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Migrants' Educational Choices - Evidence from Upper Secondary Education in Germany and Switzerland

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For Sabine and Dag

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'History is written by the victor' – the famous Napoleon saying goes. The same, I suppose, applies to the process of a doctoral thesis. Only a few ideas will come to fruition. Those ideas will define your work for the reader. But much remains invisible. The data that took months to acquire but that was eventually discarded. The methods that took weeks to master but were eventually not applied. The books and papers that took days to read but were not cited. The theories that took long to fully comprehend but, in the end, did not help you to solve a problem at hand. The conferences that took days to prepare but never yielded any useful feedback. The countless first drafts that were barely recognizable by the end.

Accumulating knowledge either in the context of a single PhD or at large – I learned – is not a linear process. It is very much a complex, iterative, at times heart-wrenching process with countless interactive steps. And in the end, one is left with a small number of ideas.

It is with much appreciation of the visible and the invisible that I conclude my doctoral research. I feel extremely privileged to have been given the opportunity to conduct this research and to be part of this fascinating endeavor.

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Jasper Dag Tjaden,

Berlin, 01 September 2016

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Abbreviations

AME	Average Marginal Effects
BAMF	Bundesamt für Migration und Flüchtlinge (Migration and Refugee Agency, Germany)
BIBB	Bundesinstitut für Berufsbildung (Federal Institute for Vocational Education, Germany)
BMBF	Bundesministerium für Bildung und Forschung (Ministry of Education, Germany)
CEDEFOB	European Centre for the Development of Vocational Training
CI	Confidence Interval
DJI	Deutsches Jugendinstitut (German Youth Institute)
Dual VET	Dual Vocational Educational Education (Apprenticeships)
EU	European Union
FSU	Former Soviet Union
ISCED	International Standard Classification of Education
ISEI	International Socio-Economic Index of Occupational Status
KHB	Karlson-Holm-Breen
LIFBI	Leibnitz-Institut für Bildungsverläufe e.V.
LM	Labor Migrants
MI	Multiple Imputation
NEPS	National Educational Panel Study
OECD	Organization for Economic Co-operation and Development
OLS	Ordinary Least Squared
PISA	Program for International Student Assessment
SE	Standard Error
TREE	Transitions from Education to Employment
US	United States
VET	Vocational Education and Training
WLE	Weighed Likelihood Estimator

Non-Technical Abstract

In many European societies, migrant students are disadvantaged in terms of their educational achievements (i.e., grades, school placements, competencies) and attainment (i.e., formal qualifications, degrees). However, students with ethnic or migrant backgrounds have also been found to make more ambitious educational choices compared to non-immigrant students with similar backgrounds. In some EU countries, migrant students are more likely than non-migrant students to pursue pathways leading towards university. This phenomenon is referred to as the 'educational ethnic choice effect'.

Most of the evidence on 'ethnic choice effects' is based on studies in comprehensive education systems with weak vocational alternatives, such as the UK, Sweden, Finland, and the US. It remains unclear whether these choice effects apply in Germany and Switzerland – countries with strong vocational education and training (VET) systems at the upper secondary level. In addition, little is known about why migrant students make different choices.

Individual choices at specific branching points in the educational career can have substantial implications for subsequent educational attainment, future labor market outcomes and life opportunities more generally. Understanding the decision-making processes among migrant families also contributes to unpacking mechanisms driving ethnic educational inequality and may inform policy-makers.

Presenting quantitative analyses based on rich, longitudinal survey data from Germany (NEPS) and Switzerland (TREE), this dissertation makes two key contributions to the literature on ethnic educational inequality.

First, the presented research found that when students have a choice at the end of compulsory school in Germany and Switzerland, students of migrant or ethnic origins are more likely to choose educational pathways that lead more directly towards university, and they are less likely to pursue VET compared to students without ethnic or migrant backgrounds. As Germany's and Switzerland's VET systems offer viable labor market prospects, this finding suggests that educational

decision-making among migrant families is driven by particular achievement norms rather than short- to medium-term economic incentives. The fact that ethnic choice effects apply in Germany and Switzerland further supports the notion that ethnic choice effects, indeed, constitute a universal phenomenon that is not sensitive to the particular structure of the education system.

Second, findings of this research support the notion that ambitious educational choices among migrant populations should be understood in a broader context of immigration as an inter-generational mobility project. Immigration is often motivated by aspirations for upward social mobility and the desire to provide a better life for children. Education can be seen as the main channel for upward mobility. As a result, migrants' high educational aspirations are transferred to children and generate strong family achievement norms, particularly when success among the parental generation has been slow. As such, ethnic choice effects are the result of an 'immigrant bargain' where the sacrifice of the parental generation is justified by the children's future achievements.

In contrast to much discussion in the literature, the findings neither support the claim that migrant students make different choices because they lack—or have biased—information about the education system nor that they invest in further education to avoid discrimination in the VET market.

This research has several implications for research and policy in the field. Scholars must account for systematic differences in educational decision-making processes between migrant and non-migrant populations when attempting to explain ethnic educational inequality, particularly regarding selection effects in access to VET. Policies that target educational participation of minority groups should take into account deep-seated achievement norms among ethnic minorities and target migrant parents, in particular. Initiatives to attract migrant students to VET programs should highlight the potential of VET for labor market integration and upward mobility, as well as, emphasizing increasing links between vocational and additional academic education at later stages (e.g., 'upgrading').

1. Summary Chapter

At the beginning of my PhD research, I was motivated by a single question: *Why do migrant students*[1] *have lower participation in vocational education in Germany and Switzerland*? This simple question triggered a chain of related questions and set me on a research path through various academic disciplines, research bodies, data sources, as well as theoretical and methodological approaches. Over the course of my PhD, I produced individual journal articles for submission in international, peer-reviewed journals which are included as empirical chapters in this dissertation (see Chapter 2-5). However, the journal article format is not suitable to present general arguments. This summary chapter provides more context and aims to tie together the individual studies into a common narrative.

Section 1.1 and Section 1.2 synthesize the theoretical and empirical background surrounding my research. This will allow me to set the stage for my specific research questions, situate my research in a broader context and connect with more general discussions in the field. *Section 1.3* outlines the research design and analytical strategy of the empirical part of this thesis. *Section 1.4* will summarize key findings that I have gathered across several independent studies and discuss their broader implications.

[1] In the European context, terminology in the field of migration studies can be a controversial and uneasy subject. In this dissertation, I use 'migrant student' as a proxy for 'student with a migrant background'. A migrant background is defined by the birthplace of the parent. A student has a migrant background when at least one parent is not born in the country of residence. First generation migrants are not born in the country of residence. Second generation migrants are individuals that were born in the country of residence with at least one parent born abroad. Other terms that are often used in the literature are 'ethnic minorities', 'foreigners' and 'natives'. Despite important differences in these categories, there is large overlap. Ethnic minorities – as the name suggests – represent a sub-national minority group that shares a particular ethnic characteristic (e.g., language, culture, religion, ancestry) that distinguishes that group from the majority group. Ethnic minorities are not defined by the birthplace of the parent but by certain group characteristics. As such, in Europe, most 'migrant students' are also 'ethnic minorities.' Foreigners are individuals that have not acquired the nationality of the country of residence. Accordingly, the defining characteristic is nationality, which has often been used in empirical studies, due to a lack of data on birthplace or ethnicity. The term 'natives' is often used to refer to the 'majority group' as a reference group compared to migrant students. 'Native' suggests a birthplace in the country of residence. However, the term is ambiguous because a migrant student may be born in the country (e.g., native) but still have a migrant background. In this thesis, the use of terminology depends on the context and particular chapter. In more general contexts, the terms 'migrant student', 'ethnic minority student', and 'ethnic/migrant origin student' are used interchangeably for ease of presentation.

At the end of this summary chapter, I hope to have convinced the reader of three things: First, the posed research questions are, indeed, relevant and interesting to social scientists and policy makers in the field of education and migration studies. Second, we know too little about the proposed research question. Third, the presented analyses offer a number of contributions to the outlined body of literature and make useful suggestions for further research.

1.1. Background: Integration, Educational Inequality and Choice

1.1.1. The Integration Imperative

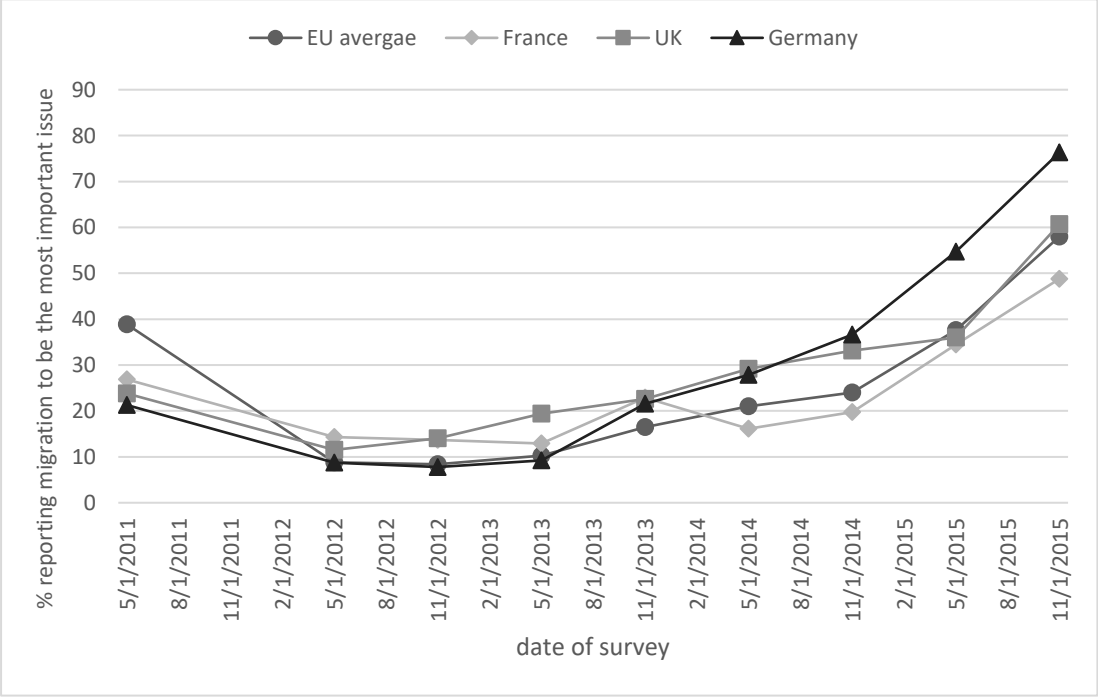
Many Western societies, particularly in major European countries, have become substantially more diverse since the Second World War. Immigration and diversity have long been part of the national identity in traditional countries of immigration such as the US, Canada and Australia. In contrast, the realization that societies have morphed into 'countries of immigration' has not come natural to many EU countries that have previously been largely homogeneous (Dustmann, 2012: 1478; Hansen, 2003: 1479; Castles, 2005: 1544). Today, in major European countries, 20–30% of the population have a migrant experience (first generation) or are descendants of migrants (second and third generation) (OECD, 2012: 1616). Among younger cohorts and in metropolitan areas, the share of the population with an ethnic or immigrant background is higher than the national average. Countries, such as Germany and Austria, that have long avoided the label of 'immigration country', have acquired their place among the most popular destination countries for international migrants (OECD, 2015: 2180). Former countries of mass emigration such as Italy, Spain and Portugal have turned into countries of immigration (Castles, 2005: 1544). Demographic projections estimate that major EU countries will be yet more diverse and multicultural in the future due to high levels of net migration and an ageing demographic (Lanzieri, 2011: 1477).

Changing populations across Europe have put migrant integration at the top of the policy agenda. Many Western countries face an integration imperative (Alba,

2013: 1709). Given changing population compositions, the successful, long-term integration of ethnic minorities into receiving societies has become paramount to economic growth, sustainability of welfare systems and, more broadly, questions of social cohesion in major European countries. The impetus for integration has only been intensified since European countries have accepted more than two million refugees between 2014 and 2016 (Eurostat, 2016: 2225).

Based on 2015 general public opinion surveys, immigration is among the most important issues facing the EU (see Figure 1-1). Immigration has surpassed unemployment, public finances, terrorism and climate change as the most important issues for the EU population (Eurobarometer 2016).

Figure 1-1: What do you think are the two most important issues facing the EU at the moment? (results for migration, in %)



Note: Illustration by the author, data from the Eurobarometer (2011–2015), access at http://ec.europa.eu/COMMFrontOffice/PublicOpinion/index.cfm/General/index

This new reality has arrived at the highest levels of government across the EU and is reflected, for example, by concerted government efforts to monitor integration of ethnic minorities and design targeted policy objectives. Accordingly, comparing

various outcomes between migrant and non-migrant populations is now common in many EU member states (Bijl, 2012: 1480). Several international policy bodies such as the OECD and EU Commission publish high-level reports comparing outcomes of natives and migrants, for example, regarding labor market and education indicators (OECD, 2014: 1533; OECD, 2010: 1539; OECD, 2012: 1616; Commission, 2012: 1483; Huddleston, 2013: 1559). Other efforts have been directed at comparing migrant integration policies in Europe (Huddleston, 2011: 1540).

Policy discussion surrounding 'integration' has far outpaced the scientific study of integration processes. The issue of immigrant integration still lacks a common and robust evidence-base. Furthermore, there is disagreement about what constitutes 'integration', which kind of integration is desirable, how to measure it, and what policies are most effective. Most importantly, we lack a common understanding about the mechanisms behind integration processes, i.e., individual-level, group-level and macro-level factors that condition integration processes.

Despite these gaps, research has been catching up over the last two decades. Social sciences are particularly well-suited to provide answers to these questions, given its holistic and inclusive view of individual actors (micro-level), group processes (meso-level) and structural characteristics (macro-level) that shape the attitudes and behaviors of individuals (Esser, 1993: 2203; Merton, 1968: 2206; Coleman, 1986: 2205; James, 1990: 2204). Within this broad framework, sociologists, economists, psychologists and others have all made contributions to the current understanding of 'integration' and its mechanisms—some of which will be featured in this thesis. It is only through expanding our knowledge about integration processes that a dooming 'integration imperative' in many Western countries may become an 'integration opportunity'.

1.1.2. Ethnic Educational Inequality

Within the spectrum of migrant integration processes, education takes center stage. Education is seen as the key channel for facilitating integration processes. (Esser, 2000: 466@289@author-year) argues that education is crucial for the broader structural integration of immigrants. As such, education conditions

placement in society and is intractably linked to other dimensions of the integration process, such as cultural (knowledge, language), social (networks) and emotional (identity) integration (Esser, 2000: 466).

The focus on education is clear. For decades, scholars have stressed the positive effects of education on labor market outcomes (e.g., economic growth, wages, employment) as well as non-market outcomes (e.g., crime rates, health and good citizenship) (Hanushek, 2008: 2173; Lochner, 2011: 2171; Heckman, 2014: 2174). Educational attainment is one of the most powerful predictors for socio-economic integration into society and as such is highly relevant for the long-term integration of migrants (De Paola, 2016: 2163), particularly in the labor market (Liebig, 2009: 2182).

In most European countries, studies have consistently demonstrated persistent disparities between migrant students and natives. Such disparities are also evident in measures of educational achievement (e.g., competences, grades) and educational attainment (e.g., qualifications, degree diplomas) (Heath, 2008: 514; Heath, 2014: 1706; Levels, 2008: 1251; Alba, 2015: 1712).

Beyond negative effects on individual life opportunities, persistent ethnic educational inequality may have implications for society at large. Some evidence suggests that 'failed integration' may increase public opposition to immigration and reduce public support for welfare states and redistribution (Ceobanu, 2010: 642; e.g. \Burgoon, 2014: 2176; Hainmueller, 2014: 2175).

Educational achievement gaps are potentially more harmful for migrants in labor markets that are highly regulated, as is the case in many EU countries such as Germany, Switzerland, Austria, and the Netherlands (Pollak, 2007: 2112; Gangl, 2003: 1916; Shavit, 1998: 2167). In those countries, access to occupational sectors requires recognized educational qualifications, and the lack thereof further increases the risk of long-term ethnic stratification.

While the importance and extent of ethnic inequality in education is well documented in Europe, the drivers or mechanisms behind persistent inequalities are less understood (Heath, 2008: 514; Heath, 2014: 1706; Heath, 2007: 438). Over

the last two decades, social scientists spanning numerous disciplines have set out to investigate why disparities persist and how policies could be developed to best address them.

