on ethnic minorities and migratory movements. Transnationalism as a scientific concept encompasses diverse activities and interlinkages that span across multiple nation states. Thus transmigrants, which constitute a specific subgroup of immigrants, engage in lives, cultures, and activities in more than one country on a permanent schedule. In contrast, traditional immigrants are assumed to settle permanently in the receiving country. Empirical studies define and assess transnationalism in diverse ways. Some studies focus on political action (Guarnizo et al. 2003) or social ties and economic activities (Itzigsohn & Saucedo 2002; Portes et al. 2002; Schans 2009; Siegel & Lücke 2013; Snel et al. 2006; Waldinger 2008). Others refer to the phenomenon as an individual identification and state of mind (Ehrkamp 2005; Gruner-Domic 2011). Quantitative research commonly assesses transnationalism by the frequency of immigrants' trips to the country of origin, so called return visits (Constant & Zimmermann 2012; Kalter 2011; Pries 2004; Schimmer & van Tubergen 2014; Schunck 2011). In any case, transnational activities are assumed to have extensive implications for the long-term adaptation process of immigrants, e.g. with regard to socioeconomic integration and investments (Itzigsohn & Saucedo 2002; Ley 2013; Marcelli & Lowell 2005; Snel et al. 2006; Tsuda 2012). Thus, the phenomenon's understanding is of outstanding importance for policy makers. Additionally, as transnational activities require resources, transnationals are frequently depicted as having high levels of education (Itzigsohn & Saucedo 2002; O'Flaherty et al. 2007; Portes et al. 2002). Due to the increased exposure to mainstream members that accompanies their high levels of education, these immigrants therefore face higher levels of discrimination (Itzigsohn & Saucedo 2002: 783). According to the reactive transnationalism hypothesis, transnational engagement may then function as a strategy to cope with these perceived strains within the receiving society. Therefore, transnational activities constitute a highly relevant factor for understanding immigrants' quality of life.

This study contributes to the standardization of quantitative research on transnational mobility. It proposes to conceive the concept as a latent trait: Due to unobservable levels of transnational mobility, individuals exhibit specific patterns of return visits to their country of origin. This study tests whether a consistent latent variable of transnational mobility can be identified by quantitatively exploring return visits of immigrants in Germany. Additionally, it investigates whether distinct patterns of transnational mobility can be observed for distinct groups of immigrants. In this regard, the contribution examines whether the common strategy of approximating transnational mobility with long visits to the country of origin yields reliable results (see Schunck 2011).

To this end, results of latent variable models with data of the German Socio-Economic Panel Study (GSOEP) are presented. In a first step, confirmatory factor analysis (CFA) establishes the latent construct of transnational mobility. Subsequently, the common factor is combined with latent class analysis (LCA) in factor mixture analyses (FMA). These are particularly appropriate for exploring unobserved group heterogeneity as they combine categorical and continuous latent variables. Consistently, possible differences in the patterns of return trips across latent groups can be identified. In presence of significant group differences, the strategy of utilizing a uniform indicator of transnational mobility yields biased results. Therefore, the contribution assesses the adequacy of applying return visits as an indicator of transnational mobility in mean effects models, e.g. regression analyses.

The contribution is organized as follows. First, the theoretical foundation of transnationalism and specifically transnational mobility is presented. Particularly, this section highlights the incidence of return visits as an indicator of transnational mobility. Second, the data and methods are described. Afterwards the results and methodological implications of the differing methods are presented. The final section discusses the results and explicates their relevance for future research in the area of transnational mobility.

2.2 Crossing borders as an indicator of transnational mobility

Although transnationalism is not a new social phenomenon, it is a rather new concept in migration literature (Portes 2003). Emerging in the last decade of the twentieth century, it frames a considerable amount of migratory movements as a 'process by which immigrants forge and sustain simultaneous multi-stranded social relations that link together their societies of origin and settlement' (Glick Schiller et al. 1995: 48). More recent definitions introduced the term of *transnational social spaces*, which represent migration systems which are characterized by "strong and dense circular flows of persons, goods, ideas, and symbols" (Faist 2000: 2). In this respect, transnationalism may also refer to linkages across borders on superordinate levels, e.g. cities (Niederhafner 2013) or states and state politics (Waldinger & Fitzgerald 2004). This study, however, is exclusively concerned with activities on the individual level. Non-permanent accommodations of immigrants have been usual ever since the age of mass immigration started in the first half of the twentieth century. Nevertheless, due to decreased costs, the opportunities to facilitate large-scale communication and individual transportation over large distances have increased rapidly during the past decades. Hence, lately the scope of the phenomenon broadened extensively whereby it caught academic attention. As the presented definitions outline transnationalism in rather broad terms, empirical studies usually focus on distinct aspects or practices of the overall phenomenon. As Waldinger (2008: 5) puts it: "Transnational practices may be constant, periodic, or just occasional; likewise, they may occur consistently across multiple social domains – politics, economics, or culture – or may be limited to just one". However, such definitions provide little guidance for empirical research. Thus, existing studies focus on very diverse aspects, such as political action (Guarnizo et al. 2003), social ties and economic activities (Portes et al. 2002, Wang & Liu 2015), particularly remittances (Itzigsohn & Saucedo 2002; Kuuire et al. 2015; Schans 2009; Siegel & Lücke 2013; Snel et al. 2006; Waldinger 2008) as well as the frequency of home visits (Constant & Zimmermann 2012; Pries 2004; Schunck 2011). Other possible activities and associated indicators refer to the consumption of specific

transnational goods (Ehrkamp 2005) – e.g. music or food – border-crossing social relations (Mau et al. 2008), and mass communication across borders (Kraemer 2014). Most studies conjointly cover different, often highly versatile, aspects. In addition, several studies focus on the interrelation between transnational activities and integration (Ley 2013), especially economic incorporation (Bagwell 2015; Nowicka 2013; van Meeteren 2012). In this regard, transmigrants[9] have been associated with higher levels of cultural, economic and social capital, thus representing a highly educated group of immigrants with high incomes (Itzigsohn & Saucedo 2002; O'Flaherty et al. 2007; Portes et al. 2002). Further, transnational individuals are commonly assumed to identify in an unfixed manner with multiple countries, groups or other units of reference, e.g. subnational local entities (Ehrkamp 2005; Gruner-Domic 2011; Schimmer & van Tubergen 2014; Snel et al. 2006; Vertovec 2001). In this regard identities may be organized according to a typology distinguishing between integration, assimilation, separation, and marginalization (Berry 2001: 618). Assimilation and separation refer to identities exclusively adhering to the receiving- and host country, respectively. Marginalization represents a feeling of no belonging at all, while integration indicates a belonging to both countries of reference. According to this typology, transnational immigrants will most likely express an integration identity.

Despite this comprehensive state of research "questions remain regarding the prevalence, persistence, and variation (…) of each form of cross-border involvement" (Waldinger 2013: 770). This paper tackles these remaining questions for transnational *mobility* – a distinct form of transnational activities – by empirically exploring immigrants' trips to their country of origin. The research questions are:

[9] As has been shown so far, transnationalism covers a wide range of phenomena, e.g. social ties, mobility or identities. However, whenever the notations of *transmigrants*, *transnational immigrants*, and *transnationals* are used in the subsequent sections of this study, they solely refer to the restricted topic of transnational mobility.

- Are regular and persistent trips between countries an adequate indicator of transnational mobility across all immigrants?
- Are regular and enduring cross-border trips a distinctive feature of transmigrants separating them from immigrants?

The remainder of this section presents the rationale behind restricting the analysis to transnational mobility and utilizing return visits as indicators of the concept. As presented, transnational activities may refer to very diverse aspects of human life.

Table 2.1: Transnational mobility – existing quantitative research

Study	Country	Phenomenon	Measurement	Method
Constant & Zimmermann (2012)	Germany	Circular migration	1 = individual in home country 0 = individual in Germany	Discrete Markov Chain
O'Flaherty et al. (2007)	Australia	Visits to country of origin	Visits since the last interview (three waves)	Logistic regression models
Schimmer & van Tubergen (2014)	Netherlands, Germany, England, Sweden	1. Visits to country of origin 2. Identification with country of origin	Frequency of return visits Identification with origin country Identification with host country	Multilevel mixed-effects linear regression models
Schunck (2011)	Germany	Visits to country of origin	1 = visit ≥ 4 months 0 = otherwise	Random and fixed effects regression models
Snel et al. (2006)	Netherlands	Transnational activities and identification	1. Economic activities (seven items) 2. Political activities (four items) 3. Sociocultural activities (six items) 4. Identification with compatriots outside of the Netherlands	Linear regression models

In order to delimit this variety of meanings Portes and colleagues (1999: 219) suggest focusing on "activities that require regular and sustained social contacts over time across national borders for their implementation". Consistently, transnational entrepreneurs are defined as "firm-owners who travel[ed] abroad at least twice a year" and whose business depends on international relations in general or regular contact with the country of origin in specific (Portes et al. 2002: 284). Comparably, Guarnizo and colleagues (2003: 1213, emphasis in original) define transmigrants as a "new class of immigrants, economic entrepreneurs or political activists who conduct cross-border activities on a *regular* basis".

These conceptualizations conform to what has been labeled as narrow transnationalism: "institutionalized and continuous participation in transnational activities" (Itzigsohn & Saucedo 2002: 770). Regularity and persistence are two central characteristics of this definition. In the remainder of this study, transnational mobility shall conform to this understanding of narrow transnationalism, thus targeting at regular and persistent movements across international borders. In this regard, return visits to the country of origin constitute the most suitable indicator for this study as previous research was able to show that immigrants in Germany most likely travel to their country of origin when they cross international borders (Constant & Massey 2002: 651). Table 2.1 summarizes a selection of quantitative studies that utilized return visits to assess transnational mobility. It exemplifies that return visits constitute a common indicator for assessing narrow transnational mobility.

For example, Constant and Zimmermann (2012: 379) were able to show that repetitive transnational mobility is more prevalent among immigrants in Germany who maintain social ties in their country of origin. Further, higher remittances increase the probability of moving between Germany and the country of origin. Yet, remittances only influence immigrants' probability to return back to Germany, after having travelled to the country of origin. The decision to travel to the country of origin in the first place remains unaffected by the amount of remittances. Further, European Union nationals are more likely to repeatedly

travel between Germany and the country of origin, than e.g. Turkish or former Yugoslavian immigrants (Constant & Zimmermann 2012: 380). Finally, repetitive border crossings are more frequent at a *young* and *high* age with the lowest probability at the age of 35.

A qualitative study by Krumme (2004) investigated transnational mobility among one of these two groups with the highest probabilities of engaging in return trips: retired immigrants. She identifies three distinct patterns of transnational movements: (1) commuting as an expression of bilocality, (2) commuting after returning to the country of origin, and (3) commuting while still residing in Germany. The findings indicate that immigrants, who regularly return to their country of origin, do not stop doing so when they retire (Krumme 2004: 142). Therefore, transnational mobility should be researched among both individuals who are in workforce and those who are not. Nevertheless, the results section discusses age as a possible moderating influence on transnational mobility. Further, due to the single-sited survey design, immigrants who follow the presented patterns (1) and (3) are more likely to be sampled than immigrants, who have returned to their country of origin. Thus, this study's results have to be interpreted cautiously.

In attempting to explain respondents' visits to their home countries in a longitudinal framework, Schunck (2011) obtained mixed results. Most explanatory variables did not exert theoretically coherent effects. Only household income, in line with theoretical reasoning, robustly predicts immigrants' home visits. The level of education, as well as respondents' age and years of residence in Germany do not significantly influence the probability of visiting the country of origin for at least 4 months. Additionally, immigrants' labor force status has a contradicting effect. Neither having a job nor being retired increases the likelihood of visiting the home country. In contrast, a non-working labor market status positively affects the odds of travelling to the country of origin. These mixed results might be caused by the implicit assumption that transnational mobility is a uniform phenomenon. Although the application of fixed-effects

panel regressions controls for time-invariant unobserved heterogeneity the effects of the explanatory variables are expressed in means for all immigrants. However, if transnational mobility as a phenomenon only encompasses a certain subgroup of immigrants, the presented effects might be biased. The non-significant effects might be partly explained by such unobservable group differences. Therefore, the present study links to research that emphasizes the importance of separating subgroups in order to understand the complexities of immigrants' integration (Garip 2012; Saarela & Finnäs 2007). It particularly accounts for the possibility that distinct groups of immigrants may engage in transnational mobility to different extents. This approach is in line with the typology of "linear", "resource-dependent" and "reactive transnationalism" (Itzigsohn & Saucedo 2005). Particularly, resource-dependent transnationals, who – in contrast to linear transnationals – lack resources to maintain social ties across national borders may exert considerably differing patterns of return visits (Itzigsohn & Saucedo 2005: 899). The innovative and novel approach of incorporating unobservable group differences helps understanding the phenomenon of transnational mobility more thoroughly. Further, the study tests whether the measurement of regular return trips qualifies as an appropriate indicator of transnational mobility.

2.3 Data and methods

2.3.1 Data

This contribution uses data of the German Socio-Economic Panel Study (GSOEP), a representative longitudinal study of private households in Germany. Approximately 20,000 respondents are interviewed each year. For this paper the waves of 1996, 1998, 2000, 2002, 2004, 2006, 2008 and 2010 were selected as the items of interest have only been surveyed in these years. The GSOEP includes a considerable sample of migrants, mostly covering former guest workers[10], but also including smaller ethnic minorities. All immigrants of first, second, and third

[10] The countries of origin are: Greece, Italy, Spain, Turkey and former Yugoslavia.

generational status were included. The total sample size with valid answers on the items of interest is N = 4,019.

2.3.2 Indicators

The following items were included in the analysis: First, the total number of trips between the country of origin and Germany, second, the average length of each trip, third, the time since the last trip, and fourth, the period of movements between the two countries. The latter item represents the difference between the first and the last border crossing between Germany and the country of origin. In the following, these four items will be referred to as observed indicator variables of the unobserved latent variable of transnational mobility. With regard to the measurements of the GSOEP, two central problems have to be stressed. First, as only data for fifteen waves is available, the time since the last trip is restricted to a maximum of fifteen years. Further, as respondents have been asked whether they have been to their country of origin within the last two years the number of trips may reach a maximum of 8. Second, the length of trips is an ordered categorical variable and therefore represents a problematic measurement. The respondents were asked how long they have been staying in their country of origin in the last two years and answered on a five-point Likert scale ranging between "not at all" and longer than six months. The ordinal values of all trips were summed up and divided by the total number of trips. Conceptually, transnationals should persistently engage in long and frequent trips to their country of origin. Thus, a higher number of more frequent trips, longer stays and a longer period of movements typically characterize transnationally mobile immigrants.

Additionally, identity structures were computed and compared across groups. These were constructed out of two items: "To what extent do you view yourself as a German", and "To what extent do you feel that you belong to the culture of the country where you or your family comes from". Respondents choose their answers to both items on a five-point Likert scale. In line with existing research the two highest categories indicate a strong identification with the respective

country, while the lower three indicate a low connection (Esser 2009). The computed types correspond to the common classification by Berry (2001: 618), which distinguishes integration, assimilation, separation, and marginalization.

2.3.3 Methods

The following analyses are guided by two central assumptions:

1. *In social sciences, all single-item measures are subject to measurement error.*

Therefore, latent variable models are employed in order to investigate immigrants' transnational mobility as a distinct type of transnational activities.

2. *The formation of transnational mobility differs across groups of immigrants.*

Individuals may engage in cross-border mobility for various reasons and to varying extent. Thus, the latent trait of transnational mobility may manifest differently across distinct groups of immigrants. For example, some individuals may frequently cross borders for short-term visits to their country of origin while others may perform long trips on a less frequent schedule. Thus, in order to not confound possible group differences, the subsequent analyses will account for distinct clusters of immigrants.

The most appropriate technique for accounting for both latent categorical and continuous variables is factor mixture analysis (FMA). These models consist of two parts of analysis. The first part comprises confirmatory factor analysis (CFA), which accounts for the latent trait of transnational mobility. It establishes regression relations between observed items and a common underlying factor. In this regard, respondents differ in degree with regard to one or several underlying continuous construct(s) (Lubke & Muthén 2005: 22). Thus, these kinds of models group and explain common variance in *items*. The second part consists of latent class analysis (LCA), which establishes unobservable groups of individuals. In

contrast to CFA, latent class models aim at clustering *units of observation*, e.g. respondents. Factor mixture analyses (FMA) then allow for the identified groups to differ with regard to the latent construct of interest.

2.3.3.1 Confirmatory factor analysis

The procedure of confirmatory factor analysis is a model-based approach to account for "the variation and covariation among a set of observed measures" (Brown 2006: 13). The underlying common factor model assumes each indicator to represent a linear function of one (or several) common factor(s) and a unique factor, capturing the specific variation of each observed item, e.g. measurement error and systematic factors that influence only one measure. The common factor model for continuous indicators may be formalized as follows:

(2.3.1)
$$u_i^* = \Lambda\eta_i + \varepsilon_i$$
$$\eta_i = \alpha + \xi_i$$

The term u_i^* expresses the individual i's latent response, which is influenced by the common and unique unobservable factors. Λ is the $p * m$ matrix of factor loadings, where m is the number of factors and p is a vector of observed outcomes. ε represents a vector of residuals containing a number of p distinct values. The term α refers to the individual mean of the latent factor, and ξ_i captures the m factor residuals that are assumed to be normally distributed (Clark et al. 2013: 685). In this common factor model the relationship between latent factors and observed indicators is expressed by regression functions. In order to evaluate the model fit several indices have been developed. The following indices are displayed: the *Root Mean Square Error of Approximation* (RMSEA), the *Comparative Fit Index* (CFI), and the *Tucker Lewis Index* (TLI). One main problem of most fit indices is that no global index ever identifies which part of a composite and usually complex hypothesis does not fit to the data. Further, indices of goodness (e.g. TLI) and badness (e.g. RMSEA) do not correspond sufficiently, which renders the choice necessarily arbitrary (McDonald & Ho

2002: 72). Fit indices which explain the overall proportion of explained variance (CFI) or which adjust the proportion of explained variance to the model complexity (TLI) should feature values greater than 0.90 (Kline 1998: 127 ff.). In contrast, the RMSEA as a badness of fit index should be close to zero. Values which are smaller than 0.10, 0.05, and 0.01 suggest acceptable, good, and excellent fit.

2.3.3.2 Latent class analysis

Comparable to CFA, latent class analysis (LCA) is a model based method (Vermunt & Magidson 2002). Therefore, different models formulating differing distributional assumptions may be statistically tested against each other. With regard to the questions of this contribution, LCA tries to identify distinct groups of respondents exhibiting different average values of the observed indicator variables. Applied to the object of this paper, the simplest form of LCA calculates mean differences of the utilized variables between groups, which reflect different extents of transnational mobility. The following term expresses the most fundamental equation underlying LCA:

(2.3.2) $$P(Y = y) = \sum_{c=1}^{C} \gamma_c \prod_{j=1}^{J} \prod_{r_j}^{R_j} \rho_{j,r_j|c}^{I(y_j = r_j)}$$

Given a latent variable L with c = 1,…, C latent classes, γ_c equals the probability of membership in class c. The term $\rho_{j,r_j|c}$ is called item-response probability. It expresses the probability of observing response r_j for variable j conditional on membership in class c. The indicator function $I(y_j = r_j)$ equals 1 when the response to variable $j = r_j$ and equals 0 otherwise. The overall formula expresses how a certain response pattern y is a function of all γ_c and $\rho_{j,r_j|c}$ over all combinations of c, j and r_j (Collins & Lanza 2010: 41). In order to estimate the

parameters of γ and ρ the computation uses iterative procedures[11] searching for maximum likelihood parameters best representing the observed data.

The relationship between observed continuous indicators and the categorical latent variable indicating class membership may be expressed by linear regression equations. In standard LCA the means of the latent class indicators are not correlated and the variances are held equal across classes as the default. Further, the covariances among the latent class indicators are fixed at 0 within classes. The latter assumption is called *local independence*. Due to this restriction, all covariance between the observed indicators is due to the unobserved latent variables, ergo differences between classes. Framed differently, it is only attributable to the unobserved variable that the manifest items correlate with each other. Once, the latent construct is partialled out, there remains no covariance between the items within each class.

Besides theoretical reasoning, several indices provide guidance in deciding on the correct number of latent classes. A common test was developed by Lo and colleagues called the *Vuong-Lo-Mendell-Rubin Likelihood Ratio Test (LMR)*. It tests the null hypothesis that a sample is drawn from a k_0-component normal mixture distribution against the alternative hypothesis that the sample is drawn from a k_1-component normal mixture distribution (Lo et al. 2001: 767). Thus, a $k-1$ class solution is tested against a k class solution and if the p-value is smaller than 0.05 the former should be rejected in favor of the latter solution. Simulation studies were able to show that if the LMR incorrectly identifies a model, it tends to overestimate the number of latent classes. Therefore, it has been argued that the test may establish an upper limit of classes if it indicates a non-significant difference between two models (Nylund et al. 2007: 562). Further displayed fit indices are Akaike's Information Criterion (AIC), the Bayesian Information Criterion, and the sample-size adjusted BIC (ABIC) (see Muthén

[11] Usually the expected maximization (EM) algorithm for incomplete data is used (Dempster et al. 1977). Due to space limitations the underlying computation of the maximum-likelihood estimates cannot be discussed in detail.

2006; Nylund et al. 2007). These criteria only qualify for comparing models, where smaller values imply a better model fit.