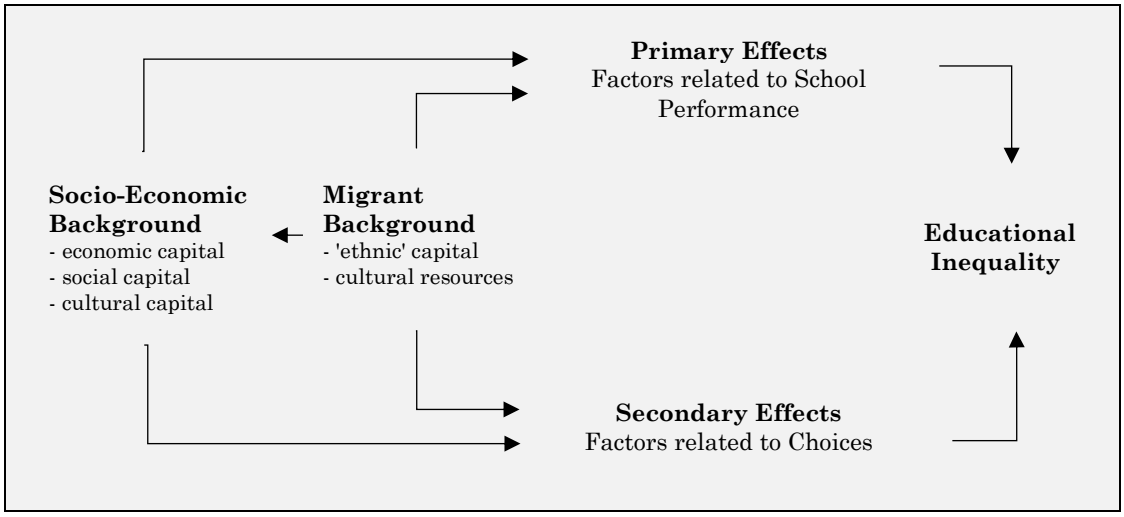
1.1.3. Educational Inequality as Performance and Choice

Influential work by (Boudon, 1974: 476@@author-year) has provided social scientists with a useful analytical distinction to guide their inquiries in the area of educational inequality. Boudon was initially interested in explaining *social* inequality in education. However, his thinking has since been adapted and extended to other forms of disparities including *ethnic* educational inequality. He considered educational inequality to be the result of two kinds of effects: First, primary effects which reflect the 'performance' dimension of education, i.e. all factors that shape how well students do in school. Such factors include, for example, genetic inheritance, early socialization, childhood differences in cultural capital, social networks, economic circumstances, parental involvement as well as favorable opportunity structures in schools, neighborhoods and broader education systems. Studies of primary or 'performance' effects of educational inequality constitute a vast body of research spanning various scientific disciplines, and as a result shall only be mentioned briefly here.

My work focuses more directly on the *secondary effects*. According to Boudon (1974), secondary effects reflect the 'choice' dimension of education. At certain branching points, individuals are faced with choices. *Should the child participate in early childhood education*? *At what age should the child start primary school*? *Which school track is appropriate after completing primary educatio*n? *Should the student go into vocational education or continue schooling at the upper secondary level*? *Should he or she pursue university education after completing upper secondary education*? Such choices are, of course, highly conditional on the students' performance such as grades and competences as well as the opportunity structure set by institutions, regulations or other context factors. A choice can only be made—at least in theory—when the individual is presented with different alternatives that are available and attainable. Accordingly, researchers have described secondary or choice effects as those residual effects that are not

attributed to variation in school performance. For example, let us assume that two students make a choice whether or not to go to university. Both students are male, the same age, live in the same region, visited the same schools, and have identical school performance. According to Boudon (1974), whether one student will pursue university while the other one will not, is then driven by individual choice (see Figure 1-2 for an adaption of the Boudon model).

Figure 1-2: The Boudon model adapted for migrant background



Note: Adapted from Becker 2007, p. 2179

Once performance is out of the equation, educational choices can be conceptualized as broader (sociological) rational choice models (Kroneberg, 2012: 1649; Hechter, 1997: 1648). Several models of educational choice have been proposed in which educational choices are seen as an additive function of the expected *costs* of an educational alternative and its *benefits*, whereas the latter parameter usually is weighted by the expected *probability to succeed* in the chosen option (Breen, 1997: 463; Erikson, 1996: 464; Esser, 1999: 467). From this general model, differences between particular groups, for example social or ethnic groups, are explained by group-specific variations in these parameters.

Which factors benefits, costs and success probability capture depends on how the researcher applies the choice model to their particular case study (Kristen, 1999: 437; Maaz, 2006: 1434; Stocké, 2010: 471). *Benefits* often refer to the returns associated with different educational alternatives. Returns can be economic (e.g., future income, occupational status, etc.) or non-monetary (e.g., prestige,

compliance with peer expectations) (Lindenberg, 1990: 1595; Lin, 1999: 614). *Costs* can also be economic (e.g., tuition, foregone income, loans, etc.) or non-monetary (e.g., moving away, sanctions from peers and parents, social distance). *Success probability* refers to the probability with which the student will succeed at the educational alternative. Factors that may influence the success probability include, for example, students' school performance, peer support and school quality.

The rational choice framework applies particularly well to educational choices because such choices are not made under time pressures or in a context of limited information and risk. Schools, teachers, counselors and parents prepare students for their educational careers starting from a young age. It is therefore reasonable that educational choices are—at least largely—made based on conscious and deliberate weighing of different options (Stocké, 2012: 451; Goldthorpe, 1998: 447; Breen, 1997: 463; Erikson, 1996: 464; Gambetta, 1987: 465).

The advantage of the (sociological) rational choice model is that it provides a coherent framework to structuring and linking various explanatory approaches to educational inequality. Furthermore, the model is flexible enough to be extended and molded for specific applications. For example, recent advances in modelling educational choices incorporate insights from social psychology, behavioral economics (Breen, 2014: 1582) and Bayesian approaches (Morgan, 2002: 1575; Morgan, 2005: 1599).

Boudon's framework has undergone a revival in the last 15 years, which has resulted in the proliferation of a large international body of research on choice effects of *social* origin at various stages in the education system. At its core, researchers have been interested in explaining why students from lower social classes are less likely to choose more ambitious school tracks compared to students with more advantaged backgrounds, given equal distribution of school grades (Becker, 2009: 1337; Neugebauer, 2013: 1220; Stocké, 2007: 444; Jackson, 2013: 1179; Jackson, 2007: 445; Schindler, 2014: 2127).

The research focus on educational choices is driven by several factors. First, longitudinal data are more accessible in many western countries. At the same

time, the requirements for suitable data for the investigation is not demanding, since choices are usually observed at one specific time and at one specific stage in the educational career. Thus, commonly, only two panel waves are necessary to study educational choices. Second, the theoretical model is cohesive and straightforward in its application. Third, educational choices are highly consequential for the educational career as a whole (Heath, 2007: 513; Kalter, 2006: 2207; Vanttaja, 2006: 2208), and hence are for long-term labor market prospects (Gangl, 2001: 2183; Heath, 2007: 513; Kalter, 2008: 807; Liebig, 2010: 521; Kalter, 2008: 807; Heath, 2014: 1706@96; Heath, 2007: 513). The positive effects of early childhood education on graduation rates and university enrollment or the negative effects of early-school-leaving are two well-researched examples where early decisions have far-reaching consequences (OECD, 2005: 2223; Rumberger, 2003: 2222; Heckman, 2011: 2221). Similarly, entering the labor market without (at least) a vocational qualification in Germany, Switzerland and Austria results in labor market disadvantages that are difficult to compensate throughout the life course (Müller, 2003: 1463; Shavit, 1998: 2167).

1.1.4. Migrants' Educational Choices

The extension of choice effects (i.e., secondary effects) to *ethnic* educational inequalities or 'secondary effects of ethnic origin' (Kristen, 1999: 437; Kristen, 2009: 2057; Heath, 2007: 438) has revealed a new striking phenomenon. Several studies in European countries and the US have found that many migrant groups make different, often more ambitious choices compared to their native peers, given that school performance and social background are controlled (Lessard-Phillips, 2014: 2088).

For France, Brinbaum and Cebolla-Boado (2007) found that children of immigrant families ages 14–15 are more likely to choose tracks that may lead more directly to university (Brinbaum, 2007: 439). For the Netherlands, van de Werfhorst and van Tubergen (2007) found that conditional upon academic ability, ethnic minority children ages 14–15 choose ambitious tracks in secondary school more often than their majority peers (Van de Werfhorst, 2007: 1178). Kilpi-Jakonen (2011) reported that immigrant-origin students in Finland with average to low levels of achievement also have a higher probability of continuing to general school at the

upper secondary level than their majority peers. The author referred to this finding as support for 'what seems to be an avoidance of vocational schools' (Kilpi-Jakonen, 2011: 426). Jonsson and Rudophi (2011) also found a similar pattern in Sweden. In a study on England and Wales, Jackson (2012) showed that ethnic minorities more often make 'more ambitious' educational choices relative to the white majority population. Overall, the evidence suggests that most non-European groups 'avoid' vocational tracks if they can (Jonsson, 2011: 425). For given levels of school achievement, children of ethnic minority origin more often choose academic routes at the upper secondary level (Jackson, 2012: 1144; Jonsson, 2011: 425).

In Germany and Switzerland, only a small number of studies are available on 'ethnic choice effects'. Kristen and Dollmann (, 2009: 2057) and Kristen, Reimer, and Kogan (, 2008: 387) studied the major education branching points in Germany with similar results. The former examined 10-year-olds' transition into lower secondary schools, finding that Turks show a significantly higher transition rate into more demanding school types, conditional upon academic ability (Kristen, 2010: 339). The latter study found that after completing upper secondary education, Turkish and other migrant students are considerably more likely to enter higher education than Germans, given the same level of socio-economic status and school performance (Kristen et al., 2008). These results were supported by Gresch in a similar study (Gresch, 2012: 1224).

Griga (2014) followed a similar approach as Kristen (2008) and colleagues examined the choice for higher education in Switzerland (Griga, 2014: 1717). She finds that students with a migrant background are more likely than Swiss natives to transition into university education, considering school performance and social background.

In Germany and Switzerland, the focus has so far been on choices regarding lower secondary education and university (see Table 1-1 for an overview). Notably, there is so far no evidence of ethnic choice effects at the transition from lower to upper secondary education in Germany and Switzerland. Arguably, this gap is a result of the institutional context in these countries, particularly with regard to large

vocational training and education sectors. In Germany, Switzerland, Austria and to some degree Denmark, VET options are very different compared to vocational tracks in other European countries. These differences—as discussed in the following section—have implications for the study of choice effects.

Table 1-1: Previous studies on 'ethnic choice effects' in Europe and the US

Student Age	Stage	Choice	Evidence	Country
11–15	Lower Secondary	Choice between different school tracks in lower secondary education (e.g., Germany, Austria)	Kristen et al. (2009/2010)	Germany
			Gresch (2010)	Germany
			Relikowski (2010)	Germany
15–18	Upper Secondary	Choice between drop out, academic and vocational tracks in comprehensive systems	Brinbaum et al. (2007)	France
			Van de Werfhorst et al. (2007)	Netherlands
			Kilpi-Jakonen (2011)	Finland
			Jonsson et al. (2011)	Sweden
			Jackson (2012)	UK
			Jackson et al. (2012)	UK/ Sweden
			Waters et al. (2013)	USA/UK
18–25	Tertiary	Choice between vocational education, university or entry into the labor market	Kristen et al. (2008)	Germany
			Griga (2014)	Switzerland
			Waters et al. (2013)	USA/UK

1.1.5. Mechanisms of Ethnic Educational Choices

Despite accumulating evidence for strong 'choice effects' in several countries and at multiple stages, few attempt to *explain* ethnic differences. Several hypotheses have been proposed in the literature, namely, immigrant optimism, information deficits and anticipated discrimination (Heath, 2007: 438). However, direct empirical evidence and assessments of the relative importance of these mechanisms in a joint test is still limited.

The general idea behind the immigrant optimism hypothesis is the assumption that immigrants are a positively selected group in regards to their ambition, optimism, and motivation (see Chapters 4 and 5 for more detailed elaborations). The motivation to migrate is associated with low-risk aversion and high motivation for upward social mobility through educational success (Kao, 1998: 1261; Kao, 1995: 489; Heath, 2007: 438). A positive selection of immigrant parents, and the perception of education as a possible ticket to upward mobility, may lead migrant

students to have higher educational aspirations (Jackson, 2012: 1144; Teney, 2013: 423). Attitudes such as educational aspirations are commonly transmitted from parents to their children and may vary according to cultural background (Phalet, 1998: 593). Strong ties among migrant families might further increase the transmission of high aspirations to the children, especially when parents' own upward mobility has been slow.

There is some indirect support for the immigrant optimism hypothesis from qualitative studies (Louie, 2001: 419; Shah, 2010: 1397) and quantitative studies (Relikowski, 2012: 384; Salikutluk, 2016: 2119; Teney, 2013: 423; Goyette, 1999: 1180; Beal, 2010: 459; Portes, 2010: 567; Stanat, 2010: 422; Feliciano, 2015: 1653; Kristen, 2010: 339; Hill, 2010: 417). However, the immigrant optimism hypothesis has gained little refinement since its inception and still lacks a robust evidence-base. The theoretical expectations remain underdeveloped and largely untested. As a result, the operationalization of immigrant optimism varies considerably across different studies (see Sections 1.3.5 and 1.3.7. for a more detailed discussion on the limits of the immigrant optimism hypothesis).

Another hypothesis for explaining ethnic choice effects in education relates to the role of information. Kao and Tienda (1998) have postulated that migrants may *lack information* and specific knowledge about the host country's educational system (sometimes referred to as 'cultural capital'). This can contribute to explaining why many migrant groups have unrealistic optimistic aspirations. Parents of migrants often have completed their education in their home countries and therefore may lack detailed knowledge about the standards and demands of the school system in the host country. Non-familiarity with institutional barriers and requirements could lead parents to overestimate the probability that children will successfully complete an educational track (Kristen, 2007: 1183). In addition, non-familiarity with the landscape of educational options (e.g., the existence of vocational training tracks) could lead to a preference for school-based education while underestimating the labor market prospects of vocational qualifications. This applies in particular to migrants from countries without vocational training systems, such as Turkey. Lastly, immigrant students may underestimate economic returns to non-university career paths. Given that university education may be

seen as the only marker of achievement in origin countries, migrant students may underestimate the benefits of vocational qualifications in countries where such qualifications enjoy a high reputation (e.g., Germany, Switzerland, Austria).

A similar argument is that migrant families might overestimate school performance due to language barriers and unfamiliarity with the host country's educational system. For example, they might blame bad grades on transitional problems (e.g., language difficulties), and therefore be too optimistic regarding the likelihood of succeeding at higher tracks. Moreover, families are likely to get information and advice from their social networks, such as relatives and friends. These networks often consist of individuals with the same ethnic origin (Kristen, 2013: 528). Therefore, the risk of exchanging incomplete or misleading information is high. Ethnic networks for the same reason might not be helpful for finding opportunities, such as firms offering interesting dual VET positions (Ludwig-Mayerhofer, 2011: 454). There remains a clear lack of empirical studies that test these hypotheses. Existing research shows limited support for the information deficit argument (Relikowski, 2012: 384; Salikutluk, 2016: 2119).

A third line of thinking about ethnic educational choices hinges on discrimination issues (Becker, 2010: 385; Ogbu, 1987: 2209; Heath, 2007: 438). The basic argument is that migrant students perceive ethnic discrimination in the labor market. As a result, they tend to overinvest in further education to compensate for the anticipated disadvantage. Following this argument, migrants face lower opportunity costs associated with continuing higher education (Heath, 2008: 514). The labor market may be perceived as more meritocratic at higher qualification levels, "in which case it makes more sense to continue in school and to choose an academic rather than a vocational alternative" (Jonsson, 2011: 425). A clear lack of evidence remains for this hypothesis. However, the few existing studies do not lend much support (Teney, 2013: 423; Salikutluk, 2016: 2119).

To provide a more systematic overview, Table 1-2 describes the three outlined hypotheses for 'ethnic choice effects' in the context of general (sociological) rational choice parameters.

Table 1-2: Overview - mechanisms of 'ethnic choice effects' in the rational choice framework

	Rational Choice Parameter		
Hypothesis	**Benefits**	**Probability of Success**	**Costs**
Anticipated Discrimination		Lower probability of successfully entering VET or the labor market without high qualification compared to non-migrants.	Higher search costs at lower levels of education due to the risk of discrimination in VET.
Information Deficit	Returns to VET are underestimated relative to academic routes, given that VET is less favorable in country of origin.	The probability of success in academic tracks is overestimated, given lower requirements in the country of origin.	Higher search costs because migrant families have less information on how to find and apply for VET positions.
Immigrant Optimism	Migrant students place higher value on further education because academic tracks are associated with upward social mobility.		The costs of continuing education are down-weighed compared to the monetary incentive of VET (training stipend) because university pathways provide channels for upward mobility.

1.1.6. Section Summary

The context for this thesis has been described in several steps: Major EU countries face the challenge of integrating growing shares of populations with an immigrant background into society (1.1.1). Education plays a crucial role for integration, but large (unexplained) disparities between migrants and natives can be observed (1.1.2). Ethnic educational inequality can be analyzed as a result of differences in school performance (primary effects) and educational choices (secondary effects) (1.1.3). Previous studies on 'ethnic choice effects' have shown that most migrant groups in many Western countries make more ambitious choices at several stages in the education system (1.1.4). Scholars have claimed that different choices of migrant students can be explained by a particular optimism and motivation for upward social mobility in migrant families (immigrant optimism), differences in the availability and accuracy of relevant information (information deficit), and the overinvestment in further education due to fear of discrimination in low-skilled labor markets (anticipated discrimination).

1.2. Institutional Context: Upper Secondary Education, Vocational Specificity and Choice

Educational choices play out at specific stages in the education system as described above. The focus of this thesis is the transition into post-compulsory, upper secondary education. Before providing more detail on the specific application of Germany and Switzerland—the two case studies in this thesis—I will describe upper secondary education in Europe more generally. This outline will allow discernment of commonalties and differences between different education systems and how they condition access and the choice that students face at this stage.

1.2.1. Upper Secondary Education in Europe

Despite some broad similarities, education systems vary considerably across European countries. The causes and consequences of different institutions and education systems have traditionally been a strong interest of sociologists (Bol, 2013: 1201@287). Further ignited by the seminal work by Shavit and Müller (1998), sociologists have exploited variations in education systems to test their effects on labor market outcomes and student achievement (Levels, 2014: 1363; Hanushek, 2011: 1210; Bol, 2011: 1394; Andersen, 2010: 1247; Wolbers, 2007: 1239; Iannelli, 2007: 1205; Breen, 2005: 1245; Van der Velden, 2003: 1206; Arum, 1995: 1277; Lewis, 1993: 1278; Hanushek, 2014: 1402; Kerckhoff, 2003: 2168; Müller, 2003: 1463). The study of system effects on ethnic inequality is still in its early phase (Lewin-Epstein, 2003: 1248; Van der Velden, 2003: 1206; Van Tubergen, 2004: 1250; Kogan, 2006: 1327; Brekke, 2007: 1325; Crul, 2009: 1381; Holdaway, 2009: 1628; Mueller, 2011: 1301; Cobb-Clark, 2012: 1378; Borgna, 2014: 1350; Griga, 2014: 1388) but gradually attracting more attention, given the availability of larger datasets and more sizable migrant populations.

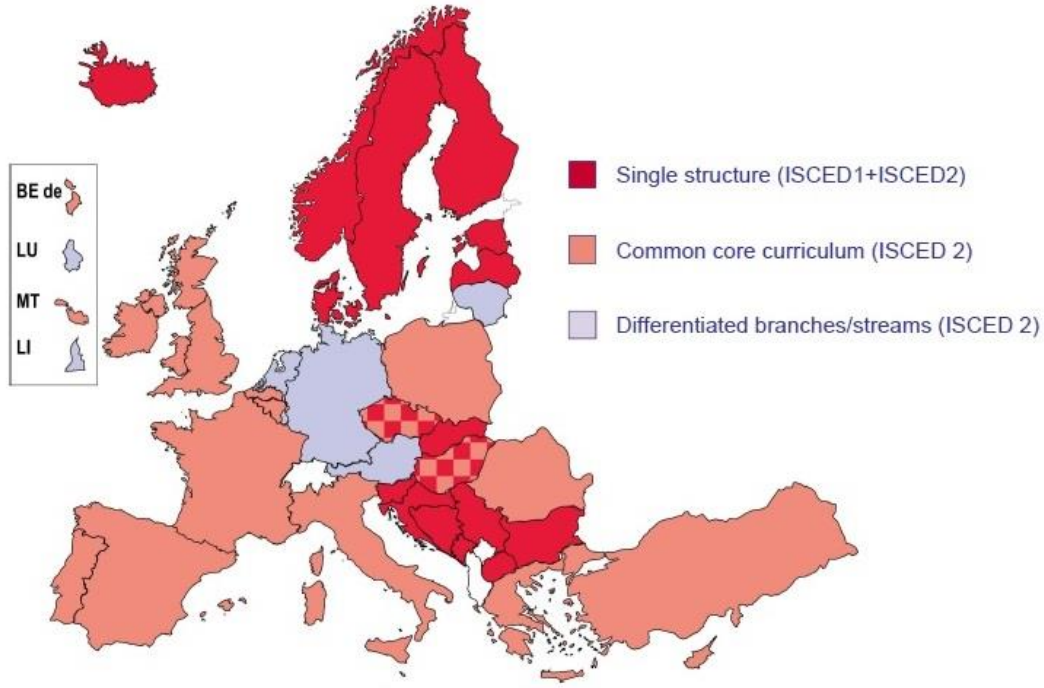
Today, several classifications of education systems have been described in the field of comparative sociology of education, namely, stratification (e.g., the level of tracking of students with different levels of scholastic ability), vocational orientation (e.g., the extent to which systems provide vocationally specific skills) and standardization (e.g., the level of nationwide standardization of regulations,

funding, and examinations) (Horn, 2009: 2186; Allmendinger, 1989: 1255; Shavit, 1998: 2167; Kerckhoff, 1995: 2187).

Stratification and vocational orientation are relevant here, given that these characteristics directly influence the choices that students face in upper secondary education. As described in the previous section, most studies on ethnic choice effects have been conducted in countries with largely comprehensive secondary education systems with limited stratification and relatively weak vocational alternatives (e.g., UK, Sweden, Finland). Notably, Germany and Switzerland do not appear in the overview in Table 1-1 (see also \Lessard-Phillips, 2014: 2088) although data for those countries is available. The reason is that Germany and Switzerland are markedly different from many other European countries in terms of how they structure their upper secondary education system. Educational choices are not as clear-cut at this stage, and the transition to post-compulsory education is—for many reasons—more complicated than in other countries.

In most European countries, students will visit the same school type or at least follow the same curriculum until age 16 (see Figure 1-3). Germany, Austria, and the Netherlands are unique in the sense that those countries already introduce ability tracking at the lower secondary level (ages 10–12). After completing primary education, students are placed into different school tracks sorted by (academic) achievement. Most other European countries introduce tracking at the upper secondary education level (age 16) (see Figure 1-3). Different tracks can be distinguished by the degree to which they prepare students either for direct pathways towards employment through vocational education or pathways leading more directly towards higher education, particularly university. As a result, students at the end of lower secondary education in countries with early tracking have been pre-selected into more vocational or more 'academic' school types. This degree of stratification at the lower secondary level in Germany and Austria, for example, shapes the choice structure in upper secondary education.

Figure 1-3: Lower secondary education systems in Europe



Note: Illustration by Eurydice Network (, 2015: 2166), access at http://eacea.ec.europa.eu/education/eurydice. *ISCED stands for 'International Standard Classification of Education.' ISCED 1 represents primary education and ISCED 2 represents secondary education.*

The second crucial dimension at this point is vocational orientation (Bol, 2013: 1203; Allmendinger, 1989: 1255; Iannelli, 2007: 1205; Van de Werfhorst, 2010: 1200; Shavit, 2000: 1207; Shavit, 1998: 2167). Vocational orientation relates to the degree to which systems provide students with more general or more specific skills. The vocational orientation of a system describes the *prevalence* of vocational programs (how many students enroll in such programs) while vocational *specificity* describes the degree to which such vocational programs provide work-specific skills that are matched with labor market demands. The specificity of skills in education is mainly associated with vocational programs where the emphasis lies on learning highly (work-) specific skills (e.g., apprenticeships, on-the-job training). General skills are acquired in general, academic-track education leading (largely) towards higher education (e.g., university).

Germany and Switzerland offer the highest levels of vocational specificity compared to other EU countries (Bol, 2013: 1203). Italy, for example, has a high

vocational orientation (enrollment in VET programs); however, specificity is low (i.e., VET programs have weak labor market linkages and provide less-specific skills).

1.2.2. The Special Case of Germany and Switzerland

1.2.2.1 Tracking and Vocational Specificity

Most countries begin offering vocational options at the upper secondary level. German-speaking countries already offer vocational-oriented school tracks at the lower secondary level. After finishing lower secondary education, students at vocational-oriented school tracks (Haupt, Realschule in Germany) are geared towards initial VET. Germany, Switzerland and Austria are well known for their traditionally strong dual VET sector. Dual VET combines school-based education with on-the-job training in firms. Dual VET is often referred to as the apprenticeship system (Commission, 2012: 520; Ryan, 2012: 1370; Organisation, 2012: 2105; Blossfeld, 1998/1999: 344; Wolter, 2011: 2172). Companies conclude training contracts with applicants under private law and provide training in accordance with vocational training regulations. While the regulations are binding and guarantee national standards, they allow for flexibility to agree to company training plans with the apprentices. The enterprises also bear the costs of in-company training and pay the apprentice remuneration as regulated by collective agreements. Learning at vocational school is based on a framework curriculum that is aligned to training regulations and is drawn up for every recognized training occupation. Enterprises and vocational schools conduct training; however, the chambers are responsible for holding examinations (Cedefob, 2013: 2181).

Germany and Switzerland are often taken as the ideal type of VET systems, given the tradition, size and quality of the dual VET sector. It has gained much international attention for its ability to reduce youth unemployment, which has been widespread in many EU countries struck by the financial crisis and its aftermath, since 2009 (Euler, 2013: 2188; Fürstenau, 2014: 2190). The VET sector

in both countries is known for providing non-university students with viable labor market prospects (Bosch, 2010: 2189).

Previous research found that systems with high vocational specificity facilitate smooth school-to-work transitions, reduce youth unemployment as well as improve the skill-job match, job security and viable labor market returns (Wolbers, 2007: 1239; Brzinsky-Fay, 2011: 1304; Levels, 2014: 1363; Breen, 2005: 1245; Bol, 2013: 1201; Iannelli, 2007: 1205; Wolbers, 2007: 1239; Gangl, 2003: 1916; Iannelli, 2007: 1205; Van der Velden, 2003: 1206; Levels, 2014: 1914; Backes-Gellner, 2010: 2082; Wolter, 1999: 2080). In contrast, others have argued that general programs offer higher lifetime earnings, greater opportunities for upward social mobility (Hanushek, 2011: 1210; Woessmann, 2008: 1323) and are less costly for the tax payer compared to school-based programs (Hoeckel, 2008: 2169).

1.2.2.2 Recent Reforms and 'Upgrading'

In both Germany and Switzerland, the VET systems have changed over recent decades due to economic and political pressures, demographic developments and technological changes. However, the general structure has remained stable. For example, even before negative reviews following the publication of the international PISA study ('PISA shock') in 2000, Germany was widely criticized domestically and internationally for making it too difficult for students with lower social backgrounds to move up (Waldow, 2009: 2212; Gruber, 2006: 2211; Loeber, 2000: 2210). High levels of stratification and vocational orientation have been seen as part of the problem. Students that are channeled into vocational tracks from an early age were traditionally less likely to attain university education later. In contrast, students from higher social status families are often channeled towards university from an early age. As a result, both countries have undergone reforms in recent decades to increase opportunities to upgrade academic qualifications and boost social mobility. Policy makers have set out to increase mobility between different pathways and further dissolve the relationship between students' initial track placement and eventual attainment. This has created options for students at non-university school tracks to upgrade towards university eligibility through non-traditional routes (Solga, 2014: 2115; Kleinert, 2012: 318; see \Solga, 2014:

2115@for broader discussion; Buchholz, 2015: 1860; Jacob, 2010: 1197; Schuchart, 2013: 1864). In both countries, the number of students that pursue further education after first completing a lower degree has increased over recent decades, which is an interesting development that is often overlooked in empirical studies (Buchholz, 2015: 1860). In 2013, for example, upgrading towards university eligibility has increased by 15% in Germany compared to 2005 (BMBF, 2014: 1465@60).

1.2.2.3 Similarities between Germany and Switzerland

So far, Germany and Switzerland are grouped together to contrast their systems with more comprehensive, less stratified education systems in the EU. Of course, notable differences between Germany and Switzerland exist (Gaupp, 2012: 2061), such as differences in tracking lower secondary education in the legal age of compulsory schooling, dominance of the VET sector and variation across sub-regional entities (e.g., Canton, Bundesland), to mention a few. However, from an international perspective, the similarities are overwhelming. First, students at the end of lower secondary education in Germany and Switzerland are faced with a similar decision: pathways leading more directly towards employment (VET) or pathways leading towards further academic qualifications (e.g., university). Second, dual VET options represent the overwhelming majority of the vocational sector and in both countries. More than half of all students in the same grade level will transition into VET. Both countries also have school-based VET options, which are often sector specific (e.g., health) and much smaller in volume. Third, dual VET programs follow standardized curriculums, are highly regulated, usually offer small in-training wages and lead towards recognized vocational certificates. Fourth, both labor markets are highly regulated, which means that many employment sectors require certain vocational certificates. Fifth, in both countries, certain pre-vocational or transition programs have developed over recent decades. These 'buffer' options are provided for students who were not able to secure a VET position or an academic alternative (Sacchi, 2016: 2120; Kohlrausch, 2012: 284; Schmidt, 2011: 281; Lex, 2010: 303).

In addition to those features, two key characteristics clearly distinguish Switzerland and Germany from other EU countries and have provided motivation

for choosing those countries as an interesting application for testing ethnic choice effects. First, in both countries, students apply for VET positions and firms select them. Employers are not required to follow any regulation regarding the recruitment process. Second, VET provides viable labor market benefits, including short- to medium-term economic incentives, job security and high employment prospects that are more favorable compared to benefits associated with VET in other EU countries. Despite pressures in recent decades, the VET sector in both countries enjoys a good reputation. Vocational alternatives in other European countries are regarded as less favorable in comparison. Both points are crucial conditions of the educational choice at the upper secondary level.

1.2.2.4 Summary: VET vs. Upgrading

In summary, stratification, strong vocational specificity, and large employer-run VET systems distinguish Germany and Switzerland from many other EU countries. Arguably, the choice between different educational alternatives in upper secondary education is markedly different compared to less stratified systems with weaker vocational sectors. First, tracked system channel students into vocational tracks at an earlier age. As a result, the choice whether or not to enter VET after completing lower secondary education is pre-conditioned on earlier track placements. Second, the VET system offers viable labor market incentives in both countries. As a result, VET may appear more appealing to students in Germany and Switzerland compared to other EU countries at this particular stage. Third, employers select applicants which could increase the risk of discrimination based on foreign names, appearances and accents. All three aspects could have implications for migrants' educational choices at this particular stage. This is precisely the reason why the research presented in this thesis takes Germany and Switzerland as case studies.

Figure 1-4 illustrates the choice context using Germany's system as an example. After completing lower secondary education (formally after grade 9), students in Germany (and Switzerland) can choose to continue school (upgrade academic qualification) or to pursue VET (either dual or school-based).

Figure 1-4: The transition into upper secondary education in Germany's education system

<table>
<tr><td rowspan="4">Doctorate</td><td colspan="3" rowspan="4">Work/ Unemployment/
Parental Leave/ Further Education</td><td rowspan="4">Doctorate</td><td>30</td></tr>
<tr><td>29</td></tr>
<tr><td>28</td></tr>
<tr><td>27</td></tr>
<tr><td rowspan="5">Tertiary Education Degree</td><td colspan="2" rowspan="5">Tertiary VET</td><td colspan="2" rowspan="5">University/
University of Applied Sciences</td><td>26</td></tr>
<tr><td>25</td></tr>
<tr><td>24</td></tr>
<tr><td>23</td></tr>
<tr><td>22</td></tr>
<tr><td rowspan="3">Vocational Certificate / University Entry Qualification</td><td>Dual VET</td><td>School-based VET</td><td rowspan="2">Upgrading academic qualifications</td><td rowspan="6">Upper Level Secondary Education (Academic/ University track; Gymnasium)</td><td>21</td></tr>
<tr><td colspan="2">Pre-Vocational Transition Programs</td><td>20</td></tr>
<tr><td rowspan="2">Intermediate Vocational Qualification (Mittlerer Abschluss)</td><td>Additional 10th grade</td><td rowspan="3">Intermediate Level Secondary Education (Vocational Track; Realschule)</td><td rowspan="3">Combined lower and intermediate tracks</td><td>19</td></tr>
<tr><td>18</td></tr>
<tr><td rowspan="6">First Vocational Qualification (Hauptschulabschluss)</td><td rowspan="2">Lower Level Secondary Education (Vocational Track; Hauptschule)</td><td>17</td></tr>
<tr><td>16</td></tr>
<tr><td rowspan="2">Primary Education</td><td>Orientation Grade</td><td>15</td></tr>
<tr><td rowspan="2">Primary Education</td><td>14</td></tr>
<tr><td colspan="2" rowspan="2">Pre-Primary Education</td><td>13</td></tr>
<tr><td>Pre-Primary Education</td><td>12</td></tr>
<tr><td>11</td></tr>
<tr><td>10</td></tr>
<tr><td>9</td></tr>
<tr><td>8</td></tr>
<tr><td>7</td></tr>
<tr><td>6</td></tr>
<tr><td>5</td></tr>
<tr><td>4</td></tr>
<tr><td>3</td></tr>
<tr><td>Qualification</td><td colspan="5">Germany</td><td>Age</td></tr>
</table>

Note: Illustration by the author based on (KmK, 2014: 1230), see also (Cedefob, 2013: 2181) for more detail, and see (Glauser, 2015: 1640) for Switzerland.

Another alternative are transition programs that generally prepare students for VET. Direct entry to employment or unemployment is empirically rare, given that

the formal legal age for (vocational) education continues until the age of 18. Students that enter the labor market without any qualification beyond the secondary level fare worst on the labor market.

While the main interest of previous research at this transition has been to examine reasons why some groups fail to secure a VET position and end up in transitional, pre-vocational programs, the other alternatives (e.g., upgrading) have been neglected. This is striking as so-called 'upgrading' is becoming more relevant. The transition into upper secondary education has rarely been approached as a 'choice' in Germany and Switzerland. Early tracking, ability grouping, and a large vocational sector suggests that once students enter lower secondary education, their paths are predetermined. As a consequence, the transition at this stage has rather been analyzed in the context of 'barriers' (i.e., who proceeds and who fails). With regard to VET, the dominant question has been why migrant students are less likely to obtain a VET position and which factors prevent them from succeeding in the VET sector. As one of the major contributions of this thesis, I will argue below that individual choice still matters in systems with high vocational specificity, such as Germany and Switzerland.