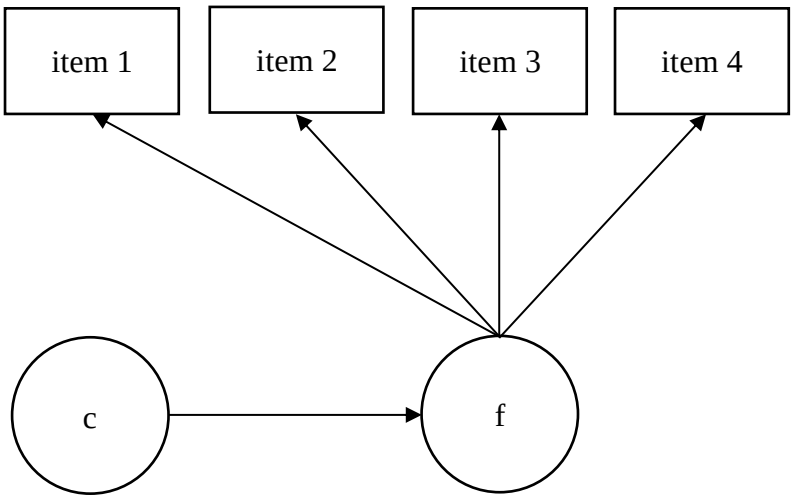
2.3.3.3 Factor mixture analysis

Factor mixture analyses (FMA) combine confirmatory factor- and latent class models and thus are flexible tools for investigating population heterogeneity. These hybrid models have been shown to be better suited for representing latent traits such as psychological disorders (Clark et al. 2013) and addictive behaviors, e.g. tobacco dependence (Muthén & Asparouhov 2006). For this study, the analyses establish a latent variable of transnational mobility, which may substantially differ across latent groups of immigrants. Thus, FMA combines latent continuous factors as constituted by equation (2.3.1) with a categorical latent variable established by latent class analysis. Therefore, the parameters may differ due to class membership as indicates by k in equation (2.3.3):

(2.3.3)
$$u_{ik}^{*} = \Lambda_k \eta_{ik} + \varepsilon_{ik}$$
$$\eta_{ik} = \alpha_k + \xi_{ik}$$

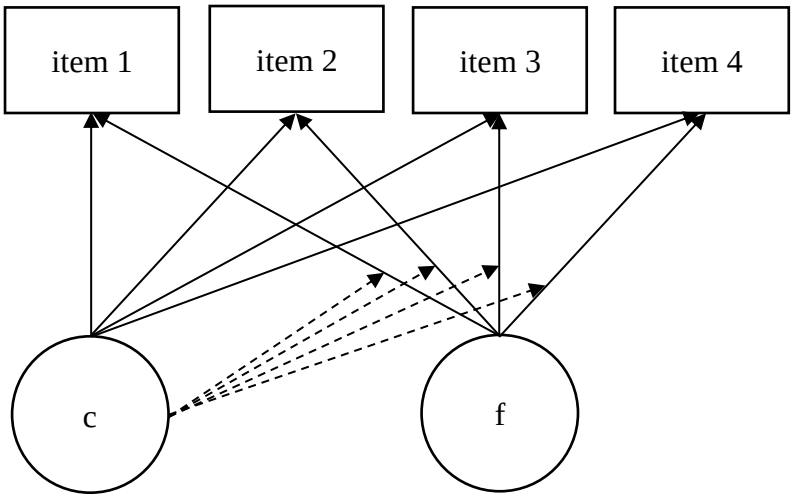
In the remainder of this study, two distinct factor mixture models are specified. The first setting is depicted in figure 2.1. In line with existing literature, this study operationalizes transnational mobility, which constitutes a subset of transnational activities in general, as a continuous phenomenon (Waldinger 2008). The latent construct f, therefore, determines the observed manifestation of the indicator variables. In addition, different classes (c) of immigrants exhibit different means on the continuous trait, as indicated by the arrow pointing from c to f. This model comprises two implicit assumptions. First, transnational mobility constitutes a continuous phenomenon which may be uniformly measured for all respondents of this study. Second, all differences in the manifestation of the observed indicators are due to mean differences on the continuous latent trait. These assumptions are inherently problematic as existing research was able to show that individuals engage in cross-border mobility for various reasons, e.g. in order to maximize their income or to diversify risks (Garip 2012).

Figure 2.1 Factor mixture analysis – conceptual depiction



Source: Clark et al. 2013: 683

Figure 2.2 IRT mixture model – conceptual depiction



Source: Clark et al. 2013: 683

Hence, a second factor mixture analysis accounting for these differences was conducted. Figure 2.2 displays its setting. Again, a continuous factor f represents transnational mobility. However, no class specific means, but class specific factor loadings – indicated by the broken lines – and class specific intercepts – depicted

by solid lines from c to the indicators – are computed. Therefore, the observed items may be of different relevance across the latent classes of c. According to this model, no uniform measurement of transnational mobility is assumed, but the phenomenon constitutes diversely for different groups of immigrants. Due to their similarity to item response theory (IRT)[12], these models are sometimes called IRT mixture models (Muthén & Asparouhov 2006: 1058). The following section displays results of three models: (1) confirmatory factor analysis and factor mixture models that assume (2) mean differences and (3) differing factor loadings and intercepts between groups. Particular emphasis is put on the most reliable and most robust factor mixture model.

2.4 Results

Table 2.2 displays the variances and covariances of the four items of interest. Additionally, it shows the mean values of the variables. The subsequent analyses aim at replicating these values by latent underlying structures. In a first step, confirmatory factor analysis established the continuous trait of transnational mobility. The measurement model is displayed in figure 2.3. All coefficients are standardized and significant at the 0.001 level. Transnational mobility relates to a higher number of trips, more recent trips, a longer mean length of stay and a longer period of movements between Germany and country of origin. Thus, the results strongly support assumptions of published research on transnational movements (Constant & Zimmermann 2012, Schunck 2011). Additionally, the fit indices as e.g. the *Root Mean Square Error of Approximation* (RMSEA = 0.024), the *Tucker-Lewis Index* (TLI = 0.988) and *Comparative Fit Index* (CFI = 0.996) indicate satisfying model fit (see Kline 1998: 127ff.; McDonald & Ho 2002). The subsequent analyses aim at answering the following question: Do multiple groups replicate the patterns of transnational mobility more reliably than a single group setup?

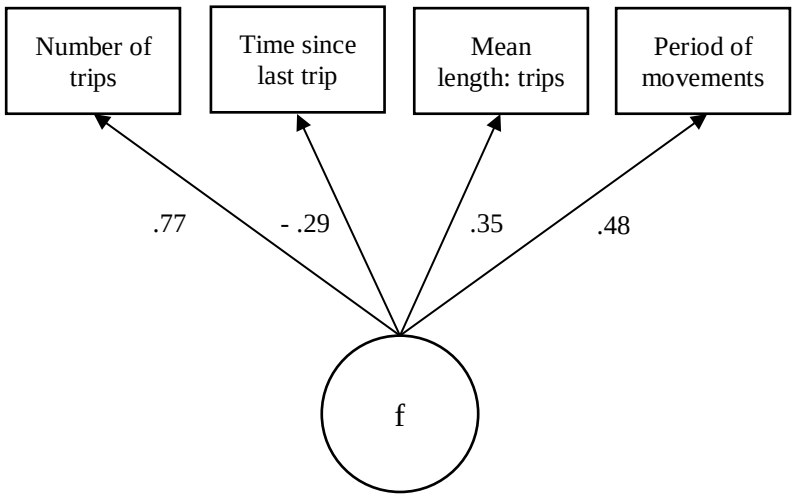
[12] The term of item response theory usually applies to a case where the latent variable is continuous and the indicators are categorical (Collins & Lanza 2010: 6; Muthén & Asparouhov 2006: 1053).

Table 2.2 Variance-Covariance matrix & mean values

GSOEP	Number of trips	Time since last trip	Mean length of trips	Period of movements
Number of trips	5.340			
Time since last trip	– 0.937	3.420		
Mean length of trips	0.506	– 0.122	0.640	
Period of movements	11.970	– 4.323	1.787	201.184
Mean	3.056	1.898	1.632	19.996

Source: GSOEP 1996 – 2010, own calculations

Figure 2.3 CFA – transnational mobility, standardized coefficients



N: 4019, RMSEA: .024, CFI: .996, TLI: .988 *Source*: GSOEP 1996 – 2010

Table 2.3 summarizes the results of all succeeding models. Besides the number of estimated parameters, the AIC, BIC, ABIC and LMR p-value are displayed where applicable. The factor mixture analysis, imposing equality of transnational mobility on the data supports a single-class solution. The LMR Likelihood Ratio test indicates that the inclusion of a second class does not significantly increase the model fit in comparison to the application of a single group. At any rate, a maximum of seven classes seems reasonable. Again the LMR test fails to reject the null hypothesis that an eight-class solution does not significantly increase the model fit in comparison to a seven-group solution. Nevertheless, the results

generally support the CFA's preceding implications. When considering a single construct of transnational mobility, one overall group of immigrants represents the covariance-variance structure best. The inclusion of distinct groups does not significantly increase the model fit.

Table 2.3 Model comparison results

	Par.	AIC	BIC	ABIC	LMR p Value
Factor analysis (1)					
One factor	12	75708.662	75784.248	75746.117	-
Factor mixture analysis (2)					
Two-class	13	74435.988	74517.873	74476.564	0.2398
Three-class	15	73886.888	73696.332	73642.313	0.0000
Four-class	17	73589.252	73696.332	73642.313	0.0105
Five-class	19	73231.731	73351.408	73291.034	0.0000
Six-class	21	73067.913	73200.188	73133.459	0.0000
Seven-class	23	72910.792	73055.664	72982.580	0.0000
Eight-class	25	70946.997	71104.466	71025.027	0.1234
IRT mixture analysis (3)					
Two-class	21	72191.602	72323.877	72257.148	0.0000
Three-class	30	70649.220	70838.184	70742.857	0.0000
Four-class	39	70084.240	70329.893	70205.968	0.0613

N = 4,019 *Source*: GSOEP 1996 – 2010, own calculations

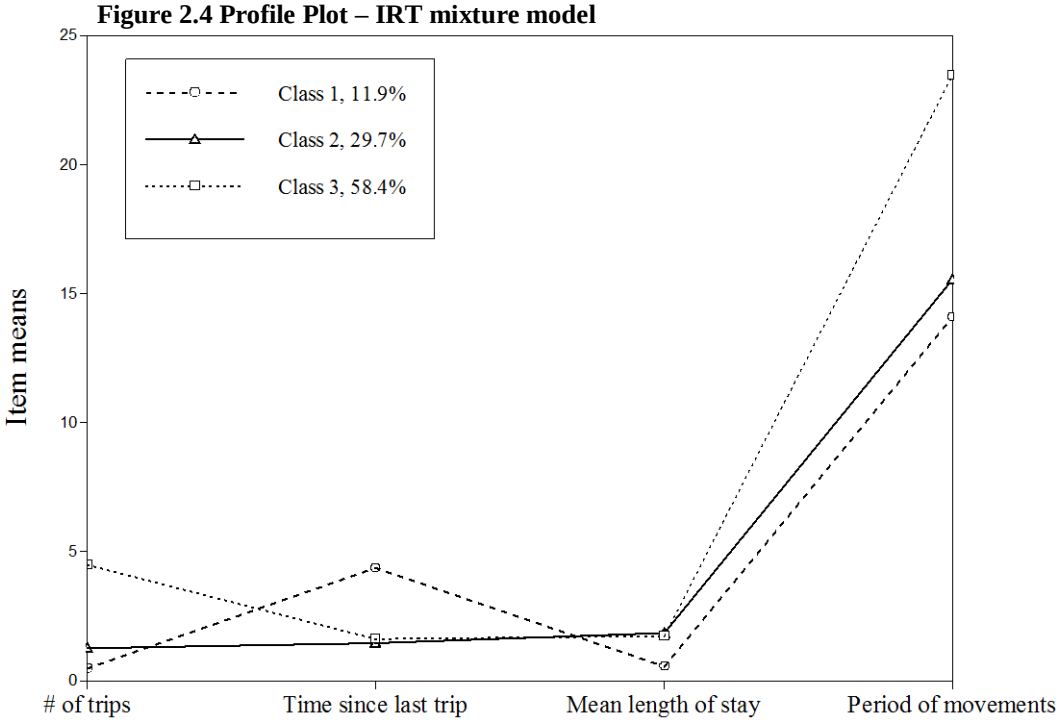
Therefore, the results of the final and most elaborated model are discussed in most detail. The IRT mixture analyses exemplify that after accounting for both continuous and categorical unobserved variables and allowing the factor loadings and –intercepts to vary across groups, a solution with three groups fits best to the data. The LMR test indicates that four groups do not improve the model fit significantly. Further, according to the AIC, BIC and ABIC the three-class IRT analysis exhibits the best model fit in comparison to the other models. Figure 2.4 displays the profile plot for the final IRT model[13]. The graphic shows the classes'

[13] The corresponding values as well as each class' mean remittances and age are shown in table 2.4. As no imputations were performed, the diverging numbers of respondents are due to missing values.

separate item means. The results imply that class 3 represents the most transnational of all three groups, covering approximately 58% of all 4,019 respondents. Members of this class on average exhibit the highest number of trips (~ 4.7) and the longest period of movements (~ 24.2) between Germany and their countries of origin. Additionally, these immigrants have been to their country recently and stay in their country – on average – for more than three weeks[14].

With approximately 12%, class 1 constitutes the smallest subgroup of all respondents and includes the least mobile immigrants. These travel least often and only for short visits to their country of origin. Further their last trip took place more than four years ago and they have been traveling between both countries for a shorter period than the other two groups. Additionally, members of this group transfer the smallest amount of remittances to their country of origin. In terms of their 'transnational profile' the second class falls somewhat between the first and the third group.

Figure 2.4 Profile Plot – IRT mixture model



[14] The values equal: 0 "not at all", 1 "less than three weeks", 2 "one to three months", 3 "four to six months", 4 "more than six months".

They tend to stay slightly longer in their country of origin than members of both other groups and their last trip took place very recently. In this regard, class 2 and 3 resemble each other strongly. Yet, members of the second group have been to their country of origin considerably less often and remit less money. Differing mean ages of class 2 and 3 cannot explain these differences as members of the latter class started commuting at an earlier age (= 26.3) than respondents of the former group (age = 28.5). Further, by calculating the ratio of trips per year of commuting ($\text{rty} = \frac{\#\text{ of trips}}{\text{period of movements}}$) the differences in periods of movements may be controlled for. Class 3 obtains a factor of $\text{rty} = 0.194$ trips per year, while the value for members of class 2 is significantly lower ($\text{rty} = 0.082$). Thus, the third group on average started commuting earlier and kept doing it more frequently and for a longer consecutive period of years.

Table 2.5 displays the factor loadings of the final model's classes. These inform about the structure of the latent construct for the unobserved classes. First and foremost, the significant differences in factor loadings indicate that transnational mobility is not a uniform phenomenon among immigrants in Germany.

Table 2.4 IRT mixture models – means

	Total remittances (€)	# of trips	Time since last trip (years)	Mean length of stay (months)	Period of movements (years)	Age
Class 1	1540.6	0.45	4.37	0.55	14.03	49.12
N	312	482	482	482	482	482
Class 2	1809.1	1.24	1.43	1.84	15.14	43.67
N	851	1,311	1,311	1,311	1,311	1,311
Class 3	4386.0	4.69	1.63	1.75	24.15	50.48
N	1903	2,226	2,226	2,226	2,226	2,226
N	3,066	4,019	4,019	4,019	4,019	4,019

Source: GSOEP 1996 – 2010, own calculations

Table 2.5 IRT mixture model – factor loadings

	Class 1	Class 2	Class 3
# of trips	0.492*	0.075*	– 1.901*
Time since last trip	3.500*	0.074	0.339*
Mean length of stay	0.623*	0.685*	– 0.116*
Period of movements	– 2.130*	1.419*	– 4.395*

Source: GSOEP 1996 – 2010, own calculations
N = 4,019
* p < .05

For the most mobile group of respondents, which are subsumed under class 3, the latent factor represents a construct of non-mobility. High values on the factor cause a significantly smaller number of trips and a shorter period of movements. Additionally, average length of stay decreases and time since the last trip increases with higher factor scores. Thus, within class 3 all variables relate in the expected way to non-mobility. Therefore, the observed relationships reflect the theoretical assumptions of the literature on transnational mobility – though with reversed signs – comparatively well for the most mobile group of immigrants. However, it has to be kept in mind, that class 3 only covers approximately 58% of the sample. The remaining share of immigrants needs elaboration as well. For class 2 higher values on the latent construct relate to a longer period of movements, longer mean lengths of stay and a higher number of trips. Hence, the unobservable construct represents a transnational orientation of the immigrants. Yet, it should be stressed that the factor loading for number of trips – arguably the key indicator of transnational mobility – is very low. Despite its statistical significance, the latent construct, therefore, only marginally influences the frequency of travelling to the country of origin within class 2. Further, the considerable differences in factor loadings imply that analyzing classes 2 and 3 together, would have superimposed considerable group differences in the extent and shape of return visits. Finally, the factor loadings for class 1 contradict the theoretical assumptions. Within this group, the latent construct relates to a larger number of trips and longer stays in the country of origin. However, higher scores

on the unobservable trait also increase the time since the last trip dramatically and significantly decrease the period of movements. Thus, for class 1 the factor loadings imply a latent continuous factor inconsistent with the literature on transnational mobility.

Table 2.6 Descriptive results – IRT mixture model

	Income (€)	Education (years)	Unemployed (%)	Male (%)	Identity (%)			
					Integr.	Separ.	Ass.	Marg.
Class 1	1,588.4	11.5	16.0	53.0	8.2	17.4	55.5	18.9
(N)		(313)				(391)		
Class 2	1,899.9	11.3	12.5	57.9	9.3	44.4	26.8	19.5
(N)		(840)				(1,115)		
Class 3	1,600.7	11.2	21.7	52.4	9.2	44.2	23.1	23.5
(N)		(1,749)				(2,196)		
(N)		(2,902)				(3,702)		

Source: GSOEP 1996 – 2010, own calculations

Table 2.6 displays some further descriptive statistics of the classes. It shows the mean income, education in years as well as the percentages of unemployed and male respondents by class membership. Further, the proportions of individuals expressing integrative, separated, assimilative, and marginalized identities are displayed. On average, respondents of class 3 have a slightly lower level of education and are more often unemployed (21.7%) than members of the other groups. Further, their incomes take a middle position of the three groups. Further, the majority of this group identifies exclusively with the country of origin. In this regard, no large differences between class 2 and 3 exist. Nearly one quarter of the most transnational group does not identify with either country and hence expresses a marginalized identity. Surprisingly, the pattern of an integrated identity comprises the smallest subset of immigrants in all three classes. Thus, the

observed patterns contradict the idea of a transnational identity structure for any of the groups. The most conclusive findings are obtained for the first and least mobile class. Consistent with theoretical assumptions the majority of this group identifies solely with Germany (55.5%). Regarding the five largest countries of origin within each class, one finding is particularly striking (table 2.7). The vast majority of respondents in the most mobile group consist of former guest workers and Polish immigrants. The most outstanding difference between the third and the other classes is that the latter two include a substantial share of Former Soviet immigrants. Yet, particularly the second class comprises a large proportion of former guest workers as well.

Table 2.7 Top five countries of origin

Class 1		Class 2		Class 3	
Country	N	Country	N	Country	N
FSU[a]	105	Turkey	261	Turkey	701
Poland	70	Yugoslavia[b]	160	Yugoslavia[b]	316
Turkey	50	Poland	131	Italy	309
Yugoslavia[b]	49	FSU[a]	127	Poland	186
Romania	29	Italy	121	Greece	182
Top 5	62.9 %	Top 5	61.0 %	Top 5	76.1 %

Source: GSOEP 1996 – 2010, own calculations

[a] Former Soviet Union

[b] Bosnia and Herzegovina, Croatia, Kosovo, Macedonia, Montenegro, Serbia, Slovenia

Two conclusions may be drawn from the presented findings: First, with regard to transnational mobility, three groups of immigrants need to be distinguished in Germany. These are characterized by considerably differing factor structures whereat only the third group exhibits theoretically consistent statistical relations. With reservations, the second group displays expected relationships as well. Yet, particularly the number of trips – as a central indicator and at odds with the theoretical assumptions – is of little relevance for the latent trait of transnational mobility. The first group's factor loadings contradict the expectations and imply a

rather immobile group of immigrants. Second, doubts arise whether one of the obtained groups represents a conceptually distinct group of transnationals. The third group most typically approximates a class of internationally mobile immigrants. However, members of this group are neither characterized by high incomes and high levels of education, nor by multiple identifications. The final section discusses the implications of these findings, explicates the limitations of this study and gives an outlook for future research.

2.5 Discussion and outlook

This study empirically explored transnational mobility of immigrants in Germany. For this purpose it assessed the number, duration, and length of return visits by four indicators. The subsequent analyses exemplified the phenomenon's complexity and indicated that including both categorical and continuous latent variables enhances the understanding of transnational mobility. Furthermore, cross-border mobility manifests heterogeneously for different groups of immigrants. Therefore, the strategy of approximating transnational mobility by (long) return visits – at least partly – fails to assess the intended outcome.

This paper contributes to the quantitative literature on transnationalism in two regards. First, the presented results constitute a cornerstone in quantitatively seizing the relevance of transnational mobility in Germany. As the country has most recently surpassed traditional countries of immigration in total numbers of influx and now constitutes the second largest country of immigration, empirical research on this conceptually new phenomenon becomes increasingly important (OECD 2014). Approximately 58% of the first, second, and third generation immigrants in Germany may be considered a mobile group. Second, however, the study shows that there remains considerable doubt about the adequacy of utilizing cross-border trips as an indicator of transnational mobility. Inhabitants of foreign descent display differing patterns of returning to their country of origin. Although a single factor of transnational mobility could be established in confirmatory factor analysis, the inclusion of latent classes in so called hybrid- or factor mixture

models improved the representation of the variance-covariance structure significantly. According to these, three groups of immigrants need to be distinguished. Hence, studies that cluster all immigrants into one group and that assume transnational mobility to establish in a uniform manner for all of them most likely produce biased results.

Therefore, this study exposed the problem of a priori assuming return visits to be a uniform indicator of transnational mobility. Existing empirical studies usually define certain activities as *transnational* without critically testing this assumption. To travel abroad at least twice a year (Portes et al. 2002) or return visits of at least four months (Schunck 2011) are just two examples of arbitrarily defining the phenomenon. However, the results of this study indicate that frequent and long trips to the country of origin work as an indicator of transnational mobility only for a certain share of Germany's immigrants. For the remaining 42% of this study's 4,019 respondents, this strategy may lead to flawed results. Thus, this paper expounds the problems of existing empirical studies on cross-border mobility (Constant & Zimmermann 2012; O'Flaherty et al. 2007; Schimmer & van Tubergen 2014; Schunck 2011). These may seriously suffer from concept misspecification and arguably fail to assess the phenomenon they are claiming to. Furthermore, the findings challenge the common understanding of transnational immigrants as being characterized by high levels of education and income. However, the findings have to be discussed in light of the study's methodological restrictions.