1.2.3. Ethnic Inequality in Access to Vocational Education

VET is a crucial channel for the integration of migrant student population (Crul, 2003: 2197; Crul, 2009: 1381; Crul, 2015: 2184). Students with a migrant background are largely overrepresented in lower, non-university tracks at the lower secondary education level that traditionally lead to VET. In the case of Germany, previous studies have shown that migrants equally benefit from a VET qualification compared to Germans (Kalter, 2006: 610; Seibert, 2005: 270). In contrast, failing to enter VET often results in entering the labor market without an occupational qualification which is associated with large disadvantages in Germany's highly regulated labor market (Pollak, 2007: 2112@17; Winkelmann, 1993: 2113@13). As a result, the transition into VET is one of the key stages in the educational and occupational career of students and particularly crucial for migrants.

From a theoretical perspective, access to VET is often described as a matching issue between the employer (searching for the best possible trainee) and the student (searching for the best possible VET traineeship) (Hunkler, 2015: 2125; Hunkler, 2015: 2125; Eberhard, 2012: 308). As a result, there are three important dimensions that are commonly considered when investigating access to VET: 1) factors related to the individual student, 2) factors related to the employer, and 3) structural factors associated with the VET market in the relevant region.

1.2.3.1 Resource Endowment and Opportunity Structure

With minor exceptions, previous research on ethnic disparities in VET access have largely focused on student characteristics. Student characteristics are certain resource endowments in the form of human (grades, competencies, school track), social (socio-economic background, network resources), and cultural (language skills, knowledge about the education system) capital. Scholars that were able to measure each factor found that ethnic residuals persist even if all characteristics were considered (Beicht, 2014: 1440; Aybek, 2014: 557; Diehl, 2009: 236; Beicht, 2009: 330; Eulenberger, 2013: 543; Reißig, 2011: 2070; Lex, 2010: 303; Skrobanek, 2009: 235; Gaupp, 2007: 535; Lehmann, 2005: 2106; Haeberlin, 2004: 406; Haeberlin, 2005: 407; Imdorf, 2005: 408; Imdorf, 2010: 282; Hunkler, 2010: 238; Helland, 2006: 508). In other words, students with a migrant background have lower chances of entering VET compared to non-immigrant students with very similar backgrounds.

The effect of structural factors such as regional variation in VET supply and demand, unemployment rates, urban vs. rural environments, ethnic diversity, etc. on VET access is under-researched. If structural factors are considered, the discussion has mainly been focused on gender and social inequalities (Ulrich, 2013: 306; Ulrich, 2008: 2072; Granato, 2014: 1164).

1.2.3.2 The Discrimination Debate

Persistent, unexplained ethnic disadvantages regarding VET access have generated much debate about potential employer discrimination effects. According

to proponents of the discrimination argument, employers might discriminate against applicants with an immigrant background due to stereotypical assumptions about their, on average lower, productivity (i.e., statistical discrimination) or some form of racial preference (i.e., taste-based discrimination) (Hunkler, 2012: 342; Hunkler, 2014: 795; Hunkler, 2015: 2125; Diehl, 2009: 236; Imdorf, 2010: 787). Discrimination could be even stronger in contexts where recruitment processes are less formalized, for example, in small and medium-sized companies that are usually a large provider of VET positions. However, inferring residual effects in cross-sectional, observational studies with discrimination has been criticized (Hunkler, 2010: 238; Kalter, 2006: 610).

Accounts of employer surveys largely support the claim for discrimination effects (Scherr, 2013: 825; Scherr, 2015: 2129; Imdorf, 2010: 282; Schaub, 1991: 2107). To the best of my knowledge, there is only one experimental study investigating discrimination effects in VET sectors. Schneider and colleagues use a correspondence test and find support for discrimination effects in the VET sector in Germany (Schneider, 2014: 829). On average, migrant students have to apply more times compared to Germans to be invited for a VET interview. Similar findings are well established with regard to hiring processes in the job market in various countries (Pager, 2007: 1665; Rich, 2014: 1678).

1.2.4. The Role of Educational Preferences

As argued throughout the rest of this thesis, individual and group preferences have so far been neglected in the study of ethnic disparities in access to VET in Germany and Switzerland. This is surprising for two reasons. First, preferences play an important role in classical sociological models of educational inequality. The intergenerational transmission of educational preferences, expectations and aspirations were regarded as the main mechanism to explain social inequality in education attainment in the Wisconsin Model (Andrew, 2011: 1567; Bozick, 2010: 1569; Jencks, 1983: 1586; Sewell, 1970: 462; Haller, 1973: 584). Second, the study of migrants' expectations is relevant because they have been shown to be a strong predictor for migrants' effort in school (Domina, 2011: 1181), participation in post-secondary education (Glick, 2004: 506) and transition into higher secondary school

tracks and university, given equal social backgrounds and school performance (Kristen, 2010: 339).

The proposed research will link the body of literature on ethnic educational choices (see Section 1.1.4) with the body of literature on ethnic disparities in VET access (Section 1.1.3). Both lines of research have largely operated in isolation. Linking them enables a new perspective that yields new results.

1.2.5. Section Summary

Section 1.2 has outlined why Germany and Switzerland are interesting case studies for the application of 'ethnic choice effects'. Both countries have high levels of vocational specificity at the upper secondary level. In both countries, VET employers recruit apprentices. In both countries, vocational education provides stronger labor market incentives compared to other European countries (Section 1.2.2). Previous studies in the field of VET have shown that migrant students are less likely to enter VET. Persistent disparities in VET access have been conclusively explained by various measures of human, social and cultural capital, as well as opportunity structures. This has sparked a debate on potential discrimination effects (Section 1.2.3). This thesis has argued that educational preferences were so far neglected in the literature on access to VET, as this transition has not been approaches as a 'choice' (Section 1.2.4). By linking the international body of literature on 'secondary effects of ethnic origin' with German and Swiss literature on access to VET, this thesis aims to provide new insides into ethnic inequality in the transition into upper secondary education in countries with strong vocational specificity more generally.

1.3. Research Design

1.3.1. Research Gap & Research Question

Sections 1.1 and 1.2 have outlined a relevant background for the empirical studies that will be presented in the following chapters (see Chapter 2, 3, 4, and 5). They have already introduced several gaps in research and described how the work

presented in this thesis aims to address these gaps. The key points concerning existing research gaps and proposed research questions are summarized here.

First, ethnic choice effects in upper secondary education arguably have not been explicitly applied and tested in Germany and Switzerland. In those countries, the role of choices and individual preferences has been neglected at the upper secondary level, given the particular nature of these education systems, i.e., early tracking at the lower secondary level and high vocational specificity (e.g., dual VET). For the same reasons, those countries present an interesting test case for ethnic choice effects and may further establish such effects as a universal phenomenon. Moreover, should ethnic choice effects in Germany and Switzerland persist, certain inferences can be made about particular decision making processes in migrant families. This links directly to the second contribution of this research.

Second, the description of previous research in Section 1.1 has shown that the mechanisms driving ethnic choice effects in education are under-researched. While several hypotheses are stated in the literature, empirical evidence remains limited. Insights about the mechanisms driving ethnic educational choices can inform investigations of ethnic educational inequality at other stages in the educational system. As such, the transition into upper secondary education in Germany and Switzerland is useful for studying general decision-making processes among migrant families. Such processes could have meaning beyond the particular stage of upper secondary education and, possibly, affect decisions in other areas of life (e.g., family formation, housing, occupation). Furthermore, advancing knowledge on the mechanisms that underlie inequalities is the first step to informing policy makers that are interested in designing policies to alleviate such inequalities (Jackson, 2012: 1144).

Based on the described research gap, two overarching research questions are identified will guide the analysis in this thesis:

Guiding Research Questions:

1. Do migrant students make different educational choices compared to natives ('ethnic choice effects') in education systems with high vocational specificity (Germany and Switzerland) at the transition into upper secondary education?

2. If they do, which mechanisms best explain these so-called 'ethnic choice effects'?

1.3.2. Data

The research questions pose several demands on necessary data to provide reliable evidence.

First, the analysis of ethnic choice effects critically hinges on the availability of sufficient migrant sample sizes to produce reliable estimates. Investigations of ethnic inequality often suffers from small sample sizes because many population surveys in education do not contain sufficient students with a migrant background (Karen Schönwälder, 2007: 2191; Olczyk, 2014: 1398; Rühl, 2009: 2192). This is particularly crucial when scholars attempt to distinguish different ethnic groups. Moreover, higher panel attrition among migrants further increases demands on sample sizes. Migrants are often more likely to drop-out from panel surveys (Font, 2013: 2226). This has to be accounted for in the analysis.

Second, the data must contain information on the birthplace of the student and both parents. This information is crucial for identifying students with a migrant background and to distinguish different ethnic origin groups. Until recently, many data sources, particularly in Germany, were only able to identify migrants by their nationality or indirectly by their language use. Arguably, this can lead to substantial bias in empirical studies (Gresch, 2011: 2059; Rühl, 2009: 2192).

Third, the data should contain a longitudinal dimension. Choice effects are commonly assessed at certain transitions in the education system (see Chapter 2 and 3). By design, transitions require two waves of longitudinal data (before and after the transition). Longitudinal data allows clarification of the temporal order of effects and reduction of reverse causality risks. In Chapters 4 and 5, cross-sectional information is used on 'realistic aspirations' and 'preferences' to approximate 'educational choices'. In these instances, careful causal interpretation of effects was considered and potential biases were discussed.

Fourth, the data must contain detailed information on school performance and social background. By design, choice effects are residual effects net of school performance and social background (see Sections 1.1.3 and 1.1.4).

Fifth, the data must contain additional information to operationalize the respective theoretical mechanisms (more detail in the respective empirical chapters).

The analysis presented in Chapters 2, 3, 4, and 5 focuses on Germany and Switzerland as two relevant case studies. Consequently, two datasets were identified that fulfill the previously outlined demands.

For Germany, the National Educational Panel Study (NEPS) (Blossfeld, 2011: 531) is used. The survey focuses on the acquisition of education and its consequences for individual life courses in Germany. NEPS is a large-N, longitudinal, multi-cohort study. For the purpose of this research, NEPS Starting Cohort 4 that samples 9th graders across Germany (N= 14.490) is used. These (regular) students are at the end of compulsory schooling and are bound to transition into upper secondary education within the subsequent two years. The NEPS Starting Cohort 4 is based on a random sample of regular schools, stratified by school type. Within the sampled schools, all students of two randomly selected classes are invited to participate. The information used in the empirical chapters is almost exclusively based on the students' responses.

NEPS data meets all the demands outlined above. The level of detail exceeds what was previously possible in many regards. First, the survey contains detailed

information on school performance (grades), including measurements for competencies in mathematics, reading and science. Especially regarding the transition into VET, only one other dataset in Germany has previously measured competences, and its regional reach has been limited (Hunkler, 2015: 2125@620). Furthermore, NEPS also includes detailed information on social background. The *International Socio-Economic Index of Occupational Status (*ISEI) scale provides a continuous measure for socio-economic background taking into account parental education, income and occupation to construct a relative measure of socio-economic status (Ganzeboom, 1992: 590). Lastly, NEPS contains rich information to operationalize various specified mechanisms in novel ways (see Chapters 2, 4, and 5).

For Switzerland, data from the Transitions from Education to Employment (TREE) survey is used. The initial sample of this longitudinal survey included individuals who participated in the Program for International Student Assessment (PISA) survey in the year 2000 (N=6343). Respondents were re-interviewed annually from 2001 to 2007; an eighth panel wave was conducted in 2010 and a ninth one in 2014 (TREE, 2013: 1924). TREE data fulfills the data demands outlined above, including sufficient sample sizes, detailed information on school performance (i.e., grades, competencies) and social background (ISEI). However, compared to NEPS, less information is available to operationalize certain theoretical mechanisms.

For the analysis, multiple imputation of missing values using chained equations is applied (Enders, 2010: 548; Rubin, 1987: 544; Van Buuren, 2012: 546). Multiple imputation is gradually accepted as the gold standard in dealing with missing values. The specifications of the imputation model are described in more detail in each respective chapter. Generally, the robustness of the findings is checked by comparing results based on multiple imputations with results based on listwise deletion.

Common to education data, observations in both surveys are clustered (e.g., students in classes, classes in schools, schools in regions, etc.). This violates one of the model assumptions in generalized linear models. As a result, robust standard

errors on school level are used. If appropriate, the robustness of the results against clustering on class level is tested. For the purposes of this research, there is no interest in the variance that is explained by school or class level but rather on individual level factors. Therefore, multilevel models are not applied (Hox, 2010: 2193).

The particular sample restrictions, measurements and models are described in detail in each chapter.

1.3.3. Methods

All empirical chapters follow a similar logic. First, a descriptive analysis is presented to illustrate the particular phenomena at hand. Net of relevant controls, it is shown whether various migrant groups have, on average, lower or higher transition rates (or educational expectations) compared to natives. Second, multiple regression techniques are applied to test hypotheses that were previously elaborated. Given that modeling 'choices' between different educational alternatives entails a categorical nature of the dependent variable, non-linear, logistic or multinomial logistic regression is mostly applied. To facilitate interpretation, average marginal effects (AME) are commonly reported (Mood, 2010: 555; Best, 2012: 554; Williams, 2012: 2220). In some cases, linear prediction models are used with binary dependent variables. This is legitimate in cases when ordinary least squares (OLS) estimates are identical with AMEs (see Chapters 2 and 5 for more detail).

All models estimate the effect of migrant status (x-variable, migrant background, migrant group) on the choice (y-variable) for (i.e., transition into) one particular educational option at the upper secondary level. Using a mediation approach, indirect effects are tested by adding measurements for theoretical mechanisms (z - variables) to the model and assessing how the coefficient of migrant status changes accordingly, i.e., what share of the migrant effect is attributable to variation in other intervening variables. The mediation analysis requires a comparison of coefficients across models. Unlike model comparison in the linear (OLS) framework, interpretation of results in a non-linear framework is not straightforward (Mood, 2010: 555; Best, 2012: 554). To correct for statistical bias

when non-linear models are applied, the KHB method recently developed by Karlson, Holm and Breen is used (Karlson, 2011: 558; Kohler, 2011: 563; Karlson, 2012: 553; Karlson, 2013: 1395). More details on the KHB method are provided in Chapter 2 and Chapter 3.

In some cases, the mediation effect is decomposed in its constituent parts to discern the relative importance of individual mechanisms that have been tested jointly. The decomposition analysis is a novel approach in this specific body of literature on choice effects.

1.4 Conclusion

1.4.1 Summary of Results

This section summarizes the results from empirical Chapters 2, 3, 4, and 5. Rather than presenting the results for each chapter, consistent findings across chapters are outlined according to the two research questions as follows: 1) Evidence on the existence and magnitude of 'ethnic choice effects' in Germany and Switzerland and 2) Evidence on the mechanisms of 'ethnic choice effects'.

1.4.1.1 Existence and Magnitude of Ethnic Choice Effects in Germany and Switzerland

The first key result arising from the empirical analyses is that choices matter for the explanation of (ethnic) educational inequality. Despite strong vocational alternatives and a high level of previous tracking at the upper secondary level in Germany and Switzerland, the analyses confirm strong ethnic choice effects. This means that despite the fact that students are tracked into separate paths at age 10 or 12—as is the case in Germany—there is still considerable scope for individual choice for non-university track students after completing the respective track. The pattern of who continues academic education and who pursues VET varies substantially by migrant background.

In Germany, non-academic track students with a migrant background are 13 percentage points less likely to transition into VET one year after completing lower

secondary education relative to their non-immigrant peers (Chapter 2). This substantial difference in the predicted probability is adjusted for various socio-demographic background factors, socio-economic status, school performance and regional variation. This ethnic choice effect is slightly higher (20 percentage points) for students with Turkish origins compared to non-immigrant students, relative to students with origins in the former Soviet Union.

The pattern is strikingly similar in Switzerland (Chapter 3). Here, students with a migrant background are also 13 percentage points less likely than non-immigrant Swiss students to transition into VET one year after leaving compulsory schooling. These effects were again adjusted for socio-demographic background factors, socio-economic status, school performance and regional variation. This ethnic choice effect in Switzerland is higher (18 percentage points) for students with either Turkish or Balkan origins compared to Swiss natives, relative to students with an origin in neighboring EU countries and former guest worker countries Spain and Portugal.

Complimentary to findings in other EU education systems (UK, Finland, Netherlands, Sweden, France), the results suggest that ethnic choice effects apply even in contexts with strong vocational alternatives such as in Germany and Switzerland. This result can be viewed as the missing piece in the analysis by Jackson, Jonsson and Rudolphi from 2012 who analyzed choice effects in comprehensive systems (Jackson, 2012: 1144). My findings further support the notion that ethnic choice effects are, indeed, a universal phenomenon (Lessard-Phillips, 2014: 2088), as they appear to be robust against substantial variation in education systems.

The results show that individual aspirations—whether a student wants to pursue university pathways or not—explain 40% of the differences between migrant students and students without a migrant background in entering VET at the upper secondary level in Germany (see Chapter 2). Again, similar results are found in the Swiss case where 42% of the ethnic differences in the transition into upper secondary education can be explained by individual (occupational) aspirations, i.e., the occupational status that the student is aspiring towards (see Chapter 3).

In summary, almost half of the ethnic disparities in post-compulsory transition patterns in Germany and Switzerland are associated with 'choice'. This is consistent with a separate analysis of the author that is not published in the framework of this thesis. I find that students at the end of compulsory schooling age are less likely to want to pursue VET after completing 9th grade (controlling for various socio-demographic, socio-economic, school performance and structural factors) (Tjaden, 2014: 578). Further analysis in Chapter 4 reveals that migrant students at that particular stage are also less likely to intend to apply for VET during grade 9 (controlling for various socio-demographic, socio-economic, school performance and structural factors). In addition, Chapter 5 shows that migrant students at non-university school tracks are 11 percentage points more likely to expect to still achieve university entry qualifications (Abitur) in Germany compared to non-immigrant students.

Combined, these findings suggest that migrant students generally prefer to pursue further education, upgrade their academic qualifications and, as a result, avoid VET if they have a choice at this particular stage, relative to otherwise similar non-immigrant peers.

If choice explains half of the ethnic/migrant effect, this, of course, means that the other half remains unexplained. In other words, if the remaining disparities in VET access between migrant and non-migrant groups can neither be explained by differences in school performance, their socio-economic status, nor their individual preferences, it must be something else. This lends indirect support for scholars that emphasize the role of barriers in VET access. Indeed, further analysis in Chapter 2 reveals that students with migrant backgrounds are less likely to be able to realize their university-track aspirations compared to German students, even if their level of aspiration is equal. This finding further strengthens claims that other barriers, such as discrimination might play a substantial role in the transition to upper secondary education (see discussion in Chapter 2).

1.4.1.2 Mechanisms of Ethnic Choice Effects in Germany and Switzerland

Up to this point, the question of *why* migrant students are more likely to upgrade and less likely to choose VET is still unanswered. The analyses presented in the empirical part of this thesis (Chapters 2,3,4, and 5) provide several indications, which are summarized here.

As described in the previous section, migrant students have higher aspirations towards university pathways compared to natives. This account itself lends indirect support for the immigrant optimism hypothesis. This hypothesis states that migrant students are a selective group with respect to optimism, motivation and ambition regarding their educational goals. Education can be seen as the main channel for upward social mobility. The hypothesis has remained rather vague in terms of its specific mechanisms and operationalization. Some scholars have interpreted group differences in aspirations as a measure for immigrant optimism (Kristen, 2008: 387; Kristen, 2009: 2057; Salikutluk, 2016: 2119; Becker, 2010: 385). In other words, high aspirations are viewed as an expression of optimism. Following this approach, the results summarized in the previous section can be interpreted as indirect support for the immigrant optimism hypothesis. However, this leads to questions concerning why aspirations and expectations differ between migrants and natives.

In Chapters 4 and 5, a number of analyses are conducted attempting to examine the drivers of high aspirations among migrant students and further test 'immigrant optimism' against alternative explanations, such as 'information deficit' and 'anticipated discrimination' (see Chapter 2, Section 2.1.5) (Becker, 2015: 1462).

Relatively high educational aspirations among migrant students are best explained by (perceived) parental expectations. Parental expectations are a novel approach to operationalize a particular facet of immigrant optimism. This research finds that parental expectations are the most powerful explanation for differences in the intention to apply for VET at the end of compulsory school between Turkish students and German students (see Chapter 4). Chapter 5 includes peer expectations and finds that parental and peer expectations together explain 60%

of ethnic differences in educational university-track expectations (see Chapter 5). Net of parental and peer effects, individual attitudes towards the value of education contribute to further explaining why migrants have on average higher educational expectations. In summary, these findings are consistent with the immigrant optimism hypothesis. Together, parental expectations, peer aspirations and general attitudes towards the value of education fully account for ethnic differences in educational university track aspirations and drastically reduce ethnic differences in the intention to apply to VET.

The results neither lend much support for the information deficit hypothesis, nor for the anticipated discrimination hypothesis. Less (or worse) information regarding access to VET (Chapter 5) and monetary returns to specific careers or the general education system (Chapter 6) do not explain why migrants are less likely to pursue VET and more likely to expect university track qualifications. While migrant students have less access to VET relevant information within their social networks, the level of information is not associated with differences in educational choice. Furthermore, while migrant students are more likely to believe that they would face a disadvantage when applying for VET, due to their foreign appearance or foreign name, this anticipation is not related to their tendency to apply (see Chapter 4). It should be noted that these mechanisms were, for the first time, tested jointly and operationalized by several novel measurements.

The main interest throughout the empirical chapters was to test broad mechanisms for ethnic educational choices. These mechanisms should, at least in theory, apply to all migrant groups. At times, particular group-specific hypotheses were derived and tested. The general picture that emerges is that ethnic choice effects apply to all groups, however, with different magnitudes at the margin. Immigrants from less developed countries and lower socio-economic backgrounds are more likely to have relatively higher aspirations and are more likely to make more ambitious choices. This applies particularly to migrant students of Turkish origin in Germany and students of Turkish and Balkan origins in Switzerland. The immigrant optimism hypothesis is relevant for all groups but appears particularly powerful for the Turkish group. After accounting for immigrant optimism (parental and peer expectations, aspirations, attitudes towards education), the

magnitude of the choice effect is similar for all migrant groups. This suggests that immigrant optimism in the form of parental expectations appears to be particularly relevant in families with Turkish origins.

1.4.2 Discussion

1.4.2.1 Migrants' Educational Choices at the Transition into Upper Secondary Education in Germany and Switzerland

Public debates on migrant integration are often highly polarized and politicized. The fact that many migrant groups across Europe are overrepresented among the population with, on average, lower socio-economic status, lower average educational achievement and attainment, has often led many to believe that migrants generally lack motivation and the willingness to 'integrate' (Thränhardt, 2010: 179; Dollmann, 2016: 2177). Against this backdrop, ethnic choice effects in education—the phenomenon that migrant students are more likely to make more ambitious choices regarding their education—appears counter-intuitive.

Evidence of ethnic choice effects has emerged in several EU countries with comprehensive education systems and relatively weak vocational alternatives at the upper secondary level (e.g., UK, Sweden, Finland). There has so far been limited evidence from countries with strong vocational alternatives at the upper secondary level.

As a first step, this research aimed at closing this research gap. Applying the concept of ethnic choice effects to Germany and Switzerland—two EU countries with the highest vocational specificity in upper secondary education—allowed for further testing under which conditions of ethnic choice effects apply and what can be inferred about the mechanisms at work.

The previous section has briefly outlined key results from the empirical studies below. Those findings are discussed here in a more general context, how they can be interpreted and what one can learn from them.

First, choices matter at the transition into upper secondary education in Germany and Switzerland. Similar to other EU countries, migrant students are more likely than non-immigrants to choose further education over vocational alternatives. Ethnic choice effects persist in countries with strong vocational sectors. As such, ethnic choice effects may as well be considered a universal phenomenon because they appear to be robust against variation in education systems. This means that even when incentives for VET are relatively high, migrants opt for university pathways if they have a choice. Short- to medium-term economic incentives may play a minor role in explaining ethnic differential in educational choices. Rather, migrants may see university as the only acceptable channel for social upward mobility. This interpretation is consistent with evidence in tertiary education. Migrant students are more likely than non-immigrant peers to enter university (vs. VET) if background factors are controlled (Kristen, 2008: 341; Griga, 2014: 1717). Interestingly, this also appears to be consistent with perceptions 'on the ground'. An association of numerous migrant organizations have published a statement for the 2014 German Integration Summit, stating that 'for many migrants in Germany, only university education is seen as an indicator of success' (BAGIV, 2014: 1401; BAGIV, 2014: 1401). Students with ethnic/migrant backgrounds will go above and beyond to pursue university (if they have a choice).

Narrow focus on structural barriers for migrant students to enter VET in Germany and Switzerland has led the field to neglect the role of individual choice. The findings of this research suggest, for example, that interpreting the residual migrant effect in VET access (controlling for performance and social background) as a sign for structural 'barriers' is limiting. Arguably, the role of further education or so-called 'upgrading' towards higher educational qualifications has been underestimated as an alternative to direct transition into VET. New pathways appear to be emerging, partly as a result of reforms over the last three decades aimed at boosting educational upgrading and educational upward mobility of non-university track students.

The analysis in this research shows that while barriers certainly play a crucial role (e.g., discrimination), individual choices and preferences—the focus of this thesis—matter substantially for explaining ethnic inequality at this particular transition

in Germany and Switzerland. In fact, omitting preferences from the analysis can introduce serious bias in estimates due to likely unobserved self-selection into different streams (see Chapter 2). In other words, the findings indicate that high-achieving migrant students are more likely to decide against VET compared to their non-immigrant peers (i.e., 'negative selection').

1.4.2.2 'Immigrant Optimism' Revisited

As shown, the strong individual preference for direct pathways towards university among migrant students broadly supports the immigrant optimism hypothesis. Migrant students have relatively high aspirations towards future achievement and, as a result, make more ambitious choices. Aspirations can be viewed as an expression of optimism. However, arguably, the findings go beyond the immigrant optimism hypothesis, and it should be replaced by more suitable concepts that can capture the processes at work.

The immigrant optimism hypothesis has remained rather vague in its underlying mechanisms and empirical operationalization. Rather than selection on educational attainment (van de Werfhorst, 2014: 1708; Feliciano, 2005: 1707; Feliciano, 2005: 1760; Feliciano, 2006: 566; Ichou, 2014: 1704), the core idea of the immigrant optimism hypothesis is systematic selection of migrants regarding personality characteristics, such as optimism, motivation and drive (i.e., more ambitious individuals migrate). Arguably, this framing of immigrant optimism has several shortcomings:

First, there is so far no empirical evidence of selection on optimism. It is possible that less ambitious individuals migrate. Some migrants could attribute their position in society to structural barriers in the country of origin rather than their own ability or ambition. Migration may be seen as a way to lift those barriers and, as a result, individuals who were negatively selected on ambition compared to the country of origin may develop relatively high aspirations in the country of residence.

Second, high aspirations among migrant students are commonly measured against aspirations of natives in the country of residence. Consequently, the selection on personality traits in the country of origin should not matter for relative aspiration

levels in the country of residence. It is possible that relatively ambitious individuals in the country of origin are less ambitious compared to students in the country of residence and vice versa.

Third, the term 'optimism' is misleading. The results in this thesis suggest that a large part of high aspirations among migrant students is driven by parental and peer influence. Arguably, external expectations by 'significant others' are not identical with intrinsic optimism in the strict psychological sense.

As a result, the immigrant optimism hypothesis is arguably too limited to capture the mechanisms behind ethnic choice effects. Rather, this thesis proposes that the key driving force within immigrant optimism is *achievement norms* that are cultivated in migrant families and that develop *as a result* of migration. Achievement norms are shared and reinforced expectations about the 'appropriate' level of achievement. High expectations from parents and peers exert pressure on migrant students to aim high. In addition, migrant students have internalized prevalent achievement norms that are expressed by the high value that migrant students place on education. Achievement norms must be seen in the wider context of migration as an 'intergenerational mobility project' (Teney, 2013: 423) and 'immigrant bargain' (Louie, 2012: 2195). Children strive towards high achievement to repay parents for the initial investment and sacrifice of leaving their home country in search of a better future. Educational achievement becomes a question of 'family loyalty' and 'obligation' for children in migrant families (Phalet, 1998: 593; Fuligni, 2002: 1654). The currency to honor the parents is high educational achievement (Dreby, 2010: 1655; Suárez-Orozco et al., 2009: 1607; Fuligni, 2002: 1654).

Rather than selection, the core driver of migrants' educational choices are post-migration family dynamics. The crucial role of achievement norms in migrant families is supported by various qualitative accounts of migration (Louie, 2001: 419; Shah, 2010: 1397; Relikowski, 2012: 384; Suárez-Orozco et al., 2009: 1607; Dreby, 2010: 1655; Louie, 2012: 2195; Fuligni, 2002: 1654; Fuligni, 1997: 1470; Phalet, 2001: 1634; Phalet, 1998: 593).

In summary, my findings support the notion that intergenerational transmission processes in different cultural contexts are crucial for the study of ethnic inequality in educational choices.

1.4.2.3 The Bigger Picture

To present the bigger picture, the following questions are asserted: *What are the long-term implications of particularly high achievement norms among migrant families*? *What do ethnic choice effects mean for ethnic educational inequality more generally*?

In the international context, ethnic choice effects were largely framed as a 'positive' phenomenon and described as a sign of an 'immigrant advantage' (Feliciano, 2015: 1653; Jackson, 2012: 1145). Arguably, for now, one must be careful with enthusiastically positive (in a normative sense) interpretations of 'ethnic choice effects' in Germany and Switzerland. Therefore, two opposing readings of the presented evidence are proposed: the optimist vs the pessimist.

The *optimist* reading infers that migrants are more likely to choose channels towards upward social mobility that suggest that ethnic choice effects are a sign that achievement gaps will eventually decrease over time. According to the optimist reading, more ambitious choices represent an expression of a long-term 'catching-up' process that is already on its way. This reading directly links with recent reforms to boost mobility between school tracks and further relax the link between where one starts and where one might end up in the system. The more opportunities are provided to aim higher, the more migrants will take that opportunity relative to non-migrants. A look at the development in most Western countries suggests that the scope for educational choice is more likely to increase rather than shrink (Jackson, 2012: 1144). In Germany, for example, educational pathways increasingly follow less clear and simple sequences (Reißig, 2014: 1234), and the association between the first school track and the final qualification weakens (Schuchart, 2013: 1909). The findings suggest that migrants are more likely to take advantage of these mobility pathways than natives.

The *pessimist* reading argues that migrants' aspirations are *too* unrealistic. Even if migrant students make more ambitious choices, they are more likely to fail at

higher tracks at later stages. As such, migrant students may miss out on opportunities provided by the high-quality VET sector in Germany and Switzerland. According to the pessimist reading, ethnic choice effects in Germany and Switzerland could be a sign of an ineffective 'detour' through further education with no real net return. Previous scholars have highlighted that VET can provide mobility pathways for migrants and are often associated with greater labor market integration compared to countries where vocational tracks are less favorable (Crul, 2015: 2184; Crul, 2003: 1150; Worbs, 2003: 2198).

The truth probably lies somewhere in the middle. For some migrant students, their motivation and their pressure from family and friends will push them to attain university education where the marginal non-immigrant might not. Other migrant students may underestimate the benefits that vocational education can provide.

1.4.3 Implications for Research and Policy

The findings that were accumulated in the context of this PhD research have important implications for the research community in this area and for policy makers in the field.

Implications for Research:

1. **Preferences matter:** Scholars interested in group differences in educational choices and, educational transitions more broadly, must consider variation in group-specific preferences and their formation. Neglecting the role of preferences could result in ignoring systematic selection processes that are at work. Access to VET can be used to illustrate this point. If scholars condition their analysis on students who want to pursue VET, their models risk being unable to account for selection since who wants to pursue VET varies by ethnic group and migrant background. The findings suggest that migrant students exhibit a certain 'immigrant optimism' that drives them towards further (academic) qualifications. As a result, higher achieving, more ambitious and motivated students with a migrant background may avoid VET to a larger extent than similar students without a migrant background. Possible self-selection processes, which have become apparent through the provided

analysis, must be considered when examining group disparities in educational transitions.

2. **Choice does not equal choice:** While literature on VET access in Germany and Switzerland has arguably understated the role of choice in explaining ethnic inequality in the transition into upper secondary education, the international literature on 'choice effects' (secondary effects of social/ethnic origin) may have *over*stated the role of 'choice'. As the empirical results have illustrated, ethnic choice effects in Germany and Switzerland are not totally explained by individual preferences. Arguably, individual preferences are a good measure for what students would choose if they had a choice. However, results show that other explanations are still needed to explain transition disparities related to ethnic/migrant background (e.g., information, discrimination). As such, the conceptual approach of 'secondary effects' from Boudon (1974) may approximate choice in its literal meaning; however, equating it could be misleading. As such, scholars must exert caution when using 'choice effects' as a concept because generated estimates are likely to capture more than choice. Again, the German and Swiss VET sector provides an appropriate example: While ethnic choice effects at this particular stage (migrants are less likely to enter VET) are associated with individual choice, the findings indicate that additional explanations are needed, such as for example, discrimination by VET employers, knowledge about the VET system.

3. **Decision-making processes among migrant families:** The results indicate that migrant students' ambitious choices are driven by parental and peer pressures, as well as the general value that is attached to education. The results are less consistent with the potential influence of short- to medium-term economic considerations, information deficits or anticipation of discrimination. These findings emphasize the role of achievement norms in migrant communities. Previous research in other areas has shown that family values and family relationships may be different processes for migrant communities compared to non-migrant communities (Lotter, 2015: 1856; Nauck, 1995: 1596; Nauck, 1998: 572; Phalet, 2001: 1634; Kwak, 2003: 1636).