First, the single-sited design of the GSOEP restricts the findings, as a considerable amount of transnationals residing abroad at the interview date might be excluded. Additionally, irregular immigrants without permanent residence are excluded from the analysis as well. However, as long as transnationals are randomly distributed across Germany and their countries of origin[15] the obtained results

[15] Transmigrants might as well move between more than two countries or between countries other than their country of origin. For the sake of clarity, the arguably most common case was regarded in this paper.

should be reliable. Second, with eight available waves covering the period from 1996 to 2010 the data are left censored. Therefore, the number of trips, time since the last trip, and the period of movements represent approximations at best. The problem of measurement validity further extends to the item of time spent in the country of origin. Due to a problematic operationalization, long trips are most likely underestimated. All categories, but particularly the one of "more than six months", do not allow for an exact measurement of time spent in the country of origin. Third, the study defined transnational mobility by cross-border trips to the country of origin. Thus, a variety of other transnational activities are neglected. However, the results imply that empirical studies need to more strongly account for the phenomenon's complexity. Particularly, analyses using single-item measurements assuming a linear dependency upon a set of predictors may be overly simplifying issues.

Rather, the latent underlying construct of transnational mobility occurs to be validly measured only if the empirical analysis accounts for considerable differences between groups. The study therefore links to existing research emphasizing the need to account for multiple groups in migration research (Garip 2012; Saarela & Finnäs 2007). On the one hand, a large share of respondents displays a theoretically consistent pattern of return visits. For these, decreasing numbers of trips relate to both decreasing lengths of stay and decreasing periods of movements. Consistently, the indicator of *time since the last trip* increases with higher scores on this *non-mobility* factor. On the other hand, for a smaller, but still substantial fraction of respondents, the patterns of travelling to the country of origin are less clear. Particularly, the most common indicator in the literature – number of trips – is weakly (class 2) or contradictorily (class 1) related to the unobserved latent trait. Thus, findings based on this indicator may be inherently problematic.

Future theoretical reconfigurations would have to search for mechanisms explaining the diverging engagement of these different classes of immigrants. Particularly, in order to study transnational mobility, immigrants' reasons for

travelling to the country of origin need to be surveyed. Certain immigrants may simply return to their country for reasons of leisure or vacation, while others may engage in economic ventures or maintain long-lasting social ties across borders. These differences may be reflected in the different patterns of return visits. Unfortunately, this study could not link motives to cross-border mobility as no data on the reasons of returning to the country of origin are available. Yet, even if complex latent structures are considered, the theorized positive relationship between regular and persistent return visits and multiple identities could not be replicated. Therefore, future empirical studies need to explore the interrelations between different dimensions of transnationalism in more detail, e.g. between return visits, remittances, and identities. Additionally, diverse indicators of different dimensions could be tested in comprehensive statistical models. In doing so, more general groups of immigrants may be identified, differing in their overall transnational orientation rather than only with regard to transnational mobility. In order to allow for such far-reaching conclusions, however, future research needs to include further indicators, which go beyond the limited area of transnational mobility.

However, the study demonstrated that transnational mobility is comparatively widespread among immigrants in Germany. Hence, a deeper understanding of this phenomenon helps formulating adequate policy implications with regard to immigrants' social integration. In light of continuing public debate on dual citizenship and immigrants' integration such a deeper understanding poses an urgent issue of social research.

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3

The Interrelation of Immigrants' Interethnic Ties and Socioeconomic Status in Germany. An Autoregressive Panel Analysis[16]

Sascha Riedel

Abstract: This paper analyses the causality between interethnic ties and socioeconomic status (SES) for Italian, Turkish and former Yugoslavian immigrants in Germany. Referring to social capital theory and its inherent problem of homophily, the interrelation between these two constructs remains ambiguous. The data come from the German socioeconomic panel study. After demonstrating the drawbacks of existing empirical studies on this issue, results of fixed effects panel regressions and autoregressive cross-lagged panel models (ARM) with latent variables are presented. In this respect, the latter are considered more appropriate to tackle the formulated questions. To counter common criticism of ARM, an unmeasured variable model is computed in order to control for spurious relationships. After accounting for simultaneity, reverse causality and unobserved heterogeneity, the interethnic ties of immigrants positively influence the respondents' SES. In the strictest test, no significant reverse effect remains. Hence, the results support social capital theory.

Keywords: Immigrants, Germany, Interethnic ties, Socioeconomic status, Panel analysis, Causality

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3.1 The problem

In integration research there is an on-going controversy about the sequence of immigrants' adaption process with regard to socioeconomic attainment and interethnic networks. Applying the concept of social capital, one could deduce that immigrants might utilize their interethnic friendship ties for achieving higher socioeconomic statuses. Yet, due to social homophily individuals of comparable social characteristics, e.g. with regard to educational levels and occupational statuses, tend to associate with each other (McPherson et al. 2001). Thus, the effect of social capital on socioeconomic status (SES) might be spurious and even a reverse causality might hold true. As immigrants' on average lump at low educational tracks and are disproportionately distributed across less prestigious occupations, their lower interethnic ties might be caused by less opportunities to interact with host society members. In contrast, immigrants with higher SES get into contact with host society members more frequently. Furthermore, the utilization of social networks for finding a job might be reliant on the level of social capital itself. Hence when looking for a job, better connected individuals would more likely rely on their social contacts than individuals with less social capital. For the outlined reasons, preceding research has been cautious in implying a causal effect from social capital to SES (see Mouw 2003, 2006). Thus, it remains unclear in what sequence SES and interethnic contact (IEC) relate to each other. This ambiguity is based in the research designs analysing the interrelation between those. Existing studies overwhelmingly often seize the problem in a unidirectional way. Either the effect of SES on interethnic ties is regarded or the reverse causality applies, but only few studies explicitly try to disentangle the interrelations or adjust for severe problems such as reverse causality and simultaneity. As the establishment of causal inference from statistical analysis of survey data is inherently problematic an extensive consideration of possible biases is a necessary condition in trying to do so. The paper at hand tries to tackle the formulated problem by presenting results of differing methodological approaches.

By utilizing and comparing autoregressive cross-lagged panel models (ARM) and fixed effects panel regression, this paper tries to allay the ambiguity about the process of integration regarding socioeconomic attainment and interethnic social networks. This paper advances as follows: First, the theoretical concepts are clarified. Starting from the more general theory of social capital the implications for the incorporation of ethnic minorities are derived. Furthermore, this part briefly introduces the inherent problems when trying to assess a social capital effect. Subsequently, the data and the research method are described. The results are twofold: First, fixed effects regressions were conducted. On the one hand, these convincingly replicate preceding longitudinal findings for Germany (Kanas et al. 2011, 2012; Lancee 2012). Yet, on the other hand they also exemplify the limited capacity of accounting for reverse causality and simultaneity by the application of lagged predictors in fixed effects regressions. Second, the interrelations between IEC and SES are explored by conducting autoregressive cross-lagged panel models. The final section discusses the results and limitations of the study and gives an outlook on remaining questions of future research.

3.2 Theory

This paper utilizes the theory of social capital. Advancing from a perspective of rational choice and methodological individualism the concept of *social capital* conveniently broadens the neoclassical theory of capital as *human capital* did before. Social capital formulates the notion that besides monetary investment, production, and the embodiment of individual skills and abilities the "*investment in social relations"* (Lin 2001: 19, emphasis in original) has returns in the marketplace as well. Less tangible than economic and human capital, social capital is captured through social relations to others. In particular, the actor exercises control over resources by virtue of his membership to certain networks or groups. A common definition of social capital reads as "*resources embedded in a social structure that are accessed and/or mobilized in purposive action*" (Lin 2001: 29, emphasis in original). In this sense social capital is a means to certain ends and therefore comparable to every other individual resource. With regard to

its interrelation with SES, social capital primarily facilitates the dispersion of information about job openings. In this respect, it is crucial to differentiate between formal and informal job search channels. Job postings, offline as well as online, represent a formal- while hearing about a job opening from a personal friend represents an informal channel. Empirical findings implicate that younger, less experienced, and less educated workers tend to rely more strongly on social ties (Drever & Hoffmeister 2008; Lin 1999). This largely explains why, on an aggregate level, jobs found through informal channels tend to be less prestigious than those found via formal search strategies. Nevertheless, studies have consistently shown that higher resources within the social networks are positively correlated with higher job prestige, income, and wages (Lin 1999; Mouw 2003: 871). With regard to SES those adherent resources of social contacts might fulfil diverse purposes.

First, social networks provide essential information about occupational opportunities. From a conceptual point of view in a perfect labour market the wage of a worker is an equivalent to the price of a commodity. Employers are the buyers and employees are the sellers of labour force. Supply and demand establish equilibrium, while higher wages attract more qualified workers. It is only in the presence of imperfect information that friendship networks become crucial in obtaining the knowledge about relevant job openings. Here, social capital has the ability of drastically reducing the cost of job search, which is commonly divided into *effort* and *intensity*. The former "reflects the general energy and persistence that the job searcher exhibits when seeking employment" while the latter "assesses the frequency with which the searcher engages in specific job search preparations" (Boswell et al. 2011: 130ff.). By obtaining custom-fit information about job postings, the individual's costs with regard to seeking and preparing reduce considerably.

Second, social capital exerts influence on individuals in relevant positions. This aspect mainly refers to recruiters and supervisors. Besides certificates and diplomas, putting in a good word, depending on the position and prestige of the

network tie, might be an influential credential in the selection process of employees. In this regard, the tie's SES and its adherent position within the firm are of large significance. Higher statuses and positions are linked to a higher potential of beneficial influence.

Third, social ties can be regarded as part of the employee's so called soft skills. Besides individual human capital, e.g. skills and abilities, social capacities might be beneficial for the employer as well. This claim holds especially true for occupations that require social contacts and networking regularly, as e.g. retail or sales and distribution. In this respect social ties serve as certification of the social capital possessed by the individual, which is a valuable credential of an employee's qualification itself.

Finally, social capital is considered to help maintaining the mental health of individuals. By providing recognition and appreciation of relevant others, social ties assure the individual's positive self-image, especially in the presence of psychological strains that usually accompany migration experiences. In this regard, social capital has an impact not to be underestimated on the personal well-being. Hence, it might measurably increase the individual productivity of workers and employees (Lin 2001: 20).

By these four mechanisms a causal effect might be attributable from social capital towards SES. Although mostly related to employment status and occupational prestige, social capital may positively influence educational achievement as well. On the one hand, the school is an important environment where social networks of interpersonal interaction are established and fostered (Harris et al. 2002: 1009). On the other hand, previous studies were able to explicate significant effects of social ties on school results. Besides ties to own-ethnic members outside of school and peers' normative standards and adaptive behaviours, the presence of positive role models serving as functional weak ties exerts substantial influence on immigrants' educational attainment (Abada et al. 2009; Ryabov 2011). Furthermore, the structural resources embedded in adolescents' friendship ties

may compensate for missing familial resources. Empirical research was able to substantiate this claim as close friends attending the same school have a significant mitigating effect on Hispanics' engagement problems in school and increase the perceived school belonging (Vaquera 2009).

All presented mechanisms so far include no information about the distinctive characteristics of the social ties needed for a positive impact on the individuals' SES. In this regard, three features seem relevant. First, the social positioning of the individual itself has an impact on the facilitation of a social capital effect. This links directly to, second, the position of the relevant other person that makes up a social tie. Due to social homophily people are more likely to interact with individuals that resemble themselves. Homophily is defined as a principle according to which contact between similar individuals is more frequent than among dissimilar people (McPherson et al. 2001: 416). For the study at hand, this phenomenon particularly refers to similarity in socioeconomic characteristics, as for example income per annum or educational levels (Lin 2001: 39). As the majority of immigrants is less educated and occupies less prestigious jobs than majority members (Kalter & Granato 2002; Kogan 2007; Worbs 2003) and as people of comparable social characteristics are more likely to interact with each other, it is those immigrants with above-average SES that are more likely to interact with member of the host society. In this regard, research investigating a possible causal effect of social capital has strongly focused on employment status and labour market outcomes (Mouw 2003). However, the same mechanisms may be expanded to educational attainment (see Mouw 2006: 88f.). As German schools tend to be ethnically segregated, the formation of immigrants' social networks is dependent on choices made before entering primary school (Kristen 2008; Makles & Schneider 2011). Possible mechanisms underlying this disproportional distribution of students may be group differences between majority- and immigrant parents with regard to the perception and evaluation of school alternatives (Kristen 2008: 498f.). In this respect, personal preferences (e.g. for schools with high proportions of students of own ethnic origin) and lack of institutional knowledge of immigrants' parents are two potential explanations

for ethnic segregation at school. Further, preceding research found academic orientation, measured by grade-point average (GPA), educational aspirations and effort in school work, to be a positive predictor of interethnic friendship ties of African American adolescents in the U.S. (Hamm et al. 2005). With reference to social contact theory the authors argue that high achieving African Americans become separated from their co-ethnics, which increases their likelihood of establishing interethnic ties (Hamm et al. 2005: 22). Thus, due to homophily the causal interdependency between social capital and SES – referring to occupational status and educational success – is blurred.

Finally, the distinctive characteristics of the tie between two individuals are of significant importance. Typically, scholars tend to differentiate between strong and weak ties or so called bridging and bonding social capital. In integration research, contacts within the own ethnic enclave are usually considered as bonding social capital, while bridging social capital usually refers to interethnic contact (Drever & Hoffmeister 2008; Kanas et al. 2011, 2012; Lancee 2010; Maliepaard & Phalet 2012). On the one hand, bonding social capital prototypically connects individuals which are alike and whose relationship is characterized by high intimacy and trustworthiness. The adherent benefits are dense information flows as well as mutual trust and socially enforced cooperation among in-group-members. Those interrelations therefore increase the accessibility of resources inherited by others. Yet, due to social homophily it is assumed that information within a dense network of bonding social capital is evenly distributed. If an actor needs information other than already possessed by him, ties to unequal individuals might be more beneficial (Lin 2001: 67). Those are captured by bridging social capital that connects groups of different social background (Putnam 2000: 22). Due to this capacity, bridging social capital is sometimes regarded more essential for improving the individual labour market status (Granovetter 1974).

According to segmented assimilation theory a strong embeddedness into own ethnic communities is expected to be beneficial if the ethnic enclaves “feature

sizable numerical concentrations and a diversified occupational structure" (Portes & Zhou 1993: 84). Hence, immigrants may strongly benefit from bonding social capital. This assumption is underpinned by empirical findings (Granovetter 1974; Kroneberg 2008). Yet, large ethnic enclaves in Germany are commonly regarded lowly stratified (Drever 2004; Granato 2009). Consistently, German migration literature highlights a larger importance of social ties to members of the majority than to own ethnics (Drever & Hoffmeister 2008; Haug 2003a, 2003b; Kanas et al. 2012; Lancee 2012). In this regard, immigrants might benefit from social ties to majority members by receiving informal counselling as well as by improved access to host-country specific resources, e.g. referring to language acquisition, and institutional knowledge of host society's authorities. These theoretical assumptions have been substantiated by German quantitative research (Kalter 2006; Kanas et al. 2011, 2012; Lancee 2012). Additionally, no comparable effect of social capital in general (Kanas et al. 2011, 2012) and own-ethnic social networks (Lancee 2012) on occupational- and employment status could be identified in longitudinal studies. Thus, it seems to be the distinct resources attached to ties to German natives that facilitate the positive effect on immigrants' SES in Germany. Moreover, a multitude of international studies explicitly (Lancee 2010; Xie & Greenman 2011) or implicitly (Fleischmann et al. 2011; Lindemann & Saar 2012; Maliepaard & Phalet 2012; van Tubergen & Kalmijn 2009) found positive effects of interethnic networks on immigrants' overall integration processes. Thus, advancing from a perspective of social capital a positive influence of ties to host society's members on the socioeconomic attainment of immigrants is expected. Yet, due to homophily a reverse causality or simultaneous alternating effects cannot be ruled out. Hence, from the preceding theoretical discussion the following research question derived:

> In what sequence are socioeconomic status (SES) and the establishment of interethnic contacts (IEC) linked to each other? Is it the socioeconomic resources of immigrants that facilitate contacts to members of the host society or do bridging social networks positively influence the occupational and educational progress of immigrants?

Currently, one of the most advanced analyses on the causality between SES and IEC in Germany was performed by Kanas and colleagues (2011). By applying fixed- and random effects panel regressions with lagged predictors the authors consistently find a positive effect of lagged contacts with Germans in t_{-1} on the employment status in t. Another more recent study replicates those findings for occupational status and to a lesser extent for annual income of immigrants in Germany (Kanas et al. 2012). Yet, this contribution extends these results in several regards. First, a more complex measurement will be applied to operationalize IEC and SES. Using multiple indicators to quantify the latent constructs of interest the possibility of measurement error is ruled out. Further, the chosen structural equation framework allows for testing measurement invariance, which is especially crucial in longitudinal analysis (Byrne et al. 1989; Christ & Schlüter 2010: 90 ff.). Second, the simultaneous inclusion of autoregressive relationships and predictors for both constructs of interest allows for a stricter test of reverse causality than the application of fixed effects regressions with lagged predictors (Kanas et al. 2011: 107). The problems of the latter approach will be exemplified in a preceding step. Hence, the study at hand draws on existing research and tries to replicate and enhance it.

3.3 Data and method

The data are made up by cumulated waves of the German Socioeconomic Panel (GSOEP). This survey is a representative longitudinal study of private households, which is conducted on a yearly schedule. In every survey wave approximately 20,000 respondents out of nearly 11,000 households are interviewed. The GSOEP has been conducted since 1984 and at the time of the writing, data for 29 consecutive time points (1984 – 2012) are available. The survey waves of 1992, 1996, and 2006 constitute the basis of the cross-lagged panel analysis, but whenever no data on a variable was available the data of preceding years was used to impute the dataset. This proceeding was based on the study by Kanas and colleagues (2011) and its limitations are discussed in the

concluding section of this contribution. For the fixed effects panel regressions all survey waves from 1986 until 2010 have been used.

Three items compose the respondents' SES: the length of education in years, the standardized equivalised household income per year and the individual ISEI status. The latter indicator refers to the *International Socio-Economic Index of Occupational Status*, which assigns a value to each occupational position considering a combination of educational requirements and income (Ganzeboom et al. 1992). The length of education includes, besides formal schooling, both occupational training and academic studies. As Germany's dual education system includes vocational schooling for apprenticeship occupations, this indicator relates more strongly to the labour market success of immigrants than compulsory schooling alone. Further, preceding studies have shown that unskilled workers, neither finishing vocational- nor tertiary education, are particularly at risk of shifting into troubled employment patterns and poverty (Kalter 2006; Kogan 2007).

Respondents' IEC is made up by the following three items: first the proportion of Germans among the three best friends, second the visits from and at Germans, and third a computed item of neighbourhood relation. The second indicator is a dummy variable made up by two questions:

1. In the last 12 months did you visit any Germans in their home?
2. In the last 12 months were you visited by any Germans in your home?

The answer categories are "yes" or "no". Each respondent answering with "yes" to at least one of the questions got assigned a value of 1. Hence, this indicator is dichotomous. The neighbourhood relations are constructed out of three items:

1. Are there any foreign families living in this area?

2. How close is your contact with your neighbours here in the block or in this area in general?
3. How often do you normally visit them?

Respondents answering that there are foreigners living in their residential area (question 1) got assigned a value of 0. Subsequently, only for respondents stating that there are no foreigners residing in their neighbourhood, the two following items were summed up to an index measuring the neighbourhood relation to Germans. All items refer to so called informal social capital within the private and intimate domain (Pichler & Wallace 2007; Savelkoul et al. 2011). Descriptive statistics of all items for the years of 1996 and 2006 are displayed in table 3.1.

Table 3.1 Descriptives

Item	Year	Mean	SD	N
Socioeconomic status (SES)				
Length of education	1996	9.52	2.00	1,792
	2006	10.10	2.21	1,363
Equivalised household income	1996	11798.32	5253.77	2,191
	2006	14614.18	7598.04	1,567
ISEI	1996	16.64	11.01	1,458
	2006	18.46	12.85	1,141
Interethnic contact (IEC)				
% German friends	1996	0.29	0.37	1,857
	2006	0.28	0.37	1,401
Visits at / from Germans	1996	0.77	0.42	1,707
	2006	0.75	0.43	1,327
Neighbourhood relations	1996	0.43	1.21	1,627
	2006	0.19	0.74	1,225

Source: GSOEP 1986-2010, own calculations

The data contains respondents of Italian, Turkish, and former Yugoslavian[17] origin. These represent a large share of the so called former guest workers in Germany. Due to their uniform context of reception it is assumed that these experience comparable processes of integration. Furthermore, in order to avoid biased results, only respondents aged 18 years or older were included in the analysis. Besides persons with own migratory experiences, immigrants of the second and third generations were included as well.

The first step of analysis is made up by the application of fixed effects regression (see Wooldridge 2008: 265 ff.). Given a longitudinal model:

(3.3.1) $$y_{it} = x_{it}\beta + c_i + u_{it}, \qquad t = 1, 2, \dots T$$

with $x_{it}\beta = \beta_1 x_{t1} + \cdots + \beta_K x_{tK}$ the error term splits in two separate terms – one that changes over time (u_{it}) and one that does not change over time (c_i). In order to obtain the fixed effects transformation, first equation (3.3.1) has to be averaged over $t = 1, 2, \dots T$:

(3.3.2) $$\bar{y}_i = \bar{x}_i\beta + c_i + \bar{u}_i$$

where $\bar{y}_i = \frac{\sum_{t=1}^{T} y_{it}}{T}$, $\bar{x}_i = \frac{\sum_{t=1}^{T} x_{it}}{T}$, and $\bar{u}_i = \frac{\sum_{t=1}^{T} u_{it}}{T}$. Afterwards equation (3.3.2) is subtracted from equation (3.3.1) in order to obtain the time demeaned equation. Although, the assumption of strict exogeneity of the (time-variant) explanatory variables conditional on c_i remains

$$E(u_{it}|x_i, c_i) = 0, t = 1, 2, \dots T$$

the individual specific error term c_i drops out and only time-varying unobserved covariates might remain correlated with the error term. Thus, these models are

[17] This category includes respondents from Bosnia and Herzegovina, Croatia, Kosovo, Macedonia, Montenegro, Serbia, and Slovenia.

superior to cross-sectional analysis due to their pronounced advantage of controlling for all time-constant unobserved heterogeneity as e.g. sex, race, or cognitive ability (Andreß et al. 2013: 89 ff.; Halaby 2004). Hence, as long as all relevant time-varying covariates are included in the model, these analyses yield unbiased, consistent, and efficient estimates and therefore rule out the possibility of a spurious correlation between dependent and independent variable. Further, by including lagged predictors (x_{jt-1}) for predicting the dependent variable y_t a temporal precedence is established in order to approximate causal inference. This approach was also chosen by Kanas and colleagues (2011). As beneficial as fixed effects panel models are, there still remain problems. Even if longitudinal data are at hand significant effects of lagged variables do not necessarily imply causal effects. If there is an observable effect of SES in timepoint 1 (t_1) on the extent of IEC in t_2 this does not rule out the possibility of an unobserved preceding effect of IEC in t_0 on SES in t_1. Further, the possibilities of simultaneous and alternating effects between both variables are not considered. Hence, in order to obtain information about the causality between two constructs, both variables have to be considered dependent and explanatory at the same time. The first section of results exemplifies this problem with data of the GSOEP.

In order to tackle the presented problems, in a second step, ARM were applied to the data. Those are commonly used for conducting longitudinal analyses within the framework of structural equation modelling (SEM). The method of SEM is marked by two steps of analysis. First, a measurement model is established. This is done by conducting confirmatory factor analyses. Multiple observed indicators are used to establish a certain number of predefined latent constructs. When the measurement models are established the second step introduces causal relations between those. In contrast to ordinary least squares (OLS) regression, every factor within one model may be both dependent and independent variable at the same time. Therefore, the researcher has to have strong theoretical assumptions about the interrelations between the factors of interest. This framework may conveniently be applied to longitudinal data in order to analyse change or stability of certain factors over time (Little et al. 2007). In order to evaluate the model fit

the χ^2/df ratio, the *Root Mean Square Error of Approximation* (RMSEA), the *Comparative Fit Index* (CFI), and the *Tucker Lewis Index* (TLI) are displayed for each model (Barrett 2007; Bentler 2007; McDonald & Ho 2002). As all fit indices are associated with a variety of problems, the model fit always has to be evaluated in light of the theoretical assumptions. Nevertheless, there are some threshold values that are commonly applied in the literature. As the χ^2 statistic is very sensitive to sample size it has been suggested that the χ^2/df ratio should be smaller than 3. Further, incremental fit indices explaining the overall proportion of explained variance (e.g. CFI) or which adjust the proportion of explained variance to the model complexity (e.g. TLI) should feature values greater than 0.90 (Kline 1998: 127 ff.). Finally, the RMSEA as a badness of fit index should be close to zero while values smaller than 0.10, 0.05, and 0.01 indicate acceptable, good, and excellent fit, respectively.

In longitudinal research, besides the usual problems of establishing adequate measurement models and causal relations the application of SEM faces another substantial problem. In order to make statements about temporal developments it has to be assured that the meaning of the latent constructs does not change over time. Obviously, this problem of *measurement invariance* concerns every longitudinal analysis, yet it is only within the framework of SEM that testing for measurement invariance is an incremental part of the analysis. This is done by performing two nested models on two points in time and conducting a chi^2 test. In the first model the factor loadings of the items on the factors are computed freely. In the succeeding model these factor loadings are constrained to equality over time. Measurement invariance may be assumed if the model fit does not significantly worsen by including these constraints. This is indicated by the Chi Square Test for Difference Testing.

Autoregressive cross-lagged models partly predict the value of an outcome at a certain point in time with preceding measurements of the same variable. These autoregressive paths indicate the stability of the latent construct over time (Christ & Schlüter 2010: 86). Besides autoregressive paths, cross-lagged effects of a

second variable additionally predict the outcome at the latter point in time beyond the autoregressive effect. This most simple form represents a cross-lagged panel model with two waves and two variables (2W2V). The biggest advantage of these kinds of models is that they do not necessarily imply unidirectional causation as for example OLS- or advanced regression models.

In order to manage the problem of a potential infinite regress the establishment of autoregressive paths seems most feasible, because every significant cross-lagged effect establishes its influence net of the dependent variable's preceding value. Additionally, the problem of simultaneous effects is handled more properly as both variables are dependent and independent at the same time. Thus, the conducted autoregressive models are especially appropriate for testing reverse relationships. However, there are strict assumptions that have to be met. The most crucial one is *stationarity*, which means that the causal relationship between the variables of interest does not change over time (Rogosa 1980). The accuracy of this assumption will be discussed in the final section. A second problem concerns the possibility of unobserved heterogeneity, which cannot be ruled out categorically, although the autoregressive effect might control for specification error to a certain extent (Rogosa 1980: 254). Hence, in order to ensure the robustness of the results an unmeasured variable model (UVM) was computed. Three waves of data are needed for this kind of model to be identified. By estimating a latent "phantom" variable, which is unmeasured but assumed to influence all constructs of interest over time, these models test whether the observed paths are spurious (Finkel 1995: 83 ff.). If a path becomes insignificant by including an unobserved variable it may be concluded, that its previously significant effect can be deemed spurious. Insofar, any remaining significant effect may be considered robust "once these possible sources of spuriousness are controlled" (Finkel 1995: 86). For the sake of clarity and as the unmeasured variable has no distinct meaning for the analysis except for controlling for unobserved heterogeneity, its coefficients will not be displayed in the results section.

In order to reasonably infer causality with survey data Kline (1998: 97) formulates three necessary conditions which have to be met:

1. There is time precedence; that is, X precedes Y in time.
2. The direction of the causal relation is correctly specified; that is, X causes Y instead of the reverse or that X and Y cause each other.
3. The relationship between X and Y does not disappear when external variables such as common causes of both are held constant (partialed out).

According to these conditions, different causal interdependencies between SES and IEC are possible. The four potential scenarios are displayed in figure 3.1:

(A) According to social capital theory IEC at timepoint t_1 may influence individuals' SES at timepoint t_2.

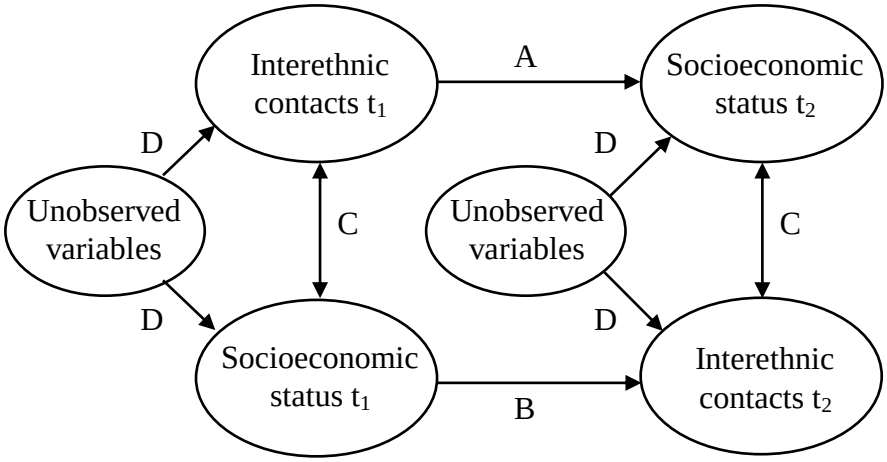
(B) Due to social homophily a reverse linkage might hold true as well. Thus, SES at timepoint t_1 might influence IEC in t_2.

(C) The two phenomena might be simultaneously influencing each other. Hence, there would be no unidirectional causation as implicitly assumed by most standardized regression techniques.

(D) Finally, unobserved heterogeneity might be responsible for any observed effect between the two variables of interest.

By conducting longitudinal analyses with lagged predictors, scenarios (A) and (B) are modelled and assumption 1 is met. Furthermore, as non-recursive models with simultaneous, alternating effects are established, scenario (C) is tested and it is accounted for assumption 2. Finally, by controlling for time-invariant unobserved heterogeneity assumption 3 is met and scenario (D) is modelled. All data preparation and analyses were performed in Stata 13 and Mplus 6. All displayed effect coefficients of the measurement- and structural models are significant at the 0.05 level.

Figure 3.1 Possible causal scenarios



3.4 Results

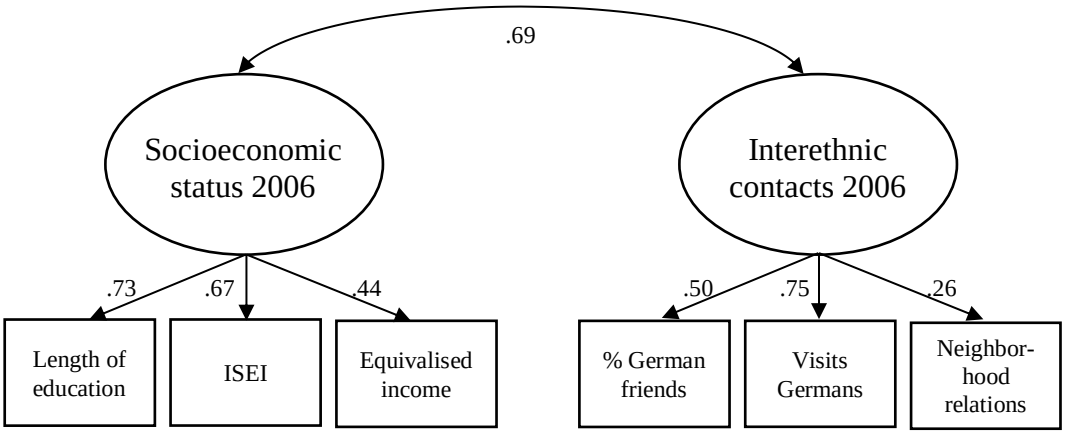
3.4.1 Measurement models

The first step of analysis consists of the establishment of measurement models by conducting confirmatory factor analysis. Figure 3.2 shows the exemplary results for the survey year of 2006. The number of observations is 1,283 and with χ^2 = 16.209 and 8 degrees of freedom the model has an acceptable fit. The χ^2/df ratio = 2.03 as well as all remaining indices meet the formulated requirements. The *Root Mean Square Error of Approximation* (RMSEA) is 0.028, the *Comparative Fit Index* (CFI) = 0.992, and the *Tucker Lewis Index* (TLI) = 0.986. For each latent construct, there is one item with a rather low loading on the established factor. Those are the equivalised income and the neighbourhood relations. Furthermore, the two constructs are moderately and positively correlated with each other, which is in line with the assumption of an interlinkage between SES and IEC.

In conclusion, the measurement model is considered reasonably well fitting. Additionally, no post-hoc modification using modification indices had to be executed in order to obtain the displayed results. Before estimating causal models measurement invariance over time was tested. To this end the survey waves of 1996 and 2006, forming the basis of the following autoregressive cross-lagged

models, were selected. The χ^2 value is 11.360 with 4 additional degrees of freedom for the constrained factor loadings that are no longer estimated under the assumption of measurement equality over time. The p-value is 0.0228 which means that the test – at the 0.05 level – rejects the null hypothesis that constraining the factor loadings to equality over time does not significantly worsen the model fit. Yet, as the χ^2 test is sensitive to rejecting the null at large sample sizes, usually the application of a stricter significance level is advised (Christ & Schlüter 2010: 95). At the 0.01 and 0.001 level the test fails to reject the null hypothesis. Thus, measurement invariance may be assumed with reservations about the stricter significance level.

Figure 3.2 Measurement model 1, 2006 – standardized coefficients



N: 1283, RMSEA: 0.028, CFI: 0.992, TLI: 0.986

3.4.2 Causal models

In a second step, in order to replicate existing results on the issue each individual's factor scores at all its survey waves from 1986 until 2010 were computed. Table 3.2 shows the results of fixed effects regressions of SES on social capital and German language proficiency. Following Kanas and colleagues (2011, 2012) IEC is lagged by one year prior to the dependent variable. All

models control for age, work experience[18], years of residence in Germany, and survey year.

Table 3.2 Fixed effects model of socioeconomic status

Socioeconomic status	Model 1		Model 2	
	B	SE	B	SE
Social capital				
Lagged interethnic contact	0.193**	0.003	0.190**	0.003
German language proficiency				
No / poor language skills (ref.)			0	
Fair language skills			0.029*	0.010
Good language skills			0.044**	0.012
Very good language skills			0.096**	0.014
N (observations)	34,882		34,315	
N (individuals)	3,555		3,485	
R^2	0.250		0.253	

Unstandardized coefficients; the model controls for age, work experience, years in Germany and 25 dummies for survey year

* $p < 0,05$; ** $p < 0,001$

Source: GSOEP 1986-2010, own calculations

As anticipated, IEC represents a highly significant positive predictor (B = 0.193) of immigrant's SES in Germany. With a total number of 3,555 respondents the explanatory variables explain 25 % of the demeaned within variation. The substantial findings remain unchanged after additionally controlling for individual proficiency in host society's language. By including first as well as second and third generation immigrants, the results presented here generalize to a larger population than preceding studies. Further, as the study at hand uses latent factor scores the possibility of measurement error can be ruled out.

So far, the results replicate existing knowledge on the effect of IEC on SES in Germany. Nonetheless, a reverse causality cannot be ruled out categorically. To substantiate this claim, table 3.3 shows the results of fixed effects panel regressions of IEC on socioeconomic status and German language proficiency.

[18] Part-time employment, full-time employment, and unemployment experience in years.

Again, the independent variable of interest, socioeconomic status, was lagged by one year. The results show that individuals' SES represents a positive, highly significant predictor of IEC. After controlling for German language skills the unstandardized coefficient (B = 0.722) remains basically unchanged and significant. The explained within variance ranges between 14 % and 15 %.

Table 3.3 Fixed Effects Model of Interethnic Contact

Interethnic contact	Model 1		Model 2	
	B	SE	B	SE
Human capital				
Lagged socioeconomic status	0.725**	0.011	0.722**	0.011
German language proficiency				
No / poor language skills (ref.)			0	
Fair language skills			0.156**	0.020
Good language skills			0.310**	0.024
Very good language skills			0.402**	0.029
N (observations)	34,882		34,315	
N (individuals)	3,555		3,485	
R^2	0.140		0.146	

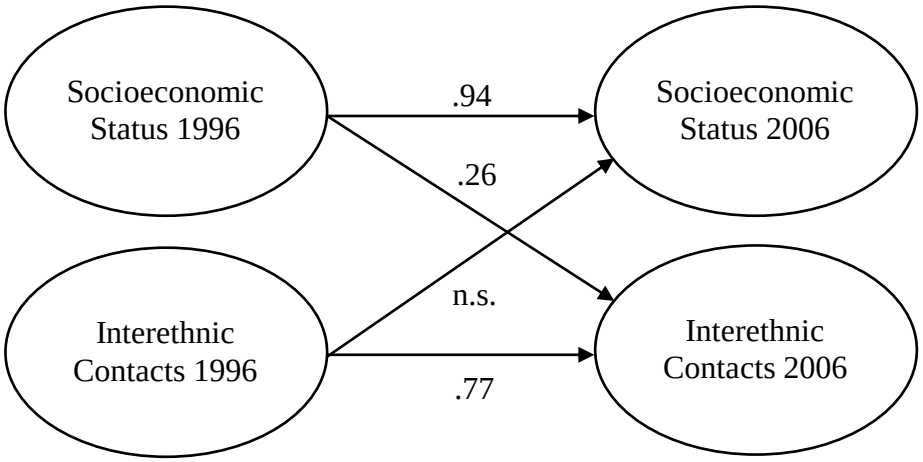
Unstandardized coefficients; the model controls for age, work experience, years in Germany and 25 dummies for survey year
* $p < 0{,}05$; ** $p < 0{,}001$
Source: GSOEP 1986-2010, own calculations

These findings exemplify that lagging the dependent variable does not sufficiently account for simultaneity and alternating relationships as there are significant effects in both directions. The most reliable conclusion based on the results so far would be that the causality between SES and interethnic ties goes in both directions. Yet, the underlying causality between the two latent constructs remains ambiguous.

The results of the cross-lagged two wave, two variable (2W2V) panel model are displayed in figure 3.3. The autoregressive paths show very strong and significant standardized effects of 0.94 for SES and 0.77 for IEC. With each standard deviation of change in the latent construct of SES in 1996, the SES in 2006 changes by 0.94 standard deviations. Thus, the SES in 2006 is nearly fully

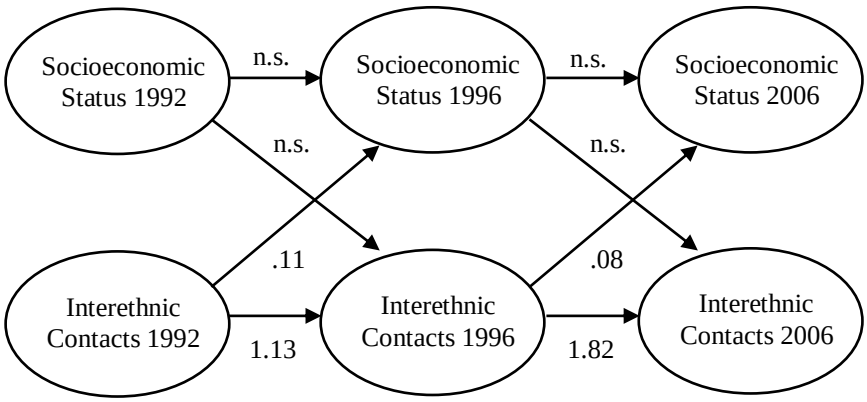
attributable to the SES in 1996. To a slightly lesser extent this interpretation holds true for IEC as well. Further, those high standardized coefficients are also reflected in the levels of explained variance: 91.3 and 88.5 % of the variance in the latent construct of SES 2006 and IEC 2006 respectively are predicted by the two predictors. The cross-lagged predictors show a significant effect of SES (1996) on IEC in 2006 while there is no significant reverse causality. At first glance, these results at least partly contradict existing knowledge on this issue.

Figure 3.3 Autoregressive model 2W2V – standardized results



N: 2250, RMSEA: 0.028, CFI: 0.979, TLI: 0.970 *Source*: GSOEP 1986 – 2006

Figure 3.4 Unmeasured variable model, 3W2V – standardized results



N: 2532, RMSEA: 0.025, CFI: 0.974, TLI: 0.963 *Source*: GSOEP 1986 – 2006

Overall the fit statistics indicate an acceptable model fit (χ^2/df = 2.71, RMSEA = 0.028, CFI = 0.979, TLI = 0.970). In a last step it was tested whether these results prove robust if unobserved heterogeneity is controlled in the model. For this purpose, an unmeasured variable model was conducted. As these models needs three waves of data to be identified, in a first step a three wave two variable (3W2V) panel model including the wave of 1992 was estimated (results not shown)[19]. Those confirmed the findings so far. SES in 1996 has a positive significant effect on IEC in 2006, while IEC in 1992 significantly and positively affects SES in 1996. The χ^2/df ratio of 2.64, as well as all other fit indices, alludes to an acceptable fit.

The final model including the unmeasured variable is displayed in figure 3.4. As the model estimation yielded computational problems, the residual variances of the latent constructs of SES 1992 and IEC 2006 had to be restricted to zero. The results, which are considered most reliable are surprising and contradict the preceding findings utterly. After controlling for time-invariant unobserved heterogeneity, no significant effect of SES remains. In contrast to the preceding results, IEC exhibits a coherent positive effect on the individual's SES.

Table 3.4 Summary of models and results

Model	Results	Accounts for:	Does not account for:
Fixed effects regression	IEC ↔ SES	Time-invariant unobserved heterogeneity	Simultaneity Time-varying unobserved heterogeneity
2W2V	SES → IEC	Simultaneity	Unobserved heterogeneity
UVM	IEC → SES	Simultaneity Time-invariant unobserved heterogeneity	Time-varying unobserved heterogeneity

[19] Detailed results are available upon request.

Hence, the positive effect of SES on IEC found in the preceding models has to be considered spurious. Again, all fit indices meet the predefined threshold values. Additionally, the explained variances remain on exceptionally high levels: $R^2_{SES\,1996} = 0.99$, $R^2_{IEC\,1996} = 0.96$, $R^2_{SES\,2006} = 0.80$, $R^2_{IEC\,2006} = 1.00$[20]. Table 3.4 summarizes the causal interpretation of the results, as well as the advantages and disadvantages of the three steps of analysis. The main strength of fixed effects regressions with lagged predictors is its accounting for time-invariant unobserved heterogeneity. Yet, the problems of simultaneous and alternating effects as well as unobserved influences of omitted time-varying variables remain. The presented results implied significant reciprocal effects between SES and IEC.

In contrast, 2W2V cross-lagged panel models account for alternating effects. Nevertheless, those are prone to defective results caused by unobserved heterogeneity, which is why many researches remain reluctant to cross-lagged models (Rogosa 1980; Mouw 2006: 94). The final unmeasured variable model (UVM) combines the advantages of both preceding approaches, accounting for both simultaneous effects and time-invariant unobserved heterogeneity. As only significant effects from IEC on SES remain, its results contradict the 2W2V model starkly. Thus, reliance on the simple 2W2V model would have led to a fallacy with regard to the relationship between SES and IEC. The final section discusses the strengths and weaknesses of the final UVM model and gives an outlook on future challenges.

3.5 Discussion and outlook

The aim of this paper was to coherently address the problem of causality with regard to the interrelation of immigrants' interethnic ties and SES in Germany. In

[20] As Deegan (1978) illustrated these high proportions of explained variance might be interrelated to the occurrence of standardized coefficients > 1. Further, the latter may be linked, but are by no means inevitable indicator of multicollinearity. Methodological research indicates that standardized coefficients greater than one can legitimately occur and as this paper takes a conceptual stance instead of interpreting the actual point estimates in numerical terms the omission of further model specifications is preferable (Deegan 1978: 885 ff.).

general, the paper tried to narrow the agenda of upcoming research on this issue. The presented findings are in line with existing literature on this issue (Drever & Hoffmeister 2008; Haug 2003a, 2003b; Kalter 2006; Kanas et al. 2011, 2012; Lancee 2012). Social relations to members of the host society positively influence the SES of former guest-workers in Germany over time. By confirming and complementing the results of recent research these findings highlight the relevance of bridging social capital for the SES of immigrants in Germany (Kanas et al. 2011, 2012; Lancee 2012). In this respect, this study tests existing knowledge under stricter assumptions with regard to several aspects. First, as the basis of all analyses is made up by latent constructs, measurement error can be ruled out as a potential source of bias. The same is true for measurement invariance, which still remains widely neglected in longitudinal analyses on the integration of immigrants. Second, the findings holds true for both persons with own migratory experiences and persons that were born in Germany, the second and third generation. As the latter become numerically and politically increasingly important in Germany, studies focussing on foreign born persons or foreign nationals confine the scope of the phenomenon. Third, the problems of reverse causality and simultaneity are addressed more profoundly. The latter possibility contradicts standard statistical models profoundly as those usually imply asymmetrical relationships between dependent and independent variables. In analysing longitudinal data, fixed effects regression is associated with large advantages regarding the robustness of obtained results. Yet, the introductory application of this methodology has shown that these kinds of analyses are not generally immune to prevalent problems in the attempt to construe causality in social sciences. Depending on the research question non-recursive models, as presented here, might be more insightful. Moreover, in order to counter the most frequent objection against cross-lagged panel models an unmeasured variable has been included. Yet, the interpretation of the results, as in every statistical analysis, still relies on methodological assumptions. The final section therefore outlines and explicates the relevant limitations of this study and gives an outlook for future research.