As shown, this appears to be the case as well in educational decision-making. This insight can be used to approach other situations where choices may contribute to explain ethnic/migrant disparities. Examples include marriage and family formation, housing, and occupational choice. Family dynamics in migrant communities, in particular parent–child relationships, offer a fruitful lens to explore explanations for ethnic educational inequality.

Implication for Policy:

1. **Room for choice:** Evidence of ethnic choice effects suggest that increasing the scope for individual choice might disproportionality benefit students with migrant backgrounds. If in a position of choice, migrant students are likely to choose ambitious pathways leading towards university compared to non-immigrants. As a result, opportunities to 'upgrade' qualifications in non-traditional routes by introducing various entry ways to pursue further education and by increasing mobility between various tracks (e.g., vocational and academic qualification) may be an option to increase educational attainment of migrant students. Such efforts can already be observed in Germany. Germany has made it possible to enter university without formal university entry qualifications (Abitur), which has begun to blur traditionally rigid lines between vocational and academic programs. The long-term effects of such reforms, however, are still unknown.

2. **Benefits of VET:** In contrast, policy makers aiming to increase migrant participation in VET should focus on highlighting the benefits of VET, most importantly, the potential of VET for upward social mobility, occupational prestige and lifetime earnings. Migrant students may avoid VET because they do not regard it as a proper channel towards upward mobility.

3. **Target parents:** As parental achievement norms drive educational choices of migrant students, the key to effective policies in this area is targeting parents. The results suggest that the numerous school-level interventions providing information and career guidance for students with migrant backgrounds are less effective than working directly with parents. This

point is also supported by anecdotal evidence from experiences in social programs in the field (Friedrich, 2009: 1028; Sommer, 2010: 1070).

1.4.4 Limitations and Future Research

Limitations are inherent to any scientific endeavor. Different research designs have different advantages and practical limitations condition what is feasible. This section discusses the limitations in this research distinguished according to substantive and methodological considerations. Hopefully, the outlined limitations will also encourage future research and novel perspectives.

Substantive Considerations:

1. **Scope:** This doctoral thesis uses the word 'choice' over 300 times. All of the research conducted addresses the question of group-specific choice patterns in education. By design, this research models a situation where choice is relevant. It is less focused on who actually has that choice and who does not. Controlling for socio-economic status and school performance does not eliminate or conceal real issues of ethnic inequality in performance and socio-economic status. It is argued in this research that migrant students are more likely to pursue further education, less likely to transition into VET and *not* more likely to fall into the 'transition system' compared to their non-immigrant peers. However, these results are predicted probabilities adjusted for various background factors including socio-economic background and school performance.

   Choices may be easier to address than achievement disparities and, as such, are valuable for policy makers. Furthermore, ethnic choice effects are an important tool to study educational inequality in the context of decision-making processes. However, they provide little response to major issues in inequality of achievement. In other words, the research has shown what happens when students have a choice. Undeniably, a major challenge in educational inequality is boosting achievement (grades, competence) to place students with migrant backgrounds in situations where they have that choice.

2. **Long-term Effects**: Ethnic choice effects, and secondary effects more generally, examine one particular transition within the educational career of youth. These transitions are important branching points and shape broader trajectories. However, the long-term effects of individual decisions are less well studied. The same applies to ethnic choice effects in education, which leads to the questions: *Do more ambitious choices among migrant students lead to decreasing gaps in educational achievement in the long run*? *After making the transition into further education at the upper secondary level, do students advance to university and complete it*? *Do students that chose VET later continue general, academic education*? More longitudinal studies are needed to provide answers to these questions and place ethnic choice effects within broader trajectories. The results have shown that 'upgraders' are a new relevant target group for researchers and that migrant students are likely to be overrepresented among them.

3. **Between-group Variations:** Ethnic choices vary, to some degree, between different ethnic minority groups within the same country. So far, the main argument has been that 'immigrant optimism' applies especially to migrant groups from less developed countries and with lower socio-economic backgrounds. The simple logic is that the lower the starting position, the more there is to gain in terms of upward social mobility. However, other explanatory factors such as cultural proximity, social distance, and the education system in the country of origin have been briefly discussed as well (see Chapters 2 and 3). More tests are needed to account for differences among individual groups. Subsequently, large comparative studies incorporating various groups in various European countries could be a promising step towards unpacking the mechanisms behind group differences.

4. **Immigrant Optimism:** Singular theoretical arguments, such as the immigrant optimism hypothesis have strong intuitive appeal; however, they lack clarity (as described in the previous section). This causes difficulties when operationalizing the concept. Several other alternatives in measuring immigrant optimism could be possible: 1) It would be interesting for future

research to examine immigrant optimism by channel of migration. Asylum seekers, arguably, did not primarily migrate because they were in need of a better life but because they were forced to leave. Guest workers may show different optimism levels compared to highly skilled EU migrants, for example. 2) Standardized tests on optimism and drive in the country of origin and the country of residence would allow to compare relative levels of optimism in its true psychological meaning. 3) More insights are needed about the transmission process within the family, and to determine whether students feel pressured by their parents or if they happily adopt achievement norms. The research presented here provides interesting starting points to pursue questions regarding these advances (see Chapter 5).

5. **Educational Aspirations:** Educational aspirations, which are an important aspect in this research, are a rather ambiguous concept. It has been shown repeatedly that aspirations have immense predictive value for actual educational decisions and transitions. The famous Wisconsin school is based on the idea that aspirations are the main mechanism that explains social inequality in educational achievement (Jencks, 1983: 1586; Haller, 1973: 584; Sewell, 1970: 462). Still, there is no common agreement about what they entail (Stocké, 2012: 430; Stocké, 2012: 431; Stocké, 2013: 549) and how exactly they are formed (Morgan, 2005: 1599).

6. **Complimentary Effects:** In Chapters 4 and 5, the mechanisms driving ethnic choice effects in Germany and Switzerland are studied. The prime interest was to test several mechanisms simultaneously and to determine their relevance and relative importance. In return, the respective models were unable to capture the potential interplay between distinct theoretical mechanisms. For example, it is reasonable to believe that immigrants are less likely to anticipate discrimination (mechanism I) in the VET market when they have less information (mechanism II)) about how this market works. Moreover, migrant parents might have higher expectations for their children (mechanism III) because they have less information (mechanism II) about the requirements for success at more demanding school types or because they have less information

about the school performance of their children. A closer look at the interaction of separate mechanisms could be an interesting step forward.

7. **Overarching Theoretical Framework**: Points 4–6 address the need for more theoretical thinking about educational decision making among immigrant groups. This effort would allow scholars to tie individual arguments together and generate generalizable predictions that can subsequently be tested empirically. So far, ethnic choice effects were modelled within a broader framework of (sociological) rational choice approaches. As argued, ethnic differences in choices are a result of group variation in the level of benefits and costs that are associated with different alternatives. However, it is possible that rational choice models are less applicable to ethnic minorities because of the strong influence of achievement norms. As others have argued, the stronger certain norms and preferences, the less rational certain decisions are made (Kroneberg, 2007: 450). Other models could be considered in future research.

Methodological Considerations:

1. **Identification Strategy:** Any empirical study based on observational data (non-experimental data) faces identification issues. This also applies to the work presented here. In this research, care has been taken to make causal claims about produced estimates. In all cases, issues related to potential endogeneity, unobserved heterogeneity, and reverse causality have been discussed. Chapters 2 and 3 rely on longitudinal data, which clarifies the temporal order of factors and, as such, attenuate the risk of reverse causality. In all cases, a series of robustness checks to test alternative explanations were conducted. Furthermore, a wide range of relevant controls to limit the risk of omitted variable bias were used. Experimental designs to isolate causal effects are unrealistic in the context of educational choices and aspirations. However, controlled experiments in the form of interventions (e.g., providing information to inform choice behavior) are a suitable approach to examine individual mechanisms of educational choice. In turn, however, controlled experiments lack external validity, which is one of the great advantages of large-N survey data. One example where identification issues may arise in the context of this

research is briefly outlined as follows: In the chapters that test various mechanisms of ethnic choices (Chapters 4 and 5), the research relies on cross-sectional data. It is unlikely but possible that students first make a decision about where they want to go and afterwards adjust all other attitudes and opinions accordingly. For example, those students that have already decided to go into VET may be less worried about discrimination, given that they have to justify their own decisions. Alternatively, students that have already decided that they want to continue education may also be more likely to report higher parental expectations that match their own (e.g., cognitive dissonance). In those instances, future research could exploit high-frequency panels to deal with reverse causality and unobserved heterogeneity in the formation of preferences their effect on choices (transitions).

2. **Measurement**: While this research has gone beyond what has been previously possible in terms of measuring theoretical concepts and adjusting for relevant background variables, measurement issues remain. First, several aspects of theoretical mechanisms were not possible to measure. This applies particularly to the information deficit argument. Available measurements are based on student reports on the information that they think they have. Future research would gain from objective measures of the information that students actually have. Furthermore, estimated monetary returns to different occupations may be a suboptimal measurement for group-specific variation in information. Adolescents ages 14–16 often have no clear idea about future income projections. As a result, salary estimates can carry considerable 'noise'. Second, more measurements to operationalize immigrant optimism would be desirable, given that the mechanisms underlying the hypothesis are further specified. For now, parental expectations, peer aspirations, and general attitudes towards the value of education have been used. Other concepts such as direct measures of optimism, motivation and ambition or striving for upward mobility could be a way forward. Lastly, measuring the mechanisms of anticipated discrimination is difficult. Surveys often field questions about general perceptions of discrimination without directing the question at the individual

('Do you think you would be discriminated against'). Future research can benefit from better measurements in this respect.

3. **Response Bias:** Response bias is a thorny issue in survey-based research. The general argument is that, for various reasons, different groups systematically vary in the way they answer to the same survey questions regardless of the 'true' response. One issue that applies especially to migrant students are biases arising from social desirability. In the eyes of migrant students, high educational aspirations or university education could be perceived as socially desirable. Migrant students may face pressure to integrate into society and given that those groups lack behind in educational achievement the perceptions are that 'migrants don't try hard enough'. According to this logic, migrant students may inflate their responses to questions about educational aspirations (Becker, 2010: 385). Methodological research in this area would allow for correcting for potentially biased estimates.

Overall, in this research, I have attempted to be transparent about possible limitations of the empirical analysis and causal inferences. Furthermore, I have attempted to report the analysis in a way to enable replication. Despite the outlined limitations, I believe that the various analyses generated solid evidence that is a useful addition to academic literature in the field of ethnic educational inequality and educational choice.

2. Study I: Migrant Background and Access to Vocational Education in Germany: Self-Selection, Discrimination or Both?[2]

2.1 Abstract

Germany's Vocational Education and Training (VET) system has gained much international attention for its association with low youth unemployment, smooth school-to-work transitions and viable labor market trajectories. As such, the VET sector is the major channel for the integration of a growing number of students with a migrant background – who are overrepresented among non-university school tracks leading towards VET. However, their participation in VET is lower compared to Germans. Persistent ethnic disadvantages (net of human, social and cultural capital) have generated much debate about potential employer discrimination as the key driver behind ethnic residuals in VET access. I argue that previous studies have neglected the role of disparities in a priori educational preferences between migrants and natives. Building on the literature on secondary effects of ethnic origin, I test *whether* migrants self-select into academic tracks to pursue higher academic qualifications and *to what extent* this selection mediates unexplained disparities in in VET access. Using a sample of non-university track students at the end of lower secondary education (N=6247) in the German National Educational Panel Survey (NEPS), I show that 40% of ethnic disparities in VET access are accounted for by self-selection processes. However, further analysis reveals that self-selection and discrimination should be understood as complimentary rather than competing processes at this stage. Implications for research and policy are discussed.

[2] I thank Prof. Dr. Claudia Diehl for helpful comments on an earlier draft of this paper. A different version of this chapter has been published as Tjaden, J. D. (2017). Migrant Background and Access to Vocational Education in Germany: Self-Selection, Discrimination, or Both?. *Zeitschrift für Soziologie*, *46*(2), 107-123. Accessible at https://doi.org/10.1515/zfsoz-2017-1007.

2.2 Introduction

This study investigates why migrant students are disadvantaged regarding access to Germany's Vocational Education and Training (VET) market at the upper secondary education level. Research in educational inequality has largely focused on *social* inequalities at various stages of the education system (primary school, lower secondary education, university). Despite its growing importance - the situation of migrant students at the transition into upper secondary education has gained less attention.

In 2014, migrants and their descendants made up 20% of the German population (Destatis, 2014: 2109). One in three students of schooling age has a migrant background (Olczyk, 2015: 2073). As a result, how to successfully integrate this sizable and growing share of the population has received much attention by policy makers and researchers alike. Debates have intensified since the arrival of more than a million refugees between 2014 to 2016, 30% of which are still of schooling age (BAMF, 2016: 2111). Education is seen as the main vehicle for a successful long-term integration into society.

Germany's Vocational Education and Training (VET) sector plays a crucial role in supporting the integration process. Germany's VET system has gained an international reputation for providing non-university track students with viable labor market prospects (e.g. low youth unemployment, smooth school-to-work transitions, high job security). Comparative studies indicated that the apprenticeship sector is relatively successful in integration immigrants into the labor market (Crul, 2003: 2197; Crul, 2009: 1381; Crul, 2015: 2184; Worbs, 2003: 2198). As a result, VET is a crucial channel for the integration of migrant student populations who are largely overrepresented in vocational, non-university tracks. Previous studies have shown that once a VET qualification is attained, migrants benefit equally from it on the labor market (Seibert, 2005: 270; Kalter, 2006: 610). In contrast, failing to enter VET often results in entering the labor market without an occupational qualification which is associated with large disadvantages in Germany's highly regulated labor market (Winkelmann, 1993: 2113; Pollak, 2007: 2112). As a result, the transition into VET is one of the key stages in the

educational and occupational career of students and particularly crucial for migrants.

Regarding VET, previous research in Germany found that foreign nationals and, more generally, students with a migrant background have lower transition rates into VET after leaving lower secondary education, higher drop-out rates from upper secondary education and higher rates of entering the labor market without an occupational qualification (Autorengruppe Bildungsberichterstattung, 2008: 348; Engels, 2012: 205; BMBF, 2012: 246). As a result, the German government has declared migrants as one key target group within their national VET strategy (BMBF 2012).

Greater public attention on ethnic disparities in access to VET have also generated a body of research assessing the drivers behind such disparities (Gaupp, 2007: 535; Boos-Nünning, 2008: 324; Skrobanek, 2009: 235; Beicht, 2010: 319; Hunkler, 2010: 238; Ulrich, 2011: 309; Eulenberger, 2013: 543; Aybek, 2014: 557; Hunkler, 2014: 795). Differences in human capital (school performance), socio-economic background, social capital (contacts), cultural capital (language) and regional opportunity structures account for a large share of the disadvantage. However, in most cases ethnic residuals remain, in particular for males of certain ethnic groups. In Germany, the overwhelming share of VET opportunities are apprenticeships (or, from now on, 'dual VET') opportunities. Dual VET positions are allocated by employers who select their own apprentices on firm-level. Persistent ethnic residuals have sparked a lively debate about potential discrimination of migrant applicants by VET providers (Diehl, 2009: 236; Hunkler, 2010: 238; Scherr, 2015: 2130).

Building on this body of literature, this study will examine the effect of a priori preferences on disparities in VET access between migrant students and their German peers. As I will show, the discussion has so far neglected the potential role of a priori preferences. Educational preferences have been shown to be a powerful predictor of actual educational transitions, including for migrant students (Glick, 2004: 506; Kristen, 2010: 339; Becker, 2015: 1462). Many studies on ethnic/ migrant disparities in VET access restrict their analysis sample to students who have an explicit preference for VET and reported to pursue it. As a result, studies

have implicitly (and partly explicitly) relied on the assumption that preferences for or against VET are equally distributed between migrants and natives. In contrast, previous evidence on 'ethnic choice effects' suggests that migrants tend to avoid vocational tracks in favor of academic tracks given that school performance and social background are held constant (Brinbaum, 2007: 439; Kristen, 2008: 341; Kilpi-Jakonen, 2011: 426; Jackson, 2012: 1144). I argue that previous studies on ethnic disparities in VET access potentially suffer from selection bias because more ambitious and motivated students with a migrant background self-select to upgrade into university track education. As a result, migrant students that pursue VET could be negatively selected.

In the current study, I use large, panel survey data of students at the end of lower secondary education (N=6247) from the National Educational Panel Survey (NEPS) in Germany. I estimate differences in the probability to access VET one year after leaving lower secondary education net of relevant individual and structural background characteristics. Based on a mediation logic, I test whether remaining ethnic/migrant residuals are partly accounted for by particular educational preferences regarding alternatives at the upper secondary level. The effect of preferences on the transition is interpreted as potential evidence of self-selection processes at this stage.

2.3 Upper Secondary Education in Germany

Germany's education system is characterized by a high level of stratification (i.e., ability grouping, tracking) and vocational orientation (size of VET sector, importance of dual VET; i.e., apprenticeships) (Allmendinger, 1989: 1255; Shavit, 2000: 1207; Bol, 2013: 1203). Vocational Education and Training (VET) at the upper secondary level offers great opportunities to non-university track students. Strong VET sectors have been shown to provide smooth school-to-work transitions (Gangl, 2003: 1916; Van der Velden, 2003: 1206; Iannelli, 2007: 1205; Wolbers, 2007: 1239; Levels, 2014: 1914), job security and viable labor market returns (Wolter, 2011: 2172; Wolter, 1999: 2080; Backes-Gellner, 2010: 2082).

After completing primary education after grade 4 or 6, students choose between three major secondary school types; their choice is limited in some states by teacher recommendations. The upper level secondary school (‚*Gymnasium*'; university track) prepares students for higher tertiary education at universities and universities of applied sciences. The lower and the intermediate secondary schools (‚*Hauptschule*' and ‚*Realschule*') traditionally prepare for vocational education, which is dominated by the dual VET system combining structured (paid) in-company training with schooling at vocational schools. In most German states, students at lower level secondary school types officially transition into VET after grade 9 and students at intermediate secondary school types after grade 10. However, increasingly, students at lower level secondary school types take an additional year to grade 10 before entering upper secondary education. Overall, official statistics show that the dual VET system absorbs up to 60 percent of an age cohort (Autorengruppe Bildungsberichterstattung, 2016: 2162; Bildungsberichterstattung, 2012: 204).

Over the last decade, Germany's educational landscape has undergone some reform while keeping its basic structure (Solga, 2014: 2115). Reforms were introduced mainly in response to limited upward mobility associated with initial placement in lower level secondary schools and increasing difficulties to enter VET for low-achieving youth (Kleinert, 2012: 318). Traditionally, due to Germany's highly stratified education system, the initial school track placement has largely determined later attainment and labor market trajectories to a high degree. A start in a vocational track rarely led to later transitions into university education. However, as the skill requirements for dual VET positions are gradually rising and fewer companies decide to train apprentices, low- achieving youth have found it more difficult to obtain a dual VET position (see Solga, Protsch et al. 2014). As a result, many German regions move to more comprehensive secondary school types combining several tracks at the secondary level (e.g. *Sekundarschule, Gesamtschule*) and boost options to upgrade at various school types outside the traditional structure (Jacob, 2010: 1017; Buchholz, 2015: 1860). Overall, this has resulted in more opportunities to attain further academic qualifications regardless of the initial school track that the student was first placed in. Students may start in the lowest track but attain university entry qualifications through alternative

routes which has led to a 'de-coupling' of school type and eventual attainment over time (Schuchart, 2011: 1908; Schuchart, 2013: 1864; Schuchart, 2013: 1907).

As a result, students in lower and intermediate secondary tracks face a number of broad alternatives: 1) (dual) VET 2) upgrading to academic, university-track qualifications 3) pre-vocational, interim programs in preparation for VET and 4) direct entry to employment. The dominant options are to enter VET or continue general non-vocational education at the upper secondary level. While the main interest of previous research at this transition has been to examine reasons why some groups fail to secure a VET position and end up in transitional, pre-vocational programs, the other alternatives (e.g. upgrading) have been neglected. This is striking as so-called 'upgrading' is becoming more prevalent in Germany's education system (Buchholz and Schier 2015). In 2013, upward qualification towards university eligibility has increased by 15% compared to 2005 (BMBF 2014). As I will argue below, migrants may disproportionately strive towards such pathways for educational upgrading if they have a choice. This may have implications for the VET sector.

2.4 Explaining Ethnic Disparities in VET access

The 2008 government education report has brought the disadvantages of migrant students regarding access to VET to wider public attention (Autorengruppe Bildungsberichterstattung 2008). Foreign students and students with a migrant background are less likely to successfully enter VET compared to Germans. Increasingly, studies have attempted to examine explanations for ethnic disadvantages at this stage (Aybek, 2014: 557; Beicht, 2010: 319; Beicht, 2014: 1440; Diehl, 2009: 236; Eulenberger, 2013: 543; Skrobanek, 2009: 235; Hunkler, 2010: 238; Hunkler, 2014: 795). This section will briefly highlight key explanations that were tested in relevant studies in Germany.

Explanatory factors for disparities in VET access can be conceptualized as a matching problem between employers that offer dual VET positions and students that offer labor (Hunkler 2014). Building on this approach, three main sets of

factors are commonly suggested to explain transition disparities into VET: Individual endowment of resources (human, social, cultural), opportunity structures (VET supply, regional unemployment rates etc.) and employer discrimination (Hunkler, 2015: 2125).

Human, social and cultural capital

The natural starting point for explaining ethnic disparities in VET access are differences in human capital that are relevant productivity signals to VET employers, in particular grades and school qualification. However, previous studies demonstrated that ethnic disparities remain after accounting for grades and school track (e.g. Beicht and Granato 2010). Secondly, social capital can be crucial for finding a VET position. Contacts can provide information on available positions and on how to apply. In addition, contacts may also provide informal recommendations to the employer (Granovetter, 1995: 358; Voss, 2007: 359). As intra ethnic ties are more dominant in immigrant family networks, migrant students may have less access to VET relevant resources within their social network (Diehl, Friedrich et al. 2009). Given that migrant parents have higher unemployment rates and more often come from lower socio-economic backgrounds, migrant parents have less access to informal networks that facilitate VET access. The socio-economic status may not only have indirect effects on VET access via human capital formation, social and cultural capital. Parents from lower socio-economic backgrounds also have on average less economic capital to support long search durations (Hunkler 2010).

Cultural capital such as language skills are a key resource for VET. Most VET sectors require interactions with colleagues and/ or customers. First generation migrants but also many second generation migrants grow up speaking the language from the country of origin. Migrant students have on average lower German grades and reading competences compared to Germans (Diehl, 2015: 2100). Thus, language skills could be a relevant selection criterion for VET employers.

Multivariate analyses were so far unable to 'explain away' ethnic residuals in VET access by accounting for measurements of human, social and cultural capital

(Diehl, Friedrich et al. 2009, Skrobanek 2009, Beicht and Granato 2010, Hunkler 2010, Gaupp, Geier et al. 2011). It should be noted, however, that previous studies often did not take into account actual competencies (e.g. math and language skills) and were often limited to crude measurements of social background.

Opportunity structure

VET access is dependent on opportunity structures, namely structural characteristics of the VET market (Diehl, 2009: 236; Müller, 2003: 1463; Ulrich, 2013: 306). In regions with greater VET supply and lower competition, ethnic penalties should be smaller given that employers are under pressure to fill positions. Migrants are not equally distributed across Germany. Rather, migrant communities are concentrated in certain, mostly urban, areas which may face particular disadvantages regarding VET access. The mechanisms that may account for ethnic disparities through 'opportunity structures' often remain underdeveloped. While studies have shown that structural factors generally matter for VET access, there is limited evidence that such factors account for ethnic disparities (Diehl, Friedrich et al. 2009, Hunkler 2010). However, there is general agreement that measurements for geographic variation in VET markets are an important control variable at this stage.

Discrimination effects

Given that previous studies were unable to account for ethnic disparities in VET access, many scholars have argued that residuals are a result of discrimination by employers (Haeberlin, 2005: 407; Imdorf, 2010: 282; Skrobanek, 2007: 629; Baumgratz-Gangl, 2010: 277; Beicht, 2009: 330; Beicht, 2010: 319; Beicht, 2011: 232; Kohlrausch, 2013: 354; Scherr, 2015: 2130). Accordingly, employers discriminate against migrant applicants due to racial prejudice ('taste-based discrimination') or certain skewed beliefs about their true productivity informed by stereotypes about certain migrant groups ('statistical discrimination') (Hunkler 2014). Discrimination may be more likely in contexts where hiring processes are less standardized and more informal. This is the case in small- to medium sized firms that provide a substantial share of apprenticeships in Germany. However,

scholars have also warned that inferring discrimination based on residuals in observational studies is far-fetched (Hunkler 2010).

Experimental evidence that is more suitable to identify causal effects has confirmed discrimination effects in hiring processes and housing in Germany (Katrin Auspurg, 2011: 2202; Kaas, 2012: 764; Diehl, 2013: 1690). Recent studies with a focus on discrimination in the VET sector show mixed results: While Schneider et al (2014) show that foreign sounding names may have a negative effect on being invited for an interview, Hunkler (2014) finds limited evidence of discrimination (Schneider, 2014: 829; Hunkler, 2014: 795). Studies focusing on attitudes of VET recruiters commonly find support of unequal treatment with regard to ethnic minorities (Scherr, 2015: 2130).

Differential migrant group effects

Most previous empirical studies have been limited to measuring migrant status as broad dummy category (i.e. foreign vs. German; migrant background vs. German). Only a small number of studies distinguished different migrant groups in Germany. Eulenberger (2013) provides descriptive analysis of transition sequences into VET and finds that 'ethnic Germans' ('*(Spät-) Aussiedler*') are disadvantaged compared to Germans but less than other migrant groups (Eulenberger 2013). Hunkler (2010) compares students with a Turkish origin with migrants from other 'Guestworker' countries ('*Anwerberstaaten*') and finds that Turkish students are substantially more disadvantaged. Skrobanek (2009) also finds that Turkish migrants have lower participation in VET compared to other groups (Italy, Ex-Yugoslavia, Ex-Soviet Union). Disproportionately high penalties for the Turkish group are consistent with other accounts of ethnic disparity at other areas of the education system (Kristen, 2007: 1183; Heath, 2008: 514; Kalter, 2011: 337; Diehl, 2015: 2074; Levels, 2008: 1251). Turkish origin migrants have lower socio-economic backgrounds, face greater social distance with Germans and are more likely to experience discrimination (Steinbach, 2004: 608; Blohm, 2008: 2214; Hans, 2010: 2215).

In sum, this section briefly outlined the state of research on ethnic disparities in (dual) VET access in Germany. Previous studies were unable to fully explain lower

transition rates into VET at the upper secondary level in Germany through various measures of human, social and cultural capital as well as opportunity structure. Remaining 'ethnic residuals' in VET access have often been related to potential discrimination by employers. As I will argue in the next section, group-specific variation in educational preferences have so far not been properly taken into account.

2.5 The Role of Educational Preferences

The study of ethnic disparities in VET access has been largely silent on the role of educational preferences. This is due to the fact that many studies restrict their analytical samples to students that have an explicit VET preference and/or have reported to pursue it (e.g. Diehl, Friedrich et al. 2009). This restriction relies on the assumption that preferences towards VET do not vary across migrant status. For example, Diehl and colleagues state that 'recent empirical evidence indicates that German and foreign youth have a similar probability of pursuing an apprenticeship' (Diehl, Friedrich et al. 2009). This account has been subsequently echoed in the German (and Swiss) literature in this field (Aybek, 2014: 557; Diehl, 2009: 236; Granato, 2014: 1314; Granato, 2014: 537). Major government education reports assert that ethnic disparities are not associated with differences in VET preferences or interest (BMBF, 2014: 1465).

There are two reasons why I argue that the claim may have been premature: First, a shaky and selective empirical base and second, insights from research on 'ethnic choice effects' in education.

First, limitations of the available data at the time could have had an influence on the results. The 'equal preferences assumption' was initially based on a crude, unadjusted frequency comparison (Friedrich, 2006: 527; BIBB, 2011: 433). In other studies, the data was often limited to students that have already applied or have applied for search assistance (*BA/ BIBB Bewerberbefragung*). Information on preferences is often not available (*SOEP*) or collected retrospectively (*BIBB Übergangsstudie*). Recalling preferences retrospectively may lead to high

measurement error as respondents align previous preferences with later outcomes. Survey participants were sampled at convenience, at selective school types and regions (*DJI Übergangspanel*). Most studies collapsed different migrant groups into one dummy variable. As a result, diverging preferences of one group could have remained hidden in the aggregate. Moreover, studies based on the same data sources partly acknowledge differences in preferences, in particular, when crucial background factors such as school performance and social background are controlled (Skrobanek 2009, Beicht and Walden 2014). Migrants at lower and intermediate school tracks – those populations for whom VET is particularly relevant – show on average lower interest in VET compared to Germans (Beicht and Walden 2014). Already in 2007, Gaupp and colleagues report that every second student with an origin in the former Soviet-Union origin pursues an apprenticeship while for Turkish origin students only every fifth student does (Gaupp, Lex et al. 2007). Furthermore, Turkish students are less likely to pursue an apprenticeship compared to German students and 'ethnic German' students (Reißig, 2006: 550; Gaupp, 2007: 535). One multivariate study shows that students with a migrant background are less likely to favor VET compared to Germans given that school track, grades, gender and residence are accounted for (Beicht and Granato 2010). This account has been recently supported by analysis based on large-scale education data. Controlling for relevant background factors, including, for the first time, school competencies, students with a migrant background at lower secondary school tracks are less likely to aspire VET compared to German students without a migrant background. The differentials are largest between Turkish and non-immigrant youth (Tjaden, 2014: 578).

Second, empirical evidence in Germany (and many other countries) shows that migrants have on average higher educational aspirations regarding their track choice and university ambition than their native peers (Becker, 2010: 385; Stanat, 2010: 422; Relikowski, 2012: 384; Salikutluk, 2016: 2119). It remains unclear why migrants 'aim higher' than students without a migrant background. Many explanations have been proposed including immigrant optimism (migrant families have stronger drive for upward mobility given that parents have migrated especially for that purpose), information asymmetries (migrants are less familiar with the German education system and as a result underestimate formal

requirements or are unaware of viable alternatives) and anticipated discrimination (migrants invest more in higher academic qualifications because discrimination is less likely in highly skilled labor markets) (Heath and Brinbaum 2007, Kristen, Reimer et al. 2008, Relikowski, Yilmaz et al. 2012, Becker and Gresch 2015, Salikutluk 2016).

In sum, it is reasonable to expect that migrant students at the end of lower secondary education have a preference for academic, university-track alternatives to VET. As a result, I expect that systematically unequal distribution of educational preferences between migrants and Germans without a migrant background affect the probability of entering VET after completing lower secondary education. Educational preferences have been shown to be a powerful predictor of actual educational transitions, including for migrant students (Glick and White 2004, Kristen and Dollmann 2010, Becker and Gresch 2015). Moreover, differential preferences have potentially biased previous estimates of ethnic disparities in VET access that restrict their samples to students who have a preference for VET. This prompts the need for a re-evaluation of the relationship between educational preferences and VET access.

2.6 Data and Measures

Data and Sample

This study is based on a sample of German ninth grade students who have been surveyed within the National Educational Panel Study (NEPS) since 2010 (Blossfeld, 2011: 531)[3]. The NEPS Starting Cohort 4 is based on a random sample of regular schools, stratified by school type. Within the sampled schools, all

3 This paper uses data from the National Educational Panel Study (NEPS): Starting Cohort 4–Grade 9, Release 6.0.0, doi:10.5157/NEPS:SC4:6.0.0. From 2008 to 2013, NEPS data were collected as part of the Framework Program for the Promotion of Empirical Educational Research funded by the German Federal Ministry of Education and Research (BMBF). As of 2014, the NEPS survey is carried out by the Leibniz Institute for Educational Trajectories (LIfBI) at the University of Bamberg in cooperation with a nationwide network.

students of two randomly selected classes were invited to participate.[4] I use information on student responses from waves collected in 2010 and 2012. In 2012, lower secondary school students have left school for (at least) one year. Some students at lower level secondary school types (*Hauptschule*) have already changed their status in the previous year. As a result, school type is controlled in all models. For the analysis, we exclude students at university-track secondary school types (*Gymnasium*). University-track students continue school until grade 12 or 13 before VET access becomes relevant to them.

Panel attrition is an issue for longitudinal survey data, in particular for the study of minority groups which often have higher rates of panel drop-out. In 2012, 34,4% of non-university track students that participated in 2010 have non-responses due to temporary or permanent attrition. Drop out has been considerable because contacting students becomes more difficult once they leave the classroom environment. Migrant students were on average 4 percent more likely to drop out between 2010 and 2012. I attempt to attenuate the effect of panel attrition on model estimates by broadly controlling for characteristics that are commonly associated with panel attrition including gender, socio-economic status, achievement levels, school track and German language comprehension.

To deal with item non-response on variables in the models, I employ multiple imputation using chained equations which is gradually accepted as the gold standard of dealing with missing values (Van Buuren, 2012: 546).[5] After imputation, the sample contains 6.247 non-university track students, including 1918 students with a migrant background (30%).

Dependent Variable

The dependent variable is the status one year after leaving lower secondary education. In the main models, the dependent variable is a binary indicator with the value 1 if the student transitioned into Vocational Education and Training

4 The initial participation rate on the school level was 55.5%. Within schools, 61.8% of students agreed to participate in the panel and 95.4% of them actually did (Achievement, 2010 :2219-20-30).
5 10 imputed datasets were created. I used predictive mean matching for binary and categorical variables and linear regression for continuous variables. Information on sampling variables (school type, school, Federal State) were used to account for the design of the data.

(VET) and 0 if the student did not transition into VET. VET largely consists of ‚apprenticeships' that lead to a certified vocational degree and combine on-the-job training with education in vocational schools as well as a minor share of school-based VET programs (without in-company training).

For further analysis, I subsequently distinguish different alternatives to VET, namely pre-VET (pre-vocational programs that prepare for later transition into VET), academic-tracks allowing to upgrade to university entry level (*(Fach-) Abitur*) and academic-track alternatives that lead towards upgrading or re-taking the intermediate secondary school degree (*Mittlerer Abschluss, Realschulabschluss*). Minor alternatives, such as employment, unemployment, maternal leave, military service are subsumed under a miscellaneous (‚other') category.