First, stationarity of the effect of SES on IEC and vice versa has to be assumed. In contrast to this assumption, several studies were able to demonstrate that immigrants' social capital is dependent on external influences and might change over time (Bauer et al. 2005; McManus 1990). Notably, immigrants' decision to migrate is dependent on the amount of social capital available in the receiving country in the first place (see Haug 2008; Massey et al. 1993: 448ff.). These social ties are utilized to compensate for the devaluation of sending-country specific human capital usually accompanying immigration. Further, costs and risks of migratory movements decline with more co-ethnics staying at the destination area. Consequently, immigrants' reliance on social capital is particularly strong upon arrival in the host society. In the course of time, this utilization of social capital is assumed to shift from strong- towards weaker ties (Bauer et al. 2005; Lin et al. 1981). Furthermore, it may be hypothesized for first generation immigrants that the positive effect of majority relations diminishes with longer duration of residence in the host country. As these establish themselves within the receiving society, e.g. take up long-term employments and improve German fluency, the assumable positive effects of IEC on SES will probably wither in the course of time. However, the exact same mechanism may not be applied to second- and third generation immigrants, as these do not have to adjust to Germany to the same extent as persons with own migratory experiences. Yet, for this group social capital may be specifically important during a certain formative period, e.g. during and shortly after the transition from school to employment, when occupational careers are fundamentally shaped. Hence, assuming a uniform and time-invariant effect of bridging social capital on SES has to be considered the main limitation of this study.

The second issue concerns the robustness of the obtained results. Therefore, two further cross-lagged models were computed. *First*, analyses refraining from imputing missing data were conducted. Without imputations, the model fit of the unmeasured variable model is comparable to the final model presented before. The effect sizes stay roughly the same and no changes in signs occur due to the omission of imputations. Yet, all paths miss the significance level of $p \leq 0.05$.

When Spanish and Greek respondents[21] are added to the sample the unmeasured variable model without imputations coherently replicates the final results. IEC exerts a positive and significant effect on SES and no reverse effect of SES on IEC remains significant. Yet, by enlarging the within-variation of the sample, the model fit (χ^2/df = 2.74, RMSEA = 0.024, CFI = 0.975, TLI = 0.965) as well as the p-value of the Chi Square Test of measurement invariance (p = 0.0109) decreases substantially. In conclusion, the imputations seem not to have biased the findings fundamentally. *Second*, in order to counter objections of unobserved heterogeneity, a further cross-lagged model including additional time-varying covariates was computed. Besides the unmeasured variable, the following variables were included: respondents' age, full time employment- and unemployment experience, years of residence in Germany, and subjective German language skills. In this regard, the setting of the fixed effects regressions is replicated thoroughly. The results resemble those displayed in figure 3.4 strongly: IEC has a significant positive effect on SES in 1996 and 2006 and no significant reverse effect remains. Yet, the sample size decreases (N = 629) and the model fit worsens substantially (χ^2/df = 2.24, RMSEA = 0.044, CFI = 0.855, TLI = 0.820). The results of both additional analyses are in line with the interpretation outlined in this contribution. Although less reliable, no contradictory results were obtained by those models assuring the robustness of the findings. Detailed results for both models are available upon request.

Third, the results only generalize to the groups of Italian, Turkish, and former Yugoslavian immigrants. Other groups will most certainly show considerably different modes of incorporation (Portes & Zhou 1993). For example, social capital in terms of interethnic ties might lose its significance for highly skilled immigrants working in international corporations. As their, often only temporary, migration to Germany is structured by occupational requirements their SES will most likely be uncoupled from their social ties to majority members. Further, as a combination of educational degree and occupational position defines SES,

[21] Those two groups were initially recruited as former guest workers as well.

considerable problems occur for immigrants of former Soviet countries. These have on average higher levels of education than former guest workers. However, their degrees are often not accredited in Germany and hence their length of education does not match their income and occupational status. Therefore, the establishment of adequate measurement models was not possible for this group. Nevertheless, the results generalize to a large proportion of former guest-worker. These constitute a highly relevant group of immigrants in Germany.

Another issue concerning the sample of this study refers to the respondents' generational status. It was decided to refrain from restricting the analyses to foreign-born respondents. Instead, for the sake of a greater generalizability, information on all immigrants was used to explore the interrelation between IEC and SES. However, if there are different mechanisms at work for immigrants with and without own migratory experience the interpretation of the results might be deceptive. If social capital e.g. exerts a positive effect for individuals of the first generation, but a negative for higher order immigrants, the observed effect of this study might be underestimated for the former and misleadingly generalized to the latter group. However, the final model accounts for time-invariant unobserved heterogeneity and even more elaborate models including age, language proficiency, and years of residence in Germany continuously find positive effects of IEC on SES. Pairwise correlations also indicate comparable positive relationships between the two latent constructs for first-, second-, and third generation immigrants.

Fourth, the specific mechanisms leading to a positive effect of bridging social capital cannot be explicated by the study at hand. A better supply with job-relevant information and the internalization of certain group norms are only two possible explanations for a causal influence of interethnic ties on SES. More specific studies on the capacities and functions of social capital are needed in order identify the underlying mechanisms of the effects presented here. In this regard, follow-up qualitative studies seem promising as those could explore the inherent causality between IEC and SES in depth. Furthermore, quantitative

research applying more elaborate network data appears beneficial for identifying the conditions causing the effects of social capital. Generally, this contribution's findings support social capital theory as a promising future foundation for both theoretical and empirical contributions on the integration of immigrants in Germany.

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4

Exploring and Commiting. Using Mixed Methods to analyze two Dimension of Immigrants' National Identification in Germany[22]

Sascha Riedel

Abstract: This paper explores immigrants' national identification in Germany in a developmental mixed method design. The data consist of the German Socio-Economic Panel Study (GSOEP) and 54 qualitative interviews. The first step – applying exploratory factor analyses – ensures the comparability of the two datasets and the reliability of the qualitative coding. The second step explores the predictors of immigrants' identity formation. To this end, a qualitative comparative analysis (QCA) is conducted. The results, in consistence with the theoretical arguments, point to two dimensions of identification: commitment and exploration. Overall an absence of discrimination is most important for identifying with Germany. Further, the predictors explaining the two dimensions of national identification differ considerably. Therefore, as quantitative single-method studies commonly survey immigrants' ethnic and national identities with reference to different dimensions, their results are most likely biased.

Keywords: Mixed methods, National identification, Immigrants, Exploratory factor analysis, Qualitative comparative analysis

[22] The manuscript has been submitted for review to *Ethnicities.*

4.1 The Problem

In sociological research on ethnic minorities, identification constitutes a central aspect of immigrants' integration. Empirical studies assume identification to be linked to individual and collective factors such as social conflict and outgroup evaluation (Ehrkamp 2005; Benet-Martinez & Haritatos 2005; Martinovic et al. 2010; Weinreich et al. 1996), psychological well-being (Berry et al. 2006; Gül & Kolb 2009; Phinney 1989; Smith et al. 1999), substance abuse (Oetting & Beauvais 1991), and overall integration processes (Altschul et al 2006; Nekby & Rödin 2007; Waters 1994).

Yet, predictors of immigrants' host country identification remain ambiguous. Existing studies were able to formulate a set of factors influencing national identities (see Verkuyten & Martinovic 2012), but empirical research on Germany remains scarce (Leszczensky 2013; Schulz & Leszczensky 2015). Due to the specific historical context of National Socialism, national identification is usually expressed cautiously in Germany. Thus, it seems debatable whether predictors of international studies may be transferred to the German context. Issues are further complicated by the fact that identification is considered a multidimensional phenomenon (Ashmore et al. 2004; Burke & Reitzes 1981; Helms 2007; Jasinskaja-Lahti & Liebkind 1999; Markus & Kitayama 1998, 2010; Phinney 1992; Phinney & Ong 2007; Stryker & Burke 2000; Weinreich et al. 1996). Differences in the causal determinants of the various dimensions of identification have not been researched in detail either.

Furthermore, qualitative and quantitative research on the identity structure of immigrants seldom intertwines. Therefore, this study builds upon a limited number of mixed methods studies. Most contributions still apply single-method frameworks in order to investigate immigrants' identities. On the one hand, qualitative studies typically emphasize the complexity of identity formation, but their results often lack generalizability to the overall societal context (Belton 2013; Gruner-Domic 2011; Waters 1994). On the other hand, quantitative studies

commonly rely on simplistic items without adequately accounting for the problem of measurement validity (Martinovic et al. 2010; Liebler 2004; Xie & Goyette 1997). Thus far, interrelations between both strands remain on a remarkably low level.

This paper tackles the presented gaps by expanding the existing mixed methods literature on identity related topics (Latcheva 2011; Marks et al. 2011; Sirin et al. 2008). Therefore, this contribution seeks to explore the determinants of national identification. As will be shown, no single-method study could have achieved this goal. Particularly, the aim is to answer the following questions: (1) Which predictors influence identification with Germany? (2) Are there observable differences in the predictors of different dimensions of national identification? (3) Which bias may be expected by the application of a truncated measurement of immigrants' identification?

The contribution opens with a short discussion of immigrants' identification. Additionally, assimilation theory is presented in order to specify causal predictors of identification. The first part, therefore, defines the concept of identification and discusses its causal determinants. Subsequently the data and methodology of the study are presented. This part comprises two sources of data, the German Socio-Economic Panel Study (GSOEP) and 54 semi-structured interviews, and two separate steps of analysis. First, in order to ensure the reliability of the qualitative coding, exploratory factor analyses were applied to both data sets. Subsequently, the causal predictors of identification were explored with a 'Qualitative Comparative Analysis' (QCA) of the narrative interviews. Finally, the results are discussed and an outlook on the further course of research is presented.

4.2 National identification – concept and predictors

This section presents the theoretical identity concept applied in this study and discusses potential predictors and consequences of immigrants' national identification. The term social identity is most commonly defined as 'part of an

individual's self-concept which derives from his knowledge of his membership of a social group (or groups) together with the emotional significance attached to that membership' (Tajfel 1974: 69). In this regard, identities are best conceived in a multidimensional framework. Referring to ethnic identity as a distinct form of social identity the most frequently measured dimensions are *self-categorization* and *commitment and attachment* (Phinney & Ong 2007: 272). The former term represents the individual's cognitive labeling with a certain social category while the latter refers to the personal investment in belonging to a group. Hence, *commitment and attachment* is of larger emotional importance than *self-categorization*. Phinney and Ong (2007: 272) argue that in everyday language the term ethnic identity is used interchangeably with this idea of commitment.

Apart from the aforementioned, five further dimensions of identification can be specified: *exploration, ethnic behaviors, evaluation and ingroup attitudes, values and beliefs* and *importance and salience* (Phinney & Ong 2007: 272f.). By applying confirmatory factor analysis the authors conclude that those seven dimensions are best represented by two latent factors, which they term with *exploration* and *commitment*. The former represents individual efforts to learn more about a group and the participation in relevant cultural practices while the latter refers to a 'positive affirmation' of the group in question (Phinney & Ong 2007: 275). Other studies report comparable findings identifying two distinct meanings of identities (Ashmore et al. 2004; Jasinskaja-Lahti & Liebkind 1999). These two dimensions are considered in the further course of this study.

Approaches of 'situational ethnicity' (Okamura 1981) or 'situated identity' (Alexander Jr. & Wiley 1992) define conditions under which a certain identification is chosen. Usually, structural and cognitive factors are considered most important in shaping immigrants identities (Okamura 1981: 453). Therefore, among other influences, it is the receiving context that shapes the identification of immigrants. In particular one could theorize that perceived discrimination plays an important role in this respect. This assumption is in line with approaches of ethnic boundary making (Alba 2005; Wimmer 2008). Bright ethnic boundaries,

which establish a clear distinction between majority and minority members and thus hamper immigrants' chances to change group affiliation, serve as a basis for discrimination (Alba 2005: 39). Perceived discrimination and (in)compatibility of ethnic and national identities should then both devaluate national identification as national identification is only feasible for immigrants if "natives acknowledge their claimed in-group membership" (Schulz & Leszczensky 2015: 7). This argument is supported by existing mixed methods research. Quantitative and qualitative results based upon 97 Muslim-Americans show that discrimination related stress has no significant effect on the collective Muslim self-esteem, but negatively influences the identification with the USA (Sirin et al. 2008: 272f.). The former is predicted more intrinsically by the individual religiosity. Additionally, Haritatos and Benet-Martinez (2002: 604) show that perceived discrimination negatively influences immigrants' 'Bicultural Identity Integration (BII)'. This is also in line with the comparative integration context theory, which with regard to the identity formation of immigrants assumes that the 'wider dominant discursive context in most European countries presents a serious challenge […], because it over-emphasizes the ethnic background as the main signifier in all societal contexts' (Crul & Schneider 2010: 1261). All approaches have in common that a high perceived discrimination is negatively related to identifying with the receiving society. This claim is supported by ample empirical evidence (Verkuyten & Martinovic 2012: 94ff.).

Further predictors can be derived from formulations of immigrants' integration and assimilation. These models usually define distinct dimensions of immigrants' adaptation process. Acculturation to the host society mainly refers to the acquisition of the host language. Furthermore it includes the adaptation to the cultural and behavioral patterns of the receiving society. Apart from that, structural assimilation as the entrance into relevant groups and clubs as well as into central institutions of the host society is crucial for immigrants' incorporation (Esser 1980, Gordon 1964). Structural assimilation may be classified into primary and secondary structural assimilation. The former refers to 'intimate contact with the native population' and intermarriage, while secondary structural assimilation

concerns the ‘integration into the formal organizations of the dominant society’, as for example the labor market (Haller et al. 2011: 735). With regard to immigrants’ identification, the theory assumed that similar to a natural chain reaction eventually all immigrants would identify with the host society. Hence, linguistic as well as primary and secondary structural assimilation should precede identification. Empirical studies were able to show that German language use and skills as well as a high educational level and a high share of native friends have a significant effect on immigrants’ host country identification (Hochman & Davidov 2014: 350ff.; Schulz & Leszczensky 2015: 18). Thus, recent quantitative research was able to substantiate the assumptions as formulated by common models of integration and assimilation.

When discussing the consequences of national and ethnic identification, most studies refer to social cohesion and intergroup relations. In this regard, the specific content of the chosen identity becomes important. Depending on the chosen identification, individuals evaluate distinct (out-) groups more and others less favorably. For example, Hong Kong Chinese students tend to view traditional Chinese people as less favorable than e.g. Taiwanese and Japanese people. However, Western people constitute the preferred group of Hong Kong Chinese students’ identification (Weinreich et al. 1996: 140). A different study was able to exemplify that Basque identification increases the embracement of Basque ethnic separatism, which negatively influences the individual evaluation of Spaniards and Andalusians. In contrast, identifying as Basque did not significantly influence the outgroup evaluation of Catalans (Martinovic et al. 2011: 35). However, these substantial results, particularly if generalized to large populations, are dependent on the quality of identity measurements. Some problems of existing measures are discussed in the following section.

4.3 Measuring identities

In order to derive knowledge about the causal mechanisms of national identification, the concept’s measurement has to be discussed first. The problem

of surveying identities has been stressed by preceding mixed-methods research. Analyzing two representative samples for Austria, Latcheva (2011) exemplified that standardized items of the International Social Survey Program (ISSP) on national identity only poorly represent their assumed underlying latent constructs. Supplementing these findings with 18 cognitive interviews, she was able to show that the problems of measurement might be attributable to, first, respondents' adoption of different perspectives when answering the standardized items, second, comprehension difficulties, and third, difficulties posed by cognitive tasks attached to answering the questions (Latcheva 2011: 1193ff.). Another mixed-methods study compared explicit and implicit measures of ethnic identities (Marks et al. 2011). The authors find a larger correspondence between actively assigning a label to oneself during an interview (explicit) and implicitly endorsing the same label for Whites and Asians than for Black Americans and Hispanics (Marks et al. 2011: 280). Thus, Blacks and Hispanics seem to have greater problems with actively assigning a distinct label to themselves. Consistently, both mixed-method studies were able to expound the problems of using closed-ended questions in surveying identities.

According to the presented findings, studies based on simplistic survey items might obtain flawed results. For example, according to analyses conducted with the German Socio-Economic Panel Study, only 4 per cent of the immigrant respondents identify with both sending and receiving country (Esser 2009). The majority of 58 per cent expresses a unique belonging to the ethnic context and the rest allocates to nearly equal numbers to an assimilative stance (20 per cent) and a feeling of not belonging to either of the two groups (18 per cent) (Esser 2009: 376). These results contradict findings by Berry and colleagues (2006). The authors identify four different acculturation profiles: ethnic, national, integration, and diffuse. The integration profile equals a belonging to receiving *and* sending context and covers about one third (36.4 per cent) of the 4,334 respondents. Both the ethnic (22.5 per cent) and diffuse profile (22.4 per cent) each still cover a larger amount of respondents than the national profile (18.7 per cent), which corresponds to an assimilative incorporation (Berry et al. 2006: 313). The large

differences of these two quantitative studies are most probably due to different measures[23]. However, qualitative research, although being able to identify relevant types and dimensions of immigrants' identification, usually does not sufficiently address this problem either. With regard to e.g. West Indian and Haitian Americans in the U.S., Waters (1994: 802f.) was able to identify three general types of identificational patterns: identifying as American, identifying as ethnic American with distancing from black Americans, and identifying as immigrant without reference to any Americans. However, no proposal of an adequate measurement instrument of these complex identities is made.

Building on the presented findings, this contribution explores the causal predictors of two distinct dimensions of national identification: commitment and exploration. In this regard, it exemplifies problems of the most common quantitative measurement of immigrants' identification in Germany. The GSOEP items of interest are:

(4.1.1) To what extent do you view yourself as a German?

Completely	☐
For the most part	☐
In some respects	☐
Hardly at all	☐
Not at all	☐

(4.2.1) To what extent do you feel that you belong to the culture of the country where you or your family comes from?

To a very large extent	☐
To a large extent	☐
In some respects	☐
Hardly	☐
Not at all	☐

[23] Additionally, the two studies refer to different populations. Hence, some differences are presumably attributable to unobserved and institutional differences between these. Nevertheless it is assumed that significant differences would remain even after controlling for those.

It is assumed that the former item implicitly targets the dimension of *commitment* while the latter emphasizes the dimension of *exploration* more strongly. Question (4.1.1) predominantly triggers the dimensions of *self-categorization and labeling* as well as *commitment and attachment*. In order to view oneself as German, a cognitive process of recognition must first take place. Subsequently, the question arises whether such a label is desirable for the respondent. Both aspects of question 4.1.1 refer more strongly to commitment than to exploration. In contrast, the question of 'belonging to a culture' activates thoughts about habits, rituals and customs. In addition, exploration is often defined with reference to 'culture': 'Exploration can involve a range of activities, such as reading and talking to people, learning *cultural practices*, and attending *cultural events*' (Phinney & Ong 2007: 272, emphasis added). Therefore, although not explicitly asking for personal behaviors it seems most likely, that respondents think about what culture means to them according to their everyday understanding. Hence, item (4.2.1) implicitly frames the answers in cultural terms. If the formulated assumptions about different underlying dimensions are correct, different causal pathways should be observable for the two items.

4.4 Data

To tackle the formulated problems, results of analyses with mixed data sources are presented. The quantitative analyses were administered with data of the GSOEP, a representative longitudinal study of private households[24]. Every year approximately 20,000 respondents are interviewed. For this study the survey wave of 2011 was selected and all immigrants of the first, second, and third generation were included.

[24] Although this study includes a considerable immigrant sample, still some 'hard to reach' groups are underrepresented. Nevertheless, the GSOEP is the largest regular survey of foreigners and immigrants in Germany.

Table 4.1 Narrative interviews – descriptive statistics

	Year of birth	Gender		Generational status				N
	Ø	female	male	1. gen.	1.5 gen.	2. gen.	3. gen.	
Turkey	1971	8	16	11	3	9	1	24
FSU	1959	10	5	13	2	0	0	15
Brazil	1982	10	5	15	0	0	0	15
Total	1971	28	26	39	5	9	1	54

The qualitative data consist of 54 semi-structured, narrative interviews. Some descriptive results are shown in table 4.1. Twenty-four respondents are of Turkish (T), 15 of Russian-speaking (R), and another 15 of Brazilian (B) descent. In contrast to the typical case of Turkish respondents – the largest minority in Germany – the latter two groups diversify the sample. Particularly, Brazilians represent a deviant case in terms of group size (Seawright & Gerring 2008: 297). Group size has been shown to be related to xenophobia and boundary making processes (Quillian 1995; Schaeffer 2013), which – through discrimination – affect immigrants' national identification (Verkuyten & Martinovic 2012: 94). Thus, the selection of groups accounts for the possibility of various causal pathways, particularly with regard to different levels of perceived discrimination. The countries of origin are Brazil, Kazakhstan, Kyrgyzstan, Russia, Turkey, Ukraine, and Uzbekistan. The general interview guideline was biographically oriented and all respondents additionally completed a standardized sociodemographic questionnaire. The Russian-speaking immigrants form the oldest and the Brazilians the youngest group. Immigrants that entered Germany at an age of eleven or younger are defined as members of the 1.5 generation (Rumbaut 1994: 759). All interviews were recorded and coded.

4.5 Coding and variables

To achieve a mix of methods with comparable results, the coding of the interviews aimed at maximizing the comparability between qualitative and

quantitative data. For each standardized survey item a comparable qualitative textual fraction was identified and coded. For example, the interviewees were asked whether they feel predominantly German or predominantly Brazilian, etc. [according to respondents' country of origin]. The following exemplary respondent scored comparable to someone answering the aforementioned GSOEP item (4.1.1) with: 'For the most part'.

- 'I feel predominantly German, however (,) I think (..) I experienced my formative years in Germany' (Russian #3, female, 1.5 gen., born: 1969)

From the preceding theoretical discussion it can be concluded that future quantitative research should at least include two further items, in order to make reliable and valid statements about the identification of immigrants:

(4.1.2) To what extent do you view yourself as a Brazilian, etc. [according to respondents' country of origin]?

Completely	☐
For the most part	☐
In some respects	☐
Hardly at all	☐
Not at all	☐

(4.2.2) To what extent do you feel that you belong to the culture of Germany?

To a very large extent	☐
To a large extent	☐
In some respects	☐
Hardly	☐
Not at all	☐

These mirror the existing items with regard to the frame of reference. The qualitative data allows extending the analysis to the latter question (4.2.2) not included in the GSOEP. Thus, the causal mechanisms underlying both dimensions of national identification – commitment and exploration – can be empirically

explored. An exclusively quantitative analysis would have been restricted to commitment. Again, the verbal expressions of the respondents were coded as if they had answered the closed-ended item above. For example, the following question was posed during the interview:

'Do you feel connected with Germany? In what way?'

The subsequent reply scored comparable to someone answering the hypothetical GSOEP item (4.2.2) with: 'Not at all'.

- 'No, no. Although my children are born here, they don't grow up with German culture. They eat rice and beans (,) they are raised like Brazilians.' (Brazilian #12, female, 1. gen., born: 1984).

In order to predict national identification, this study refers to the following set of predictors derived from the theoretical discussion: host language acquisition (acculturation), schooling (secondary structural assimilation), interethnic friendship ties (primary structural assimilation), and perceived discrimination. Additionally, generational status is often related to national identification as well and was therefore included in the analyses (Verkuyten & Martinovic 2012: 92). The coding of friendship networks posed specific problems. On the one hand, as respondents of the GSOEP are asked about the nationality of their three closest friends the percentage of German friends could be estimated. On the other hand, respondents of the qualitative interviews were asked: '*What does your circle of friends look like?*', which rarely yielded numerical responses. This problem of different measurements was tackled as follows. If a respondent expressed that his peers are 'predominantly Germans' this was coded with a value of 'two third'. In a complementary manner someone was coded with a proportion of 'one third' if he expressed that the majority of his friends are immigrants. Only those respondents explicitly stating to maintain no contact to immigrants or Germans were coded with 100 per cent German and non-German friends, respectively.

Lesser problems occurred with the coding of language usage, perceived discrimination, generational status, and the highest level of education completed.

4.6 Method

Referring to a common classification of mixing methods, this study pursues a development strategy (Johnson & Onwuegbuzie 2004: 22). Out of five different purposes for conducting mixed-method studies, this approach "seeks to use the results from one method to help develop or inform the other method" including measurement decisions (Greene et al. 1989: 259). Further, this contribution utilizes an *Integrative mixed methods design* with two core constructs of commitment and exploration applied to both qualitative and quantitative data (Castro et al. 2010: 344f.). All steps of research – design, collection, conversion, analysis, and interpretation – refer to these two dimensions. Accordingly, the integrated findings offer enhanced explanatory power in comparison to the utilization of single-method approaches. In this regard, this study focuses exclusively on immigrants' national identity. Additional questions concerning the interrelations of ethnic and host country identification will have to be left for future research.

On the one hand, the core analyses of this contribution are conducted with qualitative data, as these allow exploring novel phenomena. Due to the data restrictions, the differentiation between commitment and exploration would not have been possible in a single-method quantitative study using the GSOEP. Yet, on the other hand, part of the central problem cannot be tackled with qualitative data alone, namely: Do the interview codings reliably asses the same constructs as the quantitative GSOEP items? In order to answer this question, exploratory factor analyses are conducted. These reduce a set of observed variables and explain the correlations between those by latent underlying constructs. In order to ensure the reliability of the codings, the factorial structure of both datasets should strongly resemble each other. Thus, this first step of analysis mixed qualitative and quantitative data sources and tested for misspecification of the codifications. A

principal factor method was chosen. Furthermore, in order to allow for correlated factors a Promax rotation was applied to the data. Apart from the two identity items, the respondents' language preference and their share of German friends were included in the analysis, the latter two items representing a factor of sociolinguistic integration. Polychoric correlations form the basis of the exploratory factor analysis. These are most appropriate for ordinal variables with few scale steps and minimize the bias that occurs due to the violation of the distributional assumptions when applying standard correlations to ordered categorical variables (Kolenikov & Angeles 2004; Olsson 1979).

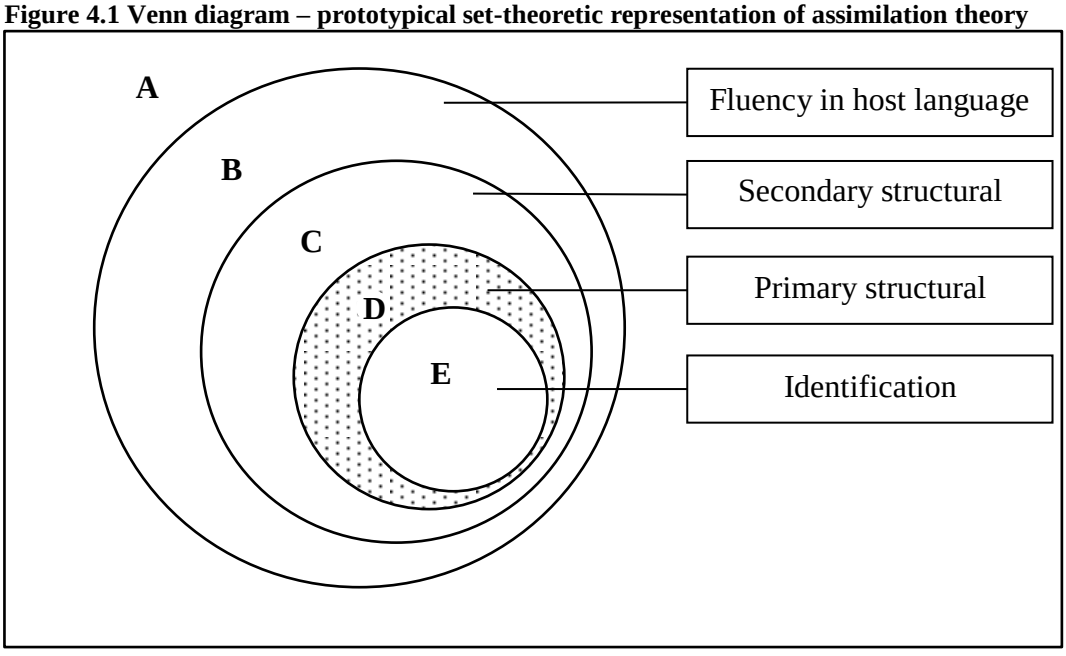
Afterwards, a Qualitative Comparative Analysis (QCA) was conducted. The main reason for conducting this kind of analysis is its thorough consideration of causal complexity in exploring the predictors of identification. QCA is part of the so called set-theoretic methods, which 'work with membership scores of cases in sets', 'perceive relations between social phenomena as set relations', and are characterized by the fact that 'these set relations are interpreted in terms of sufficiency and necessity' (Schneider & Wagemann 2012: 3). Additionally, QCA aims at causal interpretations. Its most prominent advantages are labeled with equifinality and conjunctural causation. The former term relates to the fact that multiple non-exclusive conditions might causally explain an outcome. Conjunctural causation means that considered individually a condition might be irrelevant for the outcome, but in combination with another condition it might become meaningful (Ragin & Fiss 2008). In standard statistical analysis, conjunctural causation may only be handled by including interaction terms, e.g. to the regression formula. Yet, most of the time the inclusion of every single potential interaction is not feasible. In contrast, QCA is capable of handling this issue in a more sound way than standard statistical analyses, assuming single net-effects of independent variables.

In Fuzzy Set QCA (fsQCA) any value between 0 and 1 may be chosen in order to express the degree of membership in a set. To find the most parsimonious set relation leading to a predefined outcome, QCA uses Boolean algebra to reduce

truth tables[25]. In Boolean algebra the following notation applies: To denote a logical 'OR' a plus sign is used (+). To denote a logical 'AND', a star (*) is used. To express the negation of a condition the notation of a preceding tilde (~) is used. To indicate a necessary condition the following notation applies: A ← Y. Y is a subset of A and whenever Y is present A is present as well. The reversed logic applies to the notation of sufficiency (A → Y). In QCA, causality is always defined in set relational ways (Schneider & Wagemann 2012: 42ff.). For the study at hand the outcome is the identification with Germany while the conditions are made up by the theoretically derived predictors.

Figure 4.1 displays the assumptions of classic assimilation in prototypical set relational terms. Out of all immigrants (A), those being fluent in German (B) constitute the largest subset. Speaking the host language is a necessary, but no sufficient condition for educational and occupational success (C).

Figure 4.1 Venn diagram – prototypical set-theoretic representation of assimilation theory



[25] Truth tables display all logically possible combinations of predictors.

Set D is constituted by persons having social ties to the majority and the smallest subset comprises immigrants identifying with Germany (E). The depiction of figure 1 will necessarily fall short of explaining the patterns found in the data. These will be characterized by imperfect set relations. In order to assess the model fit of imperfect data structures consistency and coverage scores are computed. The former expresses 'to what degree the empirical data are in line with a postulated subset relation' (Schneider & Wagemann 2012: 324). The formula of consistency for each case adds up the minimum value of condition X_i and outcome Y_i and divides it by the sum of the membership scores in X_i across all cases. The score ranges between zero and one with higher values preferable. A consistency of one indicates a perfect subset relation.

(4.1) $$Consistency_{Sufficient\ Conditions\ (X_i \leq Y_i)} = \frac{\sum_{i=1}^{I} \min(X_i, Y_i)}{\sum_{i=1}^{I} X_i}$$

The cutoff value was set at a score of 0.75 (Schneider & Wagemann 2012: 127f.). Thus, only conjunctions covering mostly respondents identifying with Germany, are supposed to causally trigger the outcome. The conjunction of B*C*D in figure 4.1 represents an imperfect subset relation of identification, as there remain respondents within the conjunction, which do not express identification. These are highlighted in figure 4.1. However, the cutoff value of 0.75 requires that the majority of cases within a conjunction identifies with Germany in comparison to those cases lying outside of the outcome set. In contrast, coverage assesses the 'relation in size between the condition set and the outcome set' (Schneider & Wagemann 2012: 325). A perfect, but very small subset of the outcome would therefore exhibit a consistency of 1, but a low coverage score. Thus, the latter value allows for statements about the substantive relevance of a certain condition for the outcome.

The central results of this study are made up by the QCA identifying the causal predictors of commitment and exploration. The factor analytical results substantiate the robustness of the findings, but will be discussed in less detail. In

terms of distinguishing between a core and a supplemental project, this study applies a QUAN + qual design (Morse 2010: 340f.). The overall logic of this contribution relates more strongly to quantitative than to qualitative research. The mixing of *data* is achieved by comparing the interview codes with the items of the GSOEP and thus takes place at the stage of data analysis. The mixing of *methods*, however, is accomplished by implementing QCA. Although this study's central results are based upon qualitative data, the applied method strongly formalizes and standardizes the open ended narrations of the interviewees. In this regard, the method quantifies qualitative data and thus is sometimes assumed to "occupy a middle position in the debate between so-called qualitative and quantitative research strategies" (Wagemann & Schneider 2010: 10). All analyses could have been performed with purely quantitative data, e.g. the GSOEP. Yet, due to the analysis' expanded scope that includes the dimension of exploration, the utilization of qualitative data becomes indispensable.

4.6.1 Calibration

In fsQCA the researcher assigns a value between 0 and 1 in order to express the degree of membership in a set. Thus, numerical values need to be assigned to the coded textual fragments. This research step of quantifying the qualitative material is called calibration and is crucial to the final results of QCA. Five conditions were included in the QCA: frequency of German language usage, perceived discrimination, generational status, highest level of education, and the proportion of German friends. Table 4.2 displays the calibration of the outcome and causal conditions. With regard to the outcomes, 16 of 54 respondents expressed commitment (29.6 %) and 37 expressed exploration (68.5 %). The former group consists of persons expressing to feel completely or for the most part German and the latter are respondents stating that they belong to the German culture to a large or very large extent. The decisions on where to locate the points of maximum indifference (0.5) are most crucial in applied QCA. Yet, as long as these qualitative anchors – distinguishing group members from non-members – remain

stable, 'the differences in set-membership scores will not be of major substantive importance' (Schneider & Wagemann 2012: 38).

Table 4.2 Outcome and causal conditions

Condition	abbr.	Verbal value	Fuzzy Value	Presence / absence important for outcome
Commitment Germany	(C)	Not at all	0	
		Hardly at all	0.2	
		In some respects	0.4	
		For the most part	0.8	
		Completely	1	
Exploration Germany	(E)	Not at all	0	
		Hardly	0.2	
		In some respects	0.4	
		To a large extent	0.8	
		To a very large extent	1	
Speaking German frequently	(S)	Mostly native language	0	
		Half / half	0.6	Presence
		Mostly German	1	
High level of education	(L)	No school degree	0	
		General (Hauptschule)	0.3	
		Intermediary (Realschule)	0.6	Presence
		Fachhochschulreife	0.9	
		Hochschulreife	1	
Large proportion of German friends	(F)	No Germans	0	
		1/3 Germans	0.3	Presence
		2/3 Germans	0.7	
		Only Germans	1	
High perceived discrimination	(D)	Never	0	
		Seldom	0.4	Absence
		Often	1	
High generational Status	(G)	First generation	0	
		1.5 generation (< 12 years)	0.4	Presence
		Second generation	0.8	
		Third generation	1	

The calibration of the highest level of education aimed at separating basically skilled from highly skilled immigrants. It was decided to place the intermediary schooling of *Realschule* more in than out (0.6) of the set of highly skilled immigrants. Additionally, compulsory schooling outside of Germany was assigned the value of 0.3, while a higher foreign school diploma was put on a level with intermediary schooling (0.6). The threshold for the set of 'high generational status' was set between the 1.5 (0.4) and the second generation (0.8). As an extensive literature confirms, integration is an intergenerational process with major advantages for immigrants born and raised in the host country (Alba & Nee 1997; Haug 2005; Worbs 2003). The language preference was coded on a three-point scale. A set value of 0.6 was chosen for the middle category of 'German half of the time and the native language half of the time'. Hence, those individuals are considered as members of the set of immigrants speaking German on a regular basis. As a large body of literature indicates, most immigrants prefer the native language at home and speak the host language outside (Alba 2004; Haug 2005; Portes & Hao 1998; Waters 1994). Further, in order to avoid overestimating the effect of perceived discrimination, only respondents expressing to feel often discriminated against constitute the set of highly discriminated individuals.

In order to find the most parsimonious solution explaining the outcome of identification, QCA uses the Quine-McCluskey algorithm. This procedure logically minimizes the conjunctions of conditions by cancelling out all expendable conditions for expressing the outcome of identification (Schneider & Wagemann 2012: 104ff.). All substantial results are based on the intermediate solution term, which lies between the most complex and the most parsimonious solution. For the most complex or conservative solution term, 'the researcher refrains from making assumptions about any logical remainder and is exclusively guided by the empirical information at hand' (Schneider & Wagemann 2012: 162). Logical remainders are combinations of condition that are not observed in the data. In contrast, the most parsimonious solution does not take account of existing knowledge about the matter of interest. Hence, non-existing combinations

not in line with existing theoretical and empirical knowledge are also incorporated as long as they do not contradict the empirical data and facilitate the simplification of the final solution. The intermediate solution applies so called directional expectations to the data, which means that only those logical remainders in line with existing knowledge are included (Schneider & Wagemann 2012: 168). The directional expectations are displayed in the last column of table 4.2.

4.7 Results

4.7.1 Factor analysis

Table 4.3 presents the factor analytical results. The findings for the GSOEP supply evidence for a two factor solution. The first factor represents sociolinguistic integration. Both, German language usage and the share of German friends load higher than 0.5 on this factor. 'Commitment Germany' as well as 'exploration origin' express high loadings on the second factor, which represents the individual's identification with Germany. There are considerable cross loadings of language usage and 'commitment Germany'. However, the highest factor loadings (> 0.5) imply a two factor solution. The Kaiser-Meyer-Olkin measure of sampling adequacy can be regarded as acceptable (KMO = .716). The factors correlate positively, which is consistent with the theoretical assumptions.

These findings correspond highly with the equivalent analysis of the qualitative data (Qualitative data 1), where a comparable two factor structure is identified. Again, the first factor represents the sociolinguistic integration, while the second factor, in contrast to the results for the GSOEP, constitutes the identification with the country of origin. Thus, the signs of both identity items reversed. Due to the smaller number of observations the KMO measure and the correlation between the two factors are lower than in the quantitative dataset. Nevertheless, despite the

large differences in sample size the results for both datasets strongly resemble each other[26].

Table 4.3 Promax-rotated factor loadings by dataset - polychoric correlations

	GSOEP		Qualtitative data 1		Qualtitative data 2		
	Factor 1	Factor 2	Factor 1	Factor 2	Factor 1	Factor 2	Factor 3
Speaking German	0.5392	0.2262	0.8032	0.0506	0.7762	0.0783	0.0666
German friends	0.5390	0.0809	0.7547	-0.0771	0.7794	-0.0942	-0.0346
Exploration Origin	-0.0652	-0.5503	0.0760	0.5787	0.0379	0.7473	-0.0624
Commitment Germany	0.2672	0.5282	0.1207	-0.5352	-0.0031	-0.2427	0.6125
Exploration Germany					0.0631	0.1028	0.6804
Commitment Origin					-0.0447	0.7659	0.0358
KMO	0.716		0.556		0.627		
ρ_{12}	0.673		-0.422		-0.214		
ρ_{13}					0.509		
ρ_{23}					-0.411		
N	1201		54		54		

Source: GSOEP 2011 & self-conducted interviews, own calculations

Subsequently, two further identity items, 'Commitment Origin' (item 4.1.2) and 'Exploration Germany' (item 4.2.2), were introduced in a second analysis of the interviews (Qualitative data 2). By including these, a three factor solution was extracted. Consistent with preceding research ethnic and national identification

[26] Applying the criterion of eigenvalue > 1 for both datasets a one factor solution is retained. The factor represents an integration dimension with positive loadings (> 0.4) for German language usage, proportion of German friends and 'Commitment Germany' and a negative loading (< - 0.3) for 'Exploration country of origin'. The substantial interpretation remains unchanged by these alterations: The factorial structures in both datasets resemble each other strongly. Detailed results are available upon request.

are represented by two separate dimensions (Berry et al. 2006). These correlate negatively with each other (ρ_{23} = -0.411) and, consistent with the theoretical assumptions, national identification relates positively to a more 'German' sociolinguistic profile. Besides the theoretically consistent factor structure the considerably higher KMO implicates a reasonable adequacy of the items for the application of exploratory factor analysis.

As the analysis so far revealed, the qualitative codifications are coherent with the pattern of the GSOEP data. This apparent resemblance supports the robustness of the upcoming results, which concern the causality of the identification with Germany. The following analyses include 'Commitment Germany' as well as 'Exploration Germany' and, therefore, expand the scope of the GSOEP, which only includes the former item.

4.7.2 Qualitative Comparative Analysis (QCA)

4.7.2.1 Necessity

Table 4.4 presents the consistency and coverage scores of all causal conditions. According to the literature a threshold of 0.9 should be applied to the consistency coefficients in order to claim that a condition is necessary for the outcome (Schneider & Wagemann 2012: 143ff.). Empirically, the absence of discrimination is a necessary condition for commitment to Germany. Yet as its coverage of 0.490 implies it is only of medium relevance for the outcome. Regarding exploration, again, not feeling discriminated against constitutes the most important condition. Yet, the consistency is slightly below the predefined threshold level (0.856). Hence, only the absence of discrimination is a necessary condition for commitment (~D ← C). According to the formal logic underlying QCA this claim of necessity at the same time implies that the presence of discrimination is a sufficient condition for the absence of commitment (D → ~C). Otherwise the results of sufficiency could contradict the claim of necessity. Regarding exploration no necessary condition is specified.

Table 4.4 Analysis of necessary conditions

condition	commitment		exploration	
	consistency	coverage	consistency	coverage
Speaking German frequently	0.705	0.556	0.621	0.852
~ S	0.518	0.453	0.482	0.734
High level of education	0.848	0.448	0.808	0.743
~ L	0.344	0.664	0.267	0.897
Large proportion of German friends	0.625	0.680	0.462	0.874
~ F	0.710	0.476	0.682	0.796
High perceived discrimination	0.170	0.306	0.185	0.581
~ D	0.911	0.490	0.856	0.803
High generational status	0.268	0.588	0.262	1.000
~ G	0.848	0.434	0.764	0.680

Based upon the presented findings, it may be assumed that the causal conditions exercise their influence only in conjunction with each other. This assumption was subsequently tested in the analysis of sufficiency.

4.7.2.2 Sufficiency

Table 4.5 displays the results concerning sufficiency in commitment to Germany. Besides the *core* causal conditions, which are derived from the most parsimonious term, also the *contributing* conditions of the intermediate solution are shown (Ragin & Fiss 2008). The latter 'conditions (…) make sense as important contributing factors and can be removed from the solution only if the researcher is willing to make assumptions that are at odds with existing substantive and theoretical knowledge' (Ragin & Fiss 2008: 204). Additionally, the table lists uncovered and true contradictory cases. Uncovered cases are respondents that express identification in terms of commitment or exploration, but who are not explained by any of the displayed solutions. In contrast, true contradictory cases are interviewees with membership in the corresponding solution terms that do not

express the outcome. Hence, these cases directly contradict the assumption of sufficiency.

The solution for *commitment* to Germany is:
~L*~D + S*~D*G + S *F*~D → C

The results clearly show a pattern of equifinality, as three equal and mutually non-exclusive terms induce the outcome. The recipe for expressing commitment to Germany is *first*, the absence of a high level of education (~L) combined with no perceived discrimination (~D), or speaking German regularly (S) in combination with a lack of perceived discrimination (~D) and *second*, a high generational status (G) or *third*, a high proportion of German friends (F). The three configurations conjointly cover 69.6 per cent of the cases in the data. The overall solution consistency is 0.732. As predefined by the analysis of necessity the absence of discrimination is a major causal explanation for the outcome of commitment to Germany[27]. The conjunction with the highest proportion of unique coverage (0.246) is the combination of speaking German frequently, having a large proportion of German friends, and the absence of perceived discrimination. This conjunction seems mostly in line with the theoretical expectations. However, in contradiction with theoretical assumptions a *low* level of education in combination with the absence of discrimination constitutes a sufficient conjunction for commitment to Germany.

Table 4.6 displays the results for the second outcome of *exploration*. The interpretation is based on the following solution:
~D + L*F + S*F → E

[27] Yet, even without defining the absence of discrimination as a necessary condition the conservative and intermediate solutions remain unchanged and the most parsimonious term changes only marginally. Detailed results are available upon request.

Table 4.5 Configurations for expressing commitment

	Solution 1	Solution 2	Solution 3
Speaking German frequently		●	•
High level of education	⊗		
Large proportion of German friends			●
High perceived discrimination	⊗	⊗	⊗
High generational status		●	
Consistency	0.793	0.757	0.755
Raw Coverage	0.326	0.250	0.536
Unique Coverage	0.103	0.027	0.246
Uncovered cases*		R1, R2. R11, T11	
True contradictions**	T14, T15, T18	T2, T3, T4, T19, T21, T23	B7, B13, B14, B15, T3, T4, T21
Solution coverage		0.696	
Solution consistency		0.732	

Note: ● = core causal condition (present); ⊗ = core causal condition (absent); • = contributing causal condition (present); ⊗ = contributing causal condition (absent).
Consistency threshold ≥ 0.75
* cases with membership in outcome > 0.5 and of < 0.5 in any path
** cases with membership in outcome < 0.5 and of > 0.5 in the path

The results exhibits a better fit to the data since both the overall coverage (0.892) and consistency (0.795) of the solution score higher than for commitment. According to the first solution term the absence of discrimination (~D) alone is sufficient for the outcome of exploration. Further, combining either a high level of education (L) or a frequent usage of German language (S) with a mostly German friendship network (F) suffices for expressing exploration. Again, the absence of discrimination is highly relevant as its high unique coverage score of 0.431 indicates. Generally, the solution for the outcome of exploration is less complex than for commitment.

Table 4.6 Configurations for expressing exploration

	Solution 1	Solution 2	Solution 3
Speaking German frequently			•
High level of education		•	
Large proportion of German friends		●	●
High perceived discrimination	⊗		
High generational status			
Consistency	0.803	0.881	0.899
Raw Coverage	0.856	0.438	0.390
Unique Coverage	0.431	0.021	0.010
Uncovered cases*		R7, R10	
True contradictions**	B1, B3, B7, B11, B13, B14, B15, R4, R5, R11, R12	B7, B13, B14, B15, R4, R13	B7, B13, B14, B15, R4, T12
Solution coverage		0.892	
Solution consistency		0.795	

Note: ● = core causal condition (present); ⊗ = core causal condition (absent); • = contributing causal condition (present); ⊗ = contributing causal condition (absent).
Consistency threshold ≥ 0.75
* cases with membership in outcome > 0.5 and of < 0.5 in any path
** cases with membership in outcome < 0.5 and of > 0.5 in the path

The results exemplify differences in the set relational structures of the two outcomes. Those bear exceptional significance since so far immigrants' *national* identification is measured only by commitment in the GSOEP. In contrast, *ethnic* identification is assessed by exploration. The likely implications of these diverging measurements are discussed in the concluding section.

Prior to this, the question shall be answered whether the presented results support or reject the theoretical assumptions. According to assimilation theory, the conjunction of frequently speaking German (S), being highly educated (L), and having a large proportion of German friends (F) is sufficient for identifying with

Germany. As no differentiation is made between different dimensions of identity formation these theoretical hunches equally apply to commitment (C) and exploration (E):

T1: S*L*F → C
T2: S*L*F → E

The intermediate solution terms for commitment (SC) and exploration (SE) look considerably different:

SC: ~L*~D + S*~D*G + S*F *~D → C
SE: ~D + L*F + S*F → E

In order to assess the support or rejection of theoretical assumptions, consistency and coverage scores of the overlap of solution terms and theoretical hunches are computed (Schneider & Wagemann 2012: 300ff.). The former indicator expresses the proportion of individuals in the intersection of theory and solution who identify with Germany. In contrast, the coverage score expresses the share of respondents identifying with Germany that is covered by the overlap of theory and solution.

The intersection of T1 and SC has a consistency of 0.747 and a coverage score of 0.513. The former value expresses the considerably high percentage of respondents (74.7%) in the intersection of theory and solution that are also expressing commitment. However, approximately 25 per cent of the respondents being predicted by theory and the solution formula do not identify with Germany in terms of feeling as a German. The coverage score implies that 51.3 per cent of the sixteen respondents expressing commitment are both predicted by theory (T1) and covered by the solution (SC).

In contrast, the consistency scores 0.911 and the coverage 0.367 for the outcome of exploration. Almost all respondents (91.1%) in the intersection of theory and

solution express ‘exploration’. Yet, the percentage of cases in the outcome that are covered by the intersection is considerably lower. However, it has to be kept in mind that the number of respondents identifying with Germany is more than twice as high for exploration than for commitment. Thus, 36.7 per cent for the outcome of exploration amount to a larger total number of interviewees than 51.3 per cent for commitment. Nevertheless, only about one third of all individuals expressing ‘exploration’ are also characterized by conditions in consistence with the obtained solutions and theoretical reasoning.

Overall, the empirical support for assimilation theory concerning both dimensions of identification is rather weak. As the low coverage scores imply, the identification expressed by a significant share of respondents cannot be explained by assimilation theory. Thus, future empirical studies need to consider additional predictors in order to explain immigrants’ national identification. The final section discusses the study’s limitations and gives an outlook for future research.

4.8 Discussion and conclusion

The aim of this study was to explore the determinants of national identification in Germany. In this regard, it accounted for two distinct dimensions of identities, commitment and exploration. By mixing qualitative and quantitative data, this contribution was able to expand existing research on immigrants’ national identification with Germany. By applying exploratory factor analyses the comparability of the mixed data sources – the large-scale survey of the GSOEP and the transcripts of 54 qualitative interviews – was ensured. The subsequent Qualitative Comparative Analysis supports the assumption that in order to assess the identification with Germany validly, at least one additional item should be surveyed in quantitative surveys: *To what extent do you feel that you belong to the culture of Germany?* Obviously, this list could be broadly extended (Ashmore et al. 2004; Phinney & Ong 2007).

Overall, the results imply a better solution consistency and coverage for the dimension *not surveyed* in the GSOEP (exploration). Therefore, the inclusion of this dimension in quantitative research would increase the explanatory power of studies on immigrants' national identification in Germany. Further, the large amount of individuals expressing a unique belonging to the ethnic context found by Esser (2009) might be due to a methodological bias. In the GSOEP ethnic identification is surveyed by the dimension of exploration and national identification by commitment. As this study showed, respondents in general express 'exploration' (68.5%) more frequently than commitment (29.6%). Therefore, the GSOEP-based findings that a majority of immigrants expresses a unique belonging to the ethnic context are likely biased upward due to diverging measurements for host- and receiving country identification. In order to validly assess immigrants' identities comparable measurement instruments of ethnic and host country identification need to be used. Additionally, the different solution terms for commitment and exploration imply differences in the underlying causal mechanisms. While both outcomes are most strongly related to perceived discrimination, only commitment is necessarily dependent on an absence of feeling discriminated against. Hence, immigrants' expression of feeling as a German is strongly reliant on their perception of majority's reception. In contrast, interethnic contact to Germans is – besides not feeling discriminated against – a relevant condition for expressing to belong to Germany. In general, the patterns of conditions causing commitment are more heterogeneous. However, two out of three paths for the outcome of commitment are linked to a frequent usage of German language. Future research needs to take account of this diversity in the dimensional structure of national identification.

Further, the method mix of this study contributes to a more holistic discussion of immigrants' adaptation. By mixing qualitative and quantitative methods and data the different (coexisting) strands of research are integrated. The central results of this study are based on qualitative in-depth interviews. Additionally, QCA does not test formulated hypotheses, but rather explores conjunctions of conditions leading to a predefined outcome. Yet, as the coded responses of the interviewees

are consistent with the standardized items of the GSOEP the latter lends it credibility to the results at hand. This high generalizability of exploratory findings could not have been obtained by a single-method design. Thus, the study shows that a larger integration of qualitative and quantitative methods constitutes a prolific strategy in the field of ethnic minority integration in general and identity formation in particular. Further, this study links to existing mixed-methods research on the evaluation and improvement of identity measures (Latcheva 2011) and exemplifies the advantages of set theoretic approaches in exploring causal determinants. Particularly, the issue of conjunctural causation may be better handled in QCA than in net-effects analyses, e.g. regression analysis.

The last section outlines the limitation of this study and challenges for future research. First, the large amounts of cases in both outcomes which are not predicted by the intersection of theory and solution – approximately 49 per cent for commitment and 63 per cent for exploration – indicate further theoretical and empirical challenges on the topic of identity formation. Assimilation theory's main determinants – host language proficiency, level of education, and the share of German friends – and both perceived discrimination and generational status only partly account for the variation in immigrants' national identification. Thus, as there remain several true contradictory and uncovered cases, future studies need to identify and include additional predictors. In-group norms and sociostructural conditions, e.g. the stability and legitimacy of existing group- and status differences, seem most promising in this regard (Verkuyten & Martinovic 2012: 92ff.).

Second, future research could engage in a deeper, more qualitative, and detailed analysis of exceptional respondents, e.g. true contradictory and uncovered cases. By this means the mechanisms leading to distinct identity formations and so far unknown predictors could be specified. Further, the presented results indicate possible group differences in identifying with Germany. It is mainly the group of Turkish respondents that contradicts the findings for the outcome of commitment, while a large share of Brazilians expresses identity structures in conflict with the

solutions of exploration. Particularly, the strong rejection of Turkish respondents to identify “as a German” is probably caused by more frequent perceptions of discrimination. Further, five of six uncovered cases are respondents of Russian-speaking origin. Hence, more detailed and comparative analyses of distinct groups constitute a promising future field of research. For now, the results implicate that a more diverse measurement of identification, at least considering the two dimensions of *commitment* and *exploration*, should be applied in German quantitative research.

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5

Lessons learned and implications for future research

This dissertation discussed problems of methodological shortcomings in the measurement of immigrants' integration in Germany. The three papers considered the consequences of applying simplified measurement models in migration research and utilized improved measures. This chapter summarizes the central findings of each chapter and presents their implications for future research. In this regard, the outline centers on two overall challenges and key conclusions. The final chapter presents the limitations and societal implications of this dissertation.

5.1 Chapter summaries

The first article (chapter 2) discussed the latent underlying structure and potential pitfalls of a common measurement of transnational mobility: immigrants' return visits to their country of origin. Thus, building on existing studies the following questions were answered:

> *Are regular and persistent trips between countries an adequate indicator of transnational mobility across all immigrants? Are regular and enduring cross-border trips a distinctive feature of transmigrants separating them from immigrants?*

As the research design was exploratory, no strict hypotheses were postulated and tested. In line with existing research, this study utilized return trips to the country of origin as indicator of transnational mobility. However, instead of using a single-item measure this study operationalized four items regarding frequency, length, and total duration of visits to the country of origin. In this regard, transnational mobility was considered a latent individual trait that manifests itself differently among immigrants in Germany. The formulated questions were tackled

with data of the German Socio-Economic Panel Study (GSOEP), which represents the largest regular survey of immigrants in Germany. The paper included all immigrants of first, second, and third generational status. The subsequent analyses compared confirmatory factor analysis and two different approaches of factor mixture analyses with each other. All models are constrained by certain statistical assumptions that have to be met. These were discussed in detail in chapter 2.3. The best fitting model implied a three-group solution. As indicated by significantly differing factor loadings, these groups are characterized by distinct relations between the survey questions. Thus, the results indicate no uniform measurement of transnational mobility across different groups of immigrants. Particularly, the most transnational group – whose members on average exhibit the highest number of trips and the longest history of returning to their country of origin – comprises only 58% of all respondents. The other two classes exhibit (at least partly) contradictory patterns of transnational mobility. Further, members of the most mobile group, in comparison to remaining respondents, are more likely to be unemployed, have low incomes, and identify most often exclusively with the sending society.

The results of this study contribute to research on transnational mobility in two regards: methodically and substantively. On the one hand, the findings challenge the adequacy of the commonly applied indicator of return visits. The results indicate that trips to the country of origin constitute a problematic measurement of transnational mobility. The analyses profoundly contradict theoretical assumptions, as theoretically consistent findings could only be derived for about 58% of the respondents. Thus, utilizing lengthy return visits as an indicator of transnational activities may produce seriously biased results, particularly if mean effects models such as regression analyses are applied. The study therefore exemplifies the importance of accounting for group differences in immigration research. Immigrants engage in cross-border mobility to varying extent and for diverging reasons. Therefore, future studies need to account for these differences, e.g. by adding interaction terms to the regression equation or by utilizing latent variable models. In addition, immigration research needs to engage in the

development of more reliable measures of transnational mobility. On the other hand, the study contributes to assessing the incidence of transnational mobility in Germany. Thus far, only a limited stock of quantitative studies on this topic exists. The study implies that transnational mobility is widespread among immigrants in Germany: 58% of the respondents constitute a highly mobile group. However, the identified group differences imply the need for further investigation of transnational mobility in Germany. In this regard, the first article outlined conceptual and measurement problems, which future research needs to consider. Further, the study exemplified that all immigrants – although to differing extent – engage in transnational mobility. Hence, in line with existing findings, transnational mobility is best represented by a continuum rather than by a categorical typology distinguishing between *traditional* and *transnational* immigrants (Waldinger 2008). Thus, although immigration research needs to account for significant group differences, a clear-cut distinction between immigrants and transmigrants seems obsolete.

The second article (chapter 3) investigated the causality between socioeconomic status (SES) and interethnic contact (IEC). Existing research on this issue commonly aims at identifying effects of either concept on the other one. Therefore, most empirical studies analyze the interrelation between SES and IEC in a unidirectional way, assuming effects of exogenous independent variables on predefined dependent variables. However, the causal relationship between both concepts is inherently complicated by the problem of endogeneity. According to social capital theory, a positive effect of interethnic ties on immigrants' socioeconomic status would be expected. In this regard, social capital refers to "resources that come from direct, personal, and usually close ties to particular people" (Massey & Aysa-Lastra 2011: 2). Its positive effect is mostly due to reduced cost of job search, exerted influence on relevant decision-makers and increased productivity by means of improved soft skills and well-being. However, due to social homophily these effects of social capital might be spurious. As individuals of comparable socioeconomic status tend to associate with each other and immigrants, on average, have lower SES than native Germans, immigrants

with high SES might as well establish interethnic contacts *as a result* of their high socioeconomic status. According to this rationale, SES would have a causal, positive effect on IEC. Existing empirical studies were able to support both theoretical claims. Therefore, the second paper formulated the following research questions:

> *In what sequence are socioeconomic status (SES) and the establishment of interethnic contacts (IEC) linked to each other? Are socioeconomic resources of immigrants facilitating contacts to members of the host society or do bridging social networks positively influence the occupational and educational progress of immigrants?*

In order to more soundly account for the problem of endogeneity, the second study used multiple methods. Besides fixed effects panel regressions, which are commonly utilized in order to identify causal effects, non-recursive models, namely autoregressive cross-lagged panel models, were applied to the data of the GSOEP. Further, in order to account for measurement error, latent variable models were applied in all analyses. The most robust results indicated a positive effect of interethnic contact on socioeconomic status and no reverse effect.

These findings contribute to both the substantive and methodological literature. First, the article supports theoretical reasoning of a positive effect of social capital on socioeconomic status. Hence, immigrants' interethnic ties to Germans positively influence their socioeconomic attainment. As the constructs have been established by latent constructs, measurement error as a possible source of bias can be ruled out. Further, the final model controls for reverse causality, simultaneity, and time-invariant unobserved heterogeneity. Thus, the study results and its support for social capital theory are highly robust. Therefore, by testing the theory's assumptions under rigorous conditions, the second article advances the substantive knowledge on the causal relationship between immigrants' socioeconomic status and interethnic contact. Yet, the second paper also exemplifies the advantages of non-recursive models, such as autoregressive cross-lagged panel models. Particularly, these models are beneficial in researching

strongly interrelated social phenomena, which simultaneously affect each other. By predicting a variable's value above and beyond its own value at an earlier point in time and additionally controlling for unobserved heterogeneity and reverse causality, these models are particularly appropriate for situations where unidirectional models, e.g. regression analyses, expose significant effects in both directions. Thus, in applying non-recursive models with latent variables, the third chapter helps to disentangle the complex interrelations of a comparatively well-researched area in immigration research.

This dissertation's third article (chapter 4) explored the predictors of immigrants' national identification. Additionally, it discussed and outlined the problems of quantitative measurements of national identity. By applying a mixed methods approach the following questions were answered:

> *(1) Which predictors influence identification with Germany? (2) Are there observable differences in the predictors of different dimensions of national identification? (3) Which bias may be expected by the application of a truncated measurement of immigrants' identification?*

With reference to social identity theory and successive approaches, ethnic and national identities are commonly regarded as multidimensional concepts. Corresponding international research implies that at least two dimensions of identification need to be distinguished: commitment and exploration. Applying this distinction to the largest regular survey of immigrants in Germany (GSOEP), it was argued that respondents' ethnic and national identities are surveyed with reference to different dimensions. Further, each aspect of immigrants' identity is measured by a single item. While the survey question of ethnic identification refers to exploration, national identification is collected by commitment. By utilizing data of semi-structured interviews with Brazilian, Russian-speaking, and Turkish respondents, the third article allowed for an extended analysis of the determinants of national identification beyond the unidimensional approach focusing on commitment. In this regard the study additionally accounted for exploration and used qualitative comparative analyses (QCA) to investigate the

causal predictors of both dimensions. Preceding exploratory factor analyses confirmed the reliability of the qualitative codings by comparing their underlying factor structure to that of the GSOEP data. The results implied that expressing exploration is tied to fewer constraints than feeling committed. Therefore, respondents embrace exploration more frequently and easily. Regarding the determinants of identification two results were particularly striking. First, absence of discrimination is the most important predictor of identification with Germany. It constitutes a necessary condition for the dimension of commitment and covers about 43% of all respondents expressing exploration. Second, identity formation processes are considerably complex. Therefore, no single conjunction of predictors causes the respondents to express either dimension of national identification. Rather, several mutually non-exclusive combinations of causal conditions exist.

The third paper contributes to the literature in a substantive and methodological manner. Theoretically, it fosters future efforts of specifying the causal predictors of national identification. As the results differ substantially for exploration and commitment, theoretical models need to account for dimensional differences more strongly. Additionally, perceived discrimination has to be prominently featured in theoretical models predicting immigrants' identification (see also Skrobanek 2009; Verkuyten & Martinovic 2012: 94ff.). In a methodological manner, the third article pointed to potential bias accompanying the utilization of truncated measures. Particularly, the results implied that reliance on the simplified measurement of the GSOEP might be associated with systematic overestimation of ethnic and underestimation of national identification. Finally, the possibility of multiple and mutually non-exclusive causal pathways needs to be considered in empirical and theoretical research on immigrants' identities. In this regard, the results imply that no single solution, but three conjunctions of conditions explain each dimension of national identification in juxtaposition. With reference to the overall topic of this dissertation, the third paper outlined the shortcomings of existing measures and proposed an improved measurement instrument for immigrants' national identification in Germany.

5.2 Challenges for further research

The presented measurement problems not only affect empirical research, but impact the entire research process. In this regard, the presented findings have ample repercussions on sociological theory building in the domains of immigrants' integration and acculturation. This section outlines the overall implications of this dissertation for future research. In this regard, the remainder of this chapter centers on two general subjects: generalizability and causality. In correspondence, two key conclusions are presented.

5.2.1 Generalizability

The first paper's findings indicate that no distinct groups of *transnational* and *traditional* immigrants can be identified in Germany. Although their patterns differ considerably, all three identified groups engage in transnational mobility to some extent. Hence, no separate theoretical models for transmigrants' and immigrants' integration are needed. More generally speaking, this dissertation encourages future researchers to counter trends of fragmentation and to conceptualize integration as a universal process. Thus, the first key conclusion reads:

(1) Despite its context-bound nature, immigrants' integration is a universal phenomenon.

The universal process of immigrants' integration, however, depends on critical structural functions and conditions. In this regard, theories of immigrants' integration commonly emphasize the relevance of social contexts, such as legal jurisdiction and societal discourses. Therefore, more recent theoretical concepts tend to accentuate diversity in the integration process (Crul & Schneider 2010; Rodríguez-García 2010; Vertovec 2007). In this regard, two distinct kinds of diversity may be distinguished.

First, it has been argued that different contexts of reception impede the transferability of theoretical concepts developed for one context to another one. This kind of diversity may be denoted by *horizontal diversity* as different coexisting contexts need to be accounted for. The debate predominantly centers on questions whether theoretical notions developed for the U.S. context may be legitimately transferred to Europe (or other contexts) and whether distinct European models have to be developed (Crul & Schneider 2010a; Thomson & Crul 2007). Particularly, three types of so-called discursive contexts shape immigrants' adaptation: political discourses, media discourses, and social discourses in everyday communication (Crul & Schneider 2010a: 1260). These contexts differ considerably across immigrant-receiving countries and subnational units. Therefore, processes of establishing ethnic boundaries differ across those contexts as well (Alba 2005; Beier & Kroneberg 2013; Brubaker 2009; Kroneberg & Wimmer 2012; Wimmer 2008a; Wimmer 2008b). Ethnic boundaries represent distinctions with both symbolic and social aspects that individuals make in their everyday lives and which shape individuals' actions and "mental orientations towards each other" (Alba 2005: 22). In this regard, ethnic *symbolic* boundaries represent socially constructed "outcomes of social processes of classification and inclusion and exclusion" (Beier & Kroneberg 2013: 1537). Hence, these reflect conceptual definitions of group membership rather than objectively observable traits. These boundaries between minorities and the majority are institutionalized and negotiated within societal discourses. Therefore, skin color, religion, social class and other markers of distinction between majority and minority exert no uniform influence across different contexts. As ethnic boundaries are shaped, expressed, and perceived in public and individual discourses[28], the receiving country's mainstream – by means of its superior position in the power hierarchy of groups – has the ability to legislate (e.g. with regard to citizenship) and construe ethnic boundaries (e.g. with regard to the socially accepted diversity of languages and religious practice). The precise nature of ethnic symbolic

[28] In the remainder of this chapter, the term of public discourse is used interchangeably for both political and media discourses. Individual discourses relate to immigrants' everyday communication (Crul & Schneider 2010a: 1260).

boundaries – e.g. bright or blurred (Alba 2005) – causes differences in integrational success. When boundaries between majority and minority are blurred, immigrants face low discrimination and may easily change group affiliation. This will ease the integration process. In contrast, minority members face greater obstacles to gaining majority membership and differences are highlighted in presence of bright boundaries. Bright ethnic symbolic boundaries therefore impede immigrants' integration process considerably. According to differences in ethnic symbolic boundaries, immigrants' chances of entering host society's mainstream differ across countries and subnational units. Other characteristics of *horizontal diversity* constitute differences in occupational and educational systems as well as in legal frameworks concerning immigrants' residence status. However, once this *horizontal diversity*, e.g. in boundary-making processes, is accounted for, immigrants integration should follow a comparable path across different units of reference, e.g. countries. In this regard, for example, Spanish language (in the U.S.) and Islam (in Western Europe) have sometimes been regarded as functional equivalents with regard to boundary making processes (Alba 2005; Zolberg & Woon 1999; Alba & Foner 2015). Both are used to establish symbolic boundaries between the majority and a significant minority group.

Second, rather than to differences between contexts, diversity might also refer to temporal status changes *within* one society. Both, the concept of super-diversity (Crul et al. 2013; Vertovec 2007) and the notion of majority-minority cities (Kasinitz et al. 2002) demand consideration in this regard. The term of super-diversity emphasizes that, besides ethnic background, additional variables fundamentally complicate immigrants' integration. These factors are e.g. residence status and its adherent rights and restrictions, patterns of spatial distribution, and gender and age profiles (Vertovec 2007: 1025). The concept then states that the interplay of ethnicity and these variables generates an exponential increase of diversity within countries and cities. Due to this greater complexity the situation in today's receiving societies may not be compared to earlier times. Thus, concepts of immigrants' integration developed for past times may not be

applied to modern societies. Super-diversity strongly relates to majority-minority cities, which are cities where the country's majority population constitute less than 50% of the inhabitants, e.g. New York, Sydney, Toronto, and Amsterdam (Crul et al. 2013: 12). The increased diversity of receiving societies and gateway cities then is assumed to have ample consequences for immigrants' integration. For example, it has been argued that social interactions among immigrants and native minority groups are of greater importance than contacts between immigrants and some core majority group, e.g. non-Hispanic Whites in the USA (Kasinitz et al. 2002: 1021)[29]. Thus, these overall changes in societal conditions could have altered immigrants' social integration (as defined in chapter 1.1) dramatically. However, this implication requires future investigation as quantitative studies on this issue are still scarce. While the increased diversity of modern immigration societies is well documented (Meissner & Vertovec 2015: 546ff.), its formulated implications remain untested on a large scale[30]. As the phenomena of super-diversity and majority-minority cities tend to contrast changes within distinct units (e.g. countries, cities, etc.) over time, this kind of diversity may be denoted by *vertical diversity*.

Both *horizontal* and *vertical diversity* complicate the formulation of a uniform theory of immigrants' integration. However, relevant characteristics, such as contextual factors, gender, ethnicity, and immigration status, could well be integrated into an overall model. The first paper of this dissertation discussed transnationalism: an essential dimension of super-diversity and one kind of *vertical diversity*, which presumably distinguishes today's immigrants and receiving societies from past ones (Vertovec 2007: 1042). However, the results imply that transnational mobility interferes only marginally with common indicators of immigrants' integration, e.g. education and income. Therefore, return trips across international borders pose no obstacle for formulating a uniform

[29] As most majority minority cities are located in the USA, these constitute the most prolific example. However, the presented phenomenon is not restricted to the U.S. context. Comparably, authochthones or native Germans may gradually lose their superordinate significance within the Netherlands and Germany, respectively.

[30] For example, the special issue "Comparing super-diversity" edited by Meissner and Vertovec (2015) focuses mostly on case studies and qualitative research.

theory of immigrants' integration. In a comparable manner, other aspects of *horizontal* and *vertical diversity* need to be empirically explored and subsequently incorporated into future theoretical reasoning. Thus, in the long run and despite apparent complexities, a general theory of immigrants' integration should be pursued.

5.2.2 Causality

The second paper tested causal assumptions about the relationship between immigrants' socioeconomic status and interethnic contact. For this purpose, theoretical guidance is required. Theories most essentially have to formulate hypotheses about empirically testable relationships (Diekmann 2010: 146, Friedrichs 1990: 62). However, several concepts of immigrants' integration tend to avoid proposing strict, testable hypotheses. Particularly, the formulation of stages and causal sequences was more widespread at earlier times (see chapter 1.1). This dissertation links to these past models by postulating the second key conclusion:

(2) Immigrants' integration follows causal patterns, which need to be incorporated into theoretical reasoning.

The second article exemplified that even the application of longitudinal statistical models does not supersede the necessity of sound theoretical reasoning. Otherwise, research on strongly interrelated, reciprocal phenomena might produce statistical artefacts. For example, both fixed and random effects models rely on the assumption of strict exogeneity. Thus, feedback processes between dependent and independent variables cannot be adequately represented in these kinds of analyses. The findings indicate that the application of advanced statistical procedures to longitudinal data – e.g. autoregressive cross-lagged panel models – enables researchers to test and account for different causal scenarios. However, empirical research is necessarily restricted to testing a finite number of plausible causal scenarios, which have to be derived from theoretical reasoning.

The problem of causality also applies to immigrants' identification. The third article explored two distinct dimensions of national identification. The results indicate that, despite imperfect prediction, immigrants' identification relates to linguistic habits, level of education, friendship ties, generational status, and perceived discrimination. However, in comparison to language skills and "occupational mobility and economic assimilation" (Alba & Nee 1997: 835), research on ethnic minorities has invested less effort in determining the causal predictors of immigrants' identification. Identities are commonly regarded "as that part of an individual's self-concept which derives from his knowledge of his membership of a social group (or groups) together with the emotional significance attached to that membership" (Tajfel 1974: 69). In this regard, immigrants' identification is strongly dependent on the receiving context, as identities are shaped in situations "almost as a surprise rather than as something strenuously 'quested' after" (Erikson 1966: 147). Thus, the pre-structured conditions immigrants face in the host country exert strong influence on identity formation processes. Yet, the role of contexts for the identity formation has only been roughly discussed thus far (Verkuyten & Martinovic 2012).

The very nature of ethnic boundaries constitutes a central determinant of immigrants' identities. Ethnic boundaries account for both differences between countries and group differences within countries. As ethnic boundaries are negotiated within public discourses, again, *horizontal diversity* across receiving contexts needs to be considered. In Europe for example, public debates tend to emphasize problems and downsides of ethnic enclaves. In contrast, discussions on this issue are less centered on problems and tend to be more differentiated in the USA. Additionally, the notions of 'assimilation' and 'mainstream' have considerably different connotations in these two contexts. Where European debates typically focus on one-way assimilation processes and define the mainstream in restrictive terms, U.S. notions commonly allow for larger diversity and variety (Crul & Schneider 2010b: 1144). Thus, public discourses influence immigrants' identity formation as these restrict the number of groups, immigrants might legitimately identify with. Yet, existing research has not sufficiently

incorporated these complexities and commonly utilizes crude measures, e.g. immigrants' national background or religious denomination, in order to account for contexts and ethnic boundaries (Alba & Foner 2015: 4; Foner & Alba 2008; Silberman et al. 2007; Thomson & Crul 2007; Zolberg & Woon 1999). Thus, the development of more reliable measures of public discourses seems promising in explaining substantial differences between Europe and the USA. Further, a more profound consideration may also help explaining remaining group differences with regard to immigrants' national identification, e.g. between Turkish, Polish and Former Yugoslavian immigrants (see Schulz & Leszczensky 2015).

In addition to ethnic boundaries, host society language skills are commonly assumed to induce identification. With reference to self-categorization theory, social identity refers to situations in which "the self is defined and experienced as identical, equivalent, or similar to a social class of people" (Turner et al. 1994: 454). The individual uses "social categorizations of self and others" in order to identify "shared similarities with members of certain social categories" (Turner et al. 1994: 454). In this regard, a shared language constitutes one significant attribute for assessing similarity. Existing longitudinal research was able to substantiate the relevance of German language proficiency for national identification with Germany (Hochman & Davidov 2014: 350). Utilizing autoregressive cross-lagged structural equation models, the authors find a significant effect of German language proficiency on German identification and no reverse causality. As these effects are calculated net of preceding levels of each dependent variable, the findings are highly robust. Additionally, social contacts are commonly regarded relevant for immigrants' identification. A strong own-ethnic embeddedness and low interethnic ties are generally assumed to hamper national identification, by imposing restrictive in-group norms on members (Verkuyten & Martinovic 2012: 97f). However, longitudinal research on Turkish immigrants in Germany using data of the GSOEP was not able to identify a positive effect of interethnic ties on identifying with Germany (Leszczensky 2013). Yet, Turkish as well as Polish immigrants constitute exceptional cases in this regard, as for other groups – such as Ethnic Germans, Former Yugoslavians,

and Southern European immigrants – a positive relationship between the share of native friends and national identification could be documented (Schulz & Leszczensky 2015). In this respect, perceived incompatibility of ethnic and national identification, high levels of perceived discrimination, and social distance are proposed as possible mechanisms explaining these group differences. Schulz and Leszczensky (2015) utilize group membership as a proxy for social distance and obtain non-significant results for the interaction between share of native friends and Turkish or Polish origin. Yet, this raw measurement neglects the considerable diversity within these groups. Thus, again, improved measures, which account more reliably for individual differences in perceived discrimination as well as perceived social and cultural distance to native Germans, might lead to different conclusions on the role of interethnic ties. At any rate, future research needs to investigate the interrelation between identification and other aspects of immigrant integration more thoroughly. The third article's findings imply that respondents express ties to Germany for several reasons. As these reasons do not meet the outlined assumptions of assimilation theory, future research needs to specify in more detail how the different aspects of immigrants' integration relate to each other. Accordingly, this dissertation argues with regard to several dimensions that theoretical research needs to invest more effort in formulating causal concepts of immigrants' integration. The subsequent and final chapter presents the limitations of this dissertation and ends with an overall conclusion.

5.3 Limitations and conclusion

This dissertation discussed the critical relevance of measurement validity in German quantitative research on immigrants' integration. Particularly, it revealed problems and consequences of truncated and overly simplified measures in three distinct research areas. As findings of statistical analyses are fundamentally dependent on the adequacy of measurement instruments, this dissertation contributed to a more valid assessment of immigrants' integration in Germany. It did so by taking up a methodological perspective. All preceding chapters presented implications of utilizing simplistic survey items in research on

immigrants' integration in Germany. This dissertation therefore exemplified that researchers need to be cautious when translating theoretical concepts into measurement models. Due to lack of adequate data, social scientists often (have to) adhere to pragmatism during their research. Nevertheless, the limitations of study results arising from empirical utilizations of theoretical constructs need serious consideration. As the first article has shown, this problem begins with the definition of a concept or subsample. Applying latent structure models, neither transnational mobility nor transmigrants could be consistently identified in large-scale data. The second article tested and outlined the consequences of simplified measures in inferring causality from survey data. By using latent constructs, preceding findings, indicating a positive effect of interethnic ties on socioeconomic status, could be replicated. In addition, the study countered the problem of simultaneity by applying non-recursive models to longitudinal data. Thus, the study contributed to the elaborate literature on estimating the causal effect of social capital (Mouw 2006) and helped to disentangle the relationship between two highly interrelated phenomena. The third article revealed the concrete problems of relying on overly simplified measures of immigrants' identification. The results implied diverse causal pathways for identifying with Germany on different dimension of identification. Therefore, truncated measures, restricting analyses to single dimensions, lead to flawed conclusions on immigrants' national and ethnic identification.

The remainder of this final chapter outlines the limitations of this dissertation and concludes by linking to the societal relevance presented in the introduction. The limitations relate to three issues. *First*, all articles relied on restrictive subsamples of Germany's overall immigrant population. The first paper included all respondents of the GSOEP with direct and indirect immigration background. The second contribution drew a subsample of Italian, Turkish, and former Yugoslavian immigrants, while the qualitative data of the third article consists of Brazilian, Russian-speaking, and Turkish respondents. The corresponding findings therefore generalize/refer to these subgroups only. Particularly, with regard to alternative minorities, e.g. refugees, as well as highly trained, illegal or unregistered

immigrants, the findings do not allow for generalized statements. However, the samples were selected according to predefined criteria.

The first article utilized the largest regular survey of immigrants in Germany. However, the study's original migration sample included households whose head is Turkish, Spanish, Italian, Greek or Former Yugoslavian as well as ethnic Germans from Eastern Europe. These specific immigrant groups are strongly represented in the GSOEP. However, more recent immigrant groups are missing in the sample. Particularly, countries of the Eastern enlargement of the European Union are underrepresented, e.g. immigrants from the Baltic States, Bulgaria, Poland, and Romania. Thus, future research should test whether the results of the first article can be replicated with data including other immigrant groups. Generally, the study results should tend to underestimate the scope of transnational mobility in Germany, since immigrants from within the European Union are more mobile than third-country immigrants. Yet, it may be assumed that in presence of even more diverse immigrant groups, the identification of a uniform latent construct of transnational mobility seems unlikely. Rather, the opportunities and reasons for engaging in transnational mobility should increase and thus an even more complex solution – i.e. identifying a larger number of latent groups – seems likely. Therefore, the selected sample allowed for a conservative test of the utilized measurement instrument.

The findings of the second paper generalize to the three largest groups of former guest workers in Germany: Italians, Turks, and former Yugoslavians. Individuals of these descents make up for approximately 31.3% (5.124 million) of all immigrants in Germany (Statistisches Bundesamt Deutschland 2015a: 82). Additionally, first generation immigrants of these groups arrived around the same time, were comparably educated and started off with comparable occupations in the industrial sector. Thus, they encountered similar contexts of reception in Germany. The inclusion of additional groups would have superposed significant effects with group differences. For example, immigrants of former Soviet countries have on average higher educational levels. However, their educational

certificates are often not accredited in Germany. Thus, their comparatively high education does not match their low income status. This mismatch of education and income is less pronounced for former guest workers. Therefore, these two groups need to be separated in statistical analyses, particularly when latent variable models are utilized[31].

The qualitative data of the third article are based upon semi-structured interviews with Turkish, Russian-speaking, and Brazilian immigrants. These three groups correspond to differing objectives of case selection (Seawright & Gerring 2008: 297). First, the group of Turkish immigrants represents the typical case in German immigration research. Turks constitute one of the largest minority communities in Germany, are most often researched, and are usually associated with the greatest societal significance. With reference to most indicators of integration, immigrants of Turkish descent constitute one of the most disadvantaged groups in Germany (Haug 2005; Kalter 2006; Kogan 2007; Schulz & Leszczensky 2015). However, by including Brazilian and Russian-speaking immigrants, a strategy of diversifying the sample was pursued. In contrast to typical case selection, which usually seeks to confirm or rule out the causal mechanisms of a given theory (confirmatory), the method of diverse case selection combines exploratory and confirmatory elements (Seawright & Gerring 2008: 297). Besides "testing" theoretical knowledge, the three groups, therefore, account for part of immigrants' diversity in Germany and allow exploring different causal mechanisms. Further, with regard to group size, Brazilians represent a deviant case. At the end of 2014, immigrants of Turkish and former Soviet descents[32] constituted the largest minorities in Germany with respectively 2.859 Million and 2.927 Million inhabitants (Statistisches Bundesamt 2015a: 82). In contrast, at the same time 38,253 Brazilian *citizens* lived in Germany (Statistisches Bundesamt Deutschland 2015b: 132). Regarding migratory background, all American immigrants,

[31] Common latent structure models assume an identical variance-covariance structure across the entire sample. In presence of distinct groups exhibiting different relationships between the indicator variables, the models will inevitably produce poor model fits unless they account for latent classes.

[32] There is a large overlap between former Soviet and Russian-speaking immigrants in Germany.

including South, Central, and North America constitute a total of 419,000 persons. After excluding North American immigrants, 241,000 individuals residing in Germany remain (Statistisches Bundesamt Deutschland 2015a: 82). Thus, Brazilians as a subgroup of these 241,000 represent a rather small ethnic minority. Group size constitutes a relevant factor for the sample selection, as existing studies, with reference to group-threat theory (Blumer 1958), were able to link immigrant proportions to xenophobia and boundary making processes (Quillian 1995; Schaeffer 2013; Schlueter & Davidov 2013). Therefore, larger groups are confronted with stronger racial and ethnic prejudice. Both, perceived discrimination and prejudice constitute strong predictors of immigrants' national identification (Verkuyten & Martinovic 2012: 94). Hence, in research on immigrants' identities, minority group size represents an important factor for selecting sample populations. However, findings on the relationship between minority size and perceived group-threat are mixed and due to increased contact higher proportions of immigrants might as well *decrease* majority members' racial prejudice (Hjerm 2007; Wagner et al. 2006). Either way, Brazilians are presumed to face different conditions of identifying with Germany than Turkish and Russian-speaking immigrants. Additionally, preceding research was able to expose considerable differences in perceived discrimination between Turkish and Russian-speaking immigrants and majority attitudes towards both groups differ as well (Böltken 2000; Skrobanek 2007). Therefore, the selected groups have been chosen to account for the possibility of different causal patterns. Yet, as the third article reported findings of an exploratory study, confirmatory follow-up analyses with representative data are needed.

Second, this dissertation faces further data restrictions. As the items of interest have not been surveyed every year, the first paper's results are based on eight waves of data. Thus, the data are left censored and the variables on immigrants' return visits represent approximation at best. Further, as the third article's qualitative data are cross-sectional in nature the identified causal mechanisms have to be interpreted cautiously. In order to make reliable statements about causality in social science research, longitudinal data are indispensable (see

chapter 3). Thus, the obtained results represent first exploratory insights into the complexities of immigrants' identity formation. In order to make reliable statements on these, future studies need to test the obtained solutions and dimensional structure under stricter conditions. Particularly, future research on identification needs to more consistently exploit the advantages of longitudinal data analysis. Besides the causal relationships, additionally, the reliability of the proposed items for '*commitment origin'* and *'exploration Germany'* demand future quantitative validation.

Third, this dissertation is largely based upon theories of assimilation and integration. These are sometimes criticized as being outdated and inappropriate for conditions of modern societies (see chapter 1.1). However, they allow for the formulation of causal and dimensional structures. As more recent approaches, such as transnationalism (Guarnizo et al. 2003; Waldinger 2013) and super-diversity (Vertovec 2007) are not suited for formulating strict causal hypotheses, theories of assimilation had to be utilized. In this regard – as previously emphasized – future research needs to engage more rigorously in developing causal theoretical models.

To conclude, this dissertation contributed fundamentally to sociological research on immigrants' integration. *First*, it highlighted the relevance of measurement problems when surveying ethnic minorities and their socioeconomic, social, and identificational integration. Particularly, the benefits of utilizing latent variable models for assessing corresponding (latent) theoretical concepts have been outlined. Additionally, by discussing fundamental problems of existing measures this dissertation highlighted under-researched problems and narrowed existing areas of methodological research on the measurement of immigrants' integration. The introductory study "*Lebenswelten junger Muslime in Deutschland*" (Frindte et al. 2011) exemplified that issues of measurement error, reliability, and validity are highly relevant, because public and societal discourses often center on scientific publications. Therefore, in order to avoid misinterpretation of published results, a profound examination of the applied measures has to constitute an

essential and routine part of sociological research. In this regard, this dissertation raised awareness of the substantive implications and problems that may accompany deficient measurements. *Second*, by presenting novel quantitative instruments and applying improved measurement models, this study deepened the fundamental understanding of immigrants' general adaptation process and thus enables future research to tackle remaining blind spots in theoretical and empirical research.

In light of rising numbers of asylum applicants and increasing media attention, a better understanding of immigrants' integration is more important than ever. Particularly, prominent stakeholders within the political and media landscape benefit from more reliable insights into this urgent societal issue. On the one hand, profound knowledge of *how* immigrants' integration takes place is indispensable in order to develop effective policies. On the other hand, reliable data are needed for constructively discussing significant societal problems. In this regard, scientific research needs to provide the public with appropriate and impartial insights. Furthermore, as expectations on the extent of immigrants' adaptation are negotiated within public space, the findings are also relevant for private actors. For example, the insights could have significant implications for political measures such as the organization of integration and language courses. Future policies could e.g. establish buddy programs that pair immigrants with voluntary members of the majority group in order to increase interethnic contact. As the preceding findings implied, these interethnic ties, then, affect immigrants' socioeconomic status in a positive manner. The methodological implications of this dissertation may therefore also influence private spheres of both, majority and minority members. Thus, politics, media, as well as individuals benefit from deeper insights in immigrants' integration process. By broadening the general comprehension of the phenomenon, this dissertation therefore significantly contributed to increasing the mutual understanding of Germany's inhabitants.

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Eidesstattliche Erklärung

nach §6 der Promotionsordnung vom 16. Januar 2008

Hiermit erkläre ich an Eides statt, dass ich die vorgelegte Arbeit ohne Hilfe Dritter und ohne Benutzung anderer als der angegebenen Hilfsmittel angefertigt habe. Die aus anderen Quellen direkt oder indirekt übernommenen Aussagen, Daten und Konzepte sind unter Angabe der Quelle gekennzeichnet. Bei der Auswahl und Auswertung folgenden Materials haben mir die nachstehend aufgeführten Personen in der jeweils beschriebenen Weise entgeltlich/ unentgeltlich geholfen:

Weitere Personen – neben den in der Einleitung der Arbeit aufgeführten Koautorinnen und Koautoren - waren an der inhaltlich-materiellen Erstellung der vorliegenden Arbeit nicht beteiligt. Insbesondere habe ich hierfür nicht die entgeltliche Hilfe von Vermittlungs- bzw. Beratungsdiensten in Anspruch genommen. Niemand hat von mir unmittelbar oder mittelbar geldwerte Leistungen für Arbeiten erhalten, die im Zusammenhang mit dem Inhalt der vorgelegten Dissertation stehen. Die Arbeit wurde bisher weder im In- noch im Ausland in gleicher oder ähnlicher Form einer anderen Prüfungsbehörde vorgelegt. Ich versichere, dass ich nach bestem Wissen die reine Wahrheit gesagt und nichts verschwiegen habe.

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Unterschrift:

Lebenslauf

Sascha Riedel
geboren 05.06.1986 in Köln
Anschrift: Waisenhausgasse 2, 50676 Köln
Tel. 0221/42335308
Mobil +491633924110
Mail riedel.sascha@gmail.com
Stand: ledig

WERDEGANG

seit 06/2011 Universität zu Köln
Institut für Soziologie und Sozialpsychologie (ISS)

- Lecturer im Fachbereich *Computerunterstützte Datenanalyse*

- Wissenschaftlicher Mitarbeiter im Forschungsprojekt: *Phasen der Integration von Migranten* (Laufzeit: 06/2011 – 08/2012)

seit 06/2011 Universität zu Köln
Promotionsstudium (rerum politicarum) an der Wirtschafts- und Sozialwissenschaftlichen Fakultät

10/2006 – 03/2011 Universität zu Köln

Studium Sozialwissenschaften (Diplom)

- Abschlussnote: 1,8
- Hauptfach: Soziologie
- 1. Nebenfach: Wirtschafts- und Sozialpsychologie
- 2. Nebenfach: Politikwissenschaft

08/1996 – 08/2005 Gymnasium Köln-Pesch, Köln

- Allgemeine Hochschulreife
- Abschlussnote: 2,2

Köln, 2. März 2016