Independent Variable

The first key independent variable is the *immigrant background* of the student. Here I distinguish between students without a migrant background (‚Germans' or ‚natives')[6] – indicating that both parents were born in Germany – and students with a migrant background – indicating that at least one parent was born outside of Germany. As a first step, I will use a broad indicator of immigrant status because the main argument about self-selection effects as well as the outlined mechanism of ‚immigrant optimism' should apply – according to theory – to all migrant groups. In the further analysis section, I distinguish between two different dominant origin groups in Germany, namely students with Turkish origin is students with an origin in former Soviet Union countries. Those groups represent the largest immigrant communities in Germany (Olczyk, Seuring et al. 2016). The Turkish origin group largely consists of descendants of low-skilled guest worker migrants who were recruited in the 1950s and 1960s to work in industry-heavy sectors in the post-war era. Migrants from former Soviet Union countries are a heterogeneous group, consisting largely of descendants of so-called ‚ethnic German'

[6] I am aware of the ambiguities surrounding the terminology of ‚Germans' or ‚natives' as they may imply birth place or nationality to some. However, in this case ‚German' or ‚native' refer to the absence of an immigrant status which is defined by the birth place of the parent. This terminology is used throughout for reasons of consistency, comparability with other research and ease of presentation.

migrants (*(Spät-) Aussiedler)*). Members of these groups were a separate legal category of migration. They benefitted from language and integration support and enjoyed easier access to citizenship compared to other groups. Turkish origin students are disadvantaged in many areas of the education system, including VET access. Previous research has shown that Turkish students have lower transition rates to VET compared to other groups (Hunkler 2016). Educational aspirations are also particularly high among the Turkish group compared to other migrant groups (Becker 2010, Relikowski, Yilmaz et al. 2012, Salikutluk 2016). As such, it is reasonable to expect that self-selection effects are greater for the Turkish group. Furthermore, other studies have shown that the Turkish origin group are more affected by negative stereotypes compared to other groups (z.B. Steinbach 2004, Blohm and Wasmer 2008). Members of the Turkish origin group are also more likely to report experiences of discrimination (Hans 2010). Hence, it is reasonable to believe that discrimination effects at the transition into VET are larger for this particular group.

The second set of key independent variables is *educational preferences*. I use preferences to reflect the self-selection dimension of VET access. Preferences are measured by idealistic aspirations which represent students' *wishes*. Aspirations are a good measure for capturing preference because aspirations are thought to be less dependent on external settings and supposed to reflect the non-instrumental processes preference formation (Stocké, 2012: 430).

To fully capture relevant preferences at this stage, the student and the parent - who is often directly involved in the decision making - have to be taking into account. Separate measures are appropriate at this stage, especially to account for differences between migrants and Germans (Becker, 2009: 440; Kleine, 2010: 486). Migrant families often emphasize family values and live in tight-knit relationships (Phalet, 2001: 1634; Merz, 2009: 1637). Parents in migrant families may take a more important role in the educational decision-making processes compared to – otherwise similar – German families. Parents commonly represent the generation that migrated to Germany in pursuit of social upward mobility. If their own mobility has been slow, parents in migrant families may exert more pressure on

their children to attain high educational qualification (Kasinitz, Mollenkopf et al. 2008, Relikowski, Yilmaz et al. 2012).

Thus, the first variable measures the student preference using his or her idealistic aspirations regarding the attainment of university entry qualification (*Abitur*). The second variable measures parental university expectations. This measure captures whether students believe that their parents expect them to go to university one day (see Table 2-2 in the Appendix for this Chapter in Section 2.10 for a more detailed description).

Controls

Control variables largely consist of variables that have been found to affect the transition into (dual) VET. The list includes socio-demographic variables (age, gender), human capital (German grade, math grade, school type), social capital (socio-economic background), cultural capital (German language comprehension skills) and opportunity structure (regional VET market types, federal states). The NEPS data makes available high-quality measurements of competences in math and reading (Pohl, 2012: 380) as well as a refined measure of socio-economic background (Ganzeboom, 1992: 590). Both measurements are often unavailable in this field. In addition, I match a sophisticated composite indicator to the NEPS data that controls for regional variation in the labor and VET markets, including differences between East and West, unemployment rates, VET supply and demand. Previously, most research had to rely on single measures (e.g., unemployment rates), which have shown to be inadequate for measuring relevant features of VET markets (Kleinert, 2012: 592). Table 2-2 and Table 2-3in the Appendix features a full list of control variables and their respective operationalization.

Analytical strategy

At the heart of the analyses is a comparison of three nested models: the 'baseline choice' model, the 'self-selection' model and the 'fulfilment' model.

Each model estimates the effect of student migrant background on the probability that he or she has entered VET one year after finishing lower secondary education.

The '*baseline choice*' model adjusts for all measures that have been used in previous analyses of VET access, including socio-demographic, structural, socio-economic factors as well as school performance and language ability. Building on the literature on 'secondary effects' (Boudon 1974), this basic set-up represents the classic educational choice model: Given that school performance and social background are controlled, residual effects for migrant background are driven by individual choice.

In a second step, I add educational preferences of the student and the parent to the model. The mediation of the migrant background effect captures the extent of self-selection. In other words, the *'self-selection'* model shows how much of the disparity in VET access between migrants and natives is due to different distributions of educational preferences between those groups. Remaining residuals of migrant background – net of individual and parental preferences – point to the importance of other explanations which have not already shaped a priori preferences. One possible and increasingly likely mechanism is discrimination.

In a third step, I further investigate the 'self-selection' model by including an interaction between migrant background and student aspirations. This analysis captures whether the effect of aspirations is stronger or weaker for migrants compared to Germans. A smaller effect for migrants would suggest that migrants are less likely to turn their goals into reality. Therefore, I call this model the '*fulfilment model*'. Discrimination by VET employers could be one plausible explanation why migrant students are less likely to realize their ambitions.

Despite the binary form of the dependent variable, I use linear probability models for ease of presentation and interpretation. OLS estimates are identical with Average Marginal Effects derived from non-linear regression model. Since I was interested in point estimates rather than the non-linear relationship per-se, it is 'reasonable' and 'appropriate' to use linear probability models (Mood, 2010: 555).

Common to education data, observations may not be independent of each other but instead clustered within classes or schools. As a result, I apply clustered standard

errors on school level to all models. Sensitivity analysis showed that clustering on class level – when possible – did not yield substantially different results.

To further disentangle the effects of migrant background on VET access, I conduct a number of further analyses with regard to gender, migrant groups, achievement levels, parent vs. student aspirations, and more refined transition alternatives. Due to space constraints, results are reported in the text and partly available in the Appendix (Section 2.10).

2.7 Results

Choice, Selection and Fulfilment

The 'baseline choice model' in Table 1 (first column) reveals that non-university track students with a migrant background are 13 percentage points less likely than German students to access VET one year after finishing lower secondary education in Germany. This 'choice effect' is net of robust controls for gender, age, socio-economic status, school type, regional VET market, Federal State, German and math grades, math skills, and German comprehension skills.[7] This finding corroborates previous research that has highlighted persistent ethnic/ migrant disparity in VET access that appears unexplained by human, social and cultural capital. Nevertheless, this first result is important because in contrast to much previous research, I was able to control for math competencies, a refined measure for socio-economic background (ISEI) and a comprehensive measure for language abilities (German language competency score).

Further analysis shows that the negative effect of migrant background varies with the level of math skills. Math competencies can be used to approximate 'ability' which often remains unobserved. I exploit this rich information on competencies in the NEPS data to estimate an interaction between migrant background and math skill level. The analysis reveals that the negative migrant effect increases with higher math skills (see Figure 2-2 in the Appendix). This suggests smaller

[7] Note that coefficients for VET market types and Federal State are not displayed due to space constraints and data sensitivity issues (available upon request).

differences between migrant students and Germans at lower ability levels. The high performing migrant students are substantially less likely than high performing Germans to access VET. This finding is indicative of self-selection effects rather than discrimination. Discrimination should not vary by math level (net of grades) as information about competencies is not directly observed by the employer. However, high achievers may have more opportunities to upgrade academic qualifications which implies higher levels of self-selection away from VET among migrant students.

The 'self-selection' model in Table 2-1 (second column) introduces student university entry aspirations and parent university expectations as measures for general educational preferences to the model. Controlling for variation in educational preferences results in a reduction of the migrant background effect from -13 percentage points to -8 percentage points (40%). This considerable mediation effect supports the claim that differences in educational preferences between migrants and Germans matter with regard VET access and that the preferences are not equally distributed across both groups (as previously assumed). This large mediation effect is notable given that educational preferences were measured two years prior to the transition. Accordingly, preferences appear to have a robust, long-term effect.

The overall effects of student and parental aspirations on VET access are equally strong (see bottom of second column). In further analysis, I tested whether it is the students' own aspirations or the influence of the parents that contributes more to explaining the effect of migrant background. Introducing both measures separately to the model reveals that parents' university aspirations reduce the negative effect of migrant background more (38%) than the students' aspiration (20%). This supports the claim that parents play a more decisive role in migrant families compared to German families (results available upon request).

Lastly, the 'fulfilment model' in Table 2-1 (column 3) adds an interaction between migrant background and student aspirations. The rationale behind this approach is to test whether student aspirations have a smaller effect for migrants compared

to Germans.[8] Smaller effects for migrants is an indication that migrant students are less likely to realize their preferences which is could be associated with, for example, discrimination. For Germans, university entry aspirations reduce the probability to enter VET by 18 percentage points. For migrants, this effect is smaller, i.e. 10 percentage points (-18 + 8, see Table 2-1, model 3). This indicates that migrant students are less likely to follow through with their high aspirations compared to Germans. As a result, other barriers must keep migrant students from pursuing their preferences. One reasonable interpretation is discrimination by employers given that detailed performance characteristics are already taken into account. Alternative explanations are discussed in the last section.

[8] Note that the coefficients of the interaction effect must be interpreted relative to the respective main effects of migrant background and student aspirations.

Table 2-1: The effect of migrant background on access to Vocational Education and Training (VET vs. No VET) of non-university track students one year after leaving lower secondary education in Germany (OLS estimates)

	(1) baseline choice model	(2) self-selection model	(3) fulfilment model
	OLS (SE)	*OLS (SE)*	*OLS (SE)*
Migrant Background	-0,13***	-0,08***	-0,11***
	(0,014)	(0,014)	(0,016)
Female	-0,10***	-0,10***	-0,10***
	(0,014)	(0,014)	(0,014)
Age (in years)	0,01	0,01	0,01
	(0,010)	(0,010)	(0,010)
Socio-economic status (ISEI)	-0,00***	-0,00**	-0,00**
	(0,000)	(0,000)	(0,000)
Secondary School Type (Ref. Lower level)			
Combined Lower Sec.	0,03	0,03	0,03
	(0,037)	(0,036)	(0,036)
Intermediate Lower Sec	-0,03	0,02	0,02
	(0,019)	(0,018)	(0,018)
Comprehensive track	-0,10***	-0,04	-0,04
	(0,030)	(0,028)	(0,028)
Math skills	-0,00	0,01	0,01
	(0,008)	(0,008)	(0,008)
German grade (Ref. Low)			
Medium	0,01	0,02	0,02
	(0,017)	(0,017)	(0,016)
High	-0,04	0,01	0,01
	(0,021)	(0,021)	(0,021)
Math grade (Ref. Low)			
Medium	0,02	0,03	0,03
	(0,016)	(0,016)	(0,016)
High	-0,03	-0,01	-0,01
	(0,018)	(0,018)	(0,018)
German comprehension skills	-0,04***	-0,03***	-0,03***
	(0,006)	(0,006)	(0,006)
Student university entry aspirations		-0,15***	-0,18***
		(0,016)	(0,018)
Parental university expectations		-0,13***	-0,13***
		(0,017)	(0,018)
Migrant Background x University entry aspirations			0,08**
			(0,025)

VET market and Federal State	controlled	controlled	controlled
Constant	0,43*	0,41*	0,42*
	(0,177)	(0,171)	(0,171)
Observations	6247	6247	6247
Adjusted R^2	0.118	0.155	0.156

*Note: Standard errors in parenthesis, clustered on school level. * p < 0.05, ** p < 0.01, *** p < 0.001. Note that Model 3 includes an interaction term, main effects for migrant background and student university entry aspirations must be interpreted accordingly. Estimation based on multiply imputed datasets (m=10). Coefficients for VET market types and German Federal State are not shown due to presentation and data sensitivity issues.*

2.8 Further Analysis

Gender

The VET market in Germany is highly stratified by occupational sector. Some sectors are traditionally male-dominated (e.g. construction, industry, crafts, agriculture), others are female dominated (health, social work, office administration, service sector, public administration) (BMBF 2014). Differences between migrant students and German students can be smaller for women compared to men. Dual VET is wide-spread in more male dominated labor market sectors which reduces the scope of choice for women irrespective of migrant background. As such, women may generally favor non-VET alternatives which reduces the potential scope for between-group variation. This assumption is supported by the NEPS data. Furthermore, parents in migrant families may exert lower educational expectations for their daughters compared to sons given that many migrant parents migrated from countries where the male-breadwinner model is more dominant compared to Germany. As a consequence, parents may push their sons towards university entry level but are less insistent on daughters. If German parents' expectations vary less depending on gender of the child, it is reasonable expect that differences between migrant students and Germans is larger for males. The findings confirm this idea (see Table 2-5 in the Appendix). While male students with a migrant background are 17 percentages less likely to transition into VET compared to their male peers without a migrant background, the difference between female students is sizable but smaller (10 percentage points).

Migrant Groups

To investigate further, I estimated all key models for two of the dominant migrant origin groups in Germany, namely parents born in Turkey or former Soviet Union countries. I expected that both self-selection and 'fulfilment' effects are larger for the Turkish origin group compared to the former Soviet Union group (see Section 2.5).

The results show that the disparities between migrants and German students generally apply equally to the Turkish and former Soviet Union group (see Table 2-6 in the Appendix for this Chapter). The Turkish group is 'only' three percentage points less likely to choose VET then the former Soviet Union group (choice model). After controlling for educational preferences (self-selection model), both groups are 13 percentage points less likely than Germans to access VET. This finding suggest that the transition pattern for both groups is similar when student and parental aspirations are taken into account. Based on the residual migrant effect in the 'self-selection' model, the findings do not indicate that Turkish origin migrants are less likely to be able to realize their aspirations (as a potential result from employer discrimination).

The 'fulfilment model' reveals that, in contrast, students with an origin in the former Soviet Union that do not have university entry aspirations are even less likely than Turkish students to access VET (compared to Germans). In addition, the interaction between migrant group and university entry aspirations shows that university entry aspirations reduce the probability to enter VET by 18 percentage points for Germans, by 12 percentage points of Turks (-18 + 6) and by 5 percentage points for former Soviet Union students. This is not consistent with the expectation that Turkish students are less likely to transfer their preferences into reality because they are disproportionately affected by employer discrimination. Jointly, these findings indicate that Turkish students self-select themselves away from VET to a slightly larger extent than former Soviet Union students and that they are also more likely to follow through with their aspirations compared to former Soviet Union students. As a result, it is reasonable to assume

that additional explanations – for example information deficits (see discussion) – are needed to explain differences between particular migrant groups.

Alternative transitions

The transition into upper secondary education in Germany is complex in terms of its institutional setting, legal framework, and the number of alternatives. To reduce complexity, I have focused so far on the transition into VET alone[9]. However, it is important to note that the reference category in the above analysis is quite heterogeneous because it includes all other possible statuses that student could transition into. Hypothetically, large ethnic disparities regarding access to VET may not reflect, immigrant students' self-selection 'away' from VET, but rather their higher likelihood of entering less favorable pre-vocational transition options due to – for example - discrimination.

Numerically, the major alternative to VET is to continue schooling. Schooling options can be distinguished broadly into programs that allow students to upgrade from the lowest secondary school degree (*Hauptschulabschluss*) to an intermediate secondary school degree (*Realschulabschluss*) and programs that put students on a path to attain university entry level ((*Fach-) Hochschulreife*).[10] Over the last decade, policies to boost upward mobility and reduce social inequality have resulted in a drastic expansion of options to upgrade academic qualifications. This development is often underappreciated in previous research. Beyond VET and school, students can enter the so-called pre-vocational (Pre-VET) or transition programs ('*Übergangssystem*').[11] Pre-VET are mainly aimed at preparing students to enter VET through job-search assistance and trainings (Kohlrausch, 2012: 284).

[9] The vast majority of VET consists of dual VET (apprenticeships) options. A minor share represents school-based VET without in-company training and pay. Due to its negligent size and the absence of migrant/ethnic disparities with regard to entering school-based VET, I regarded VET as a joint category. Furthermore, I model the transition at this stage as a choice for or against pathways leading directly towards employment versus pathways leading towards upgrading academic qualifications. Collapsing all VET options is consistent with that approach.

[10] School names and programs vary considerably across the German Federal States. School leading to intermediate degrees include *Berufsaufbauschule, Regionalschule, Wirtschaftsschule, Höhere Berufsfachschule.* Schools leading towards university entry level include – for example - *Berufskolleg, Oberstufenzentrum, Berufsoberschule, Wirtschaftsgymnasium, Technisches Gymnasium, Gesamtschule*.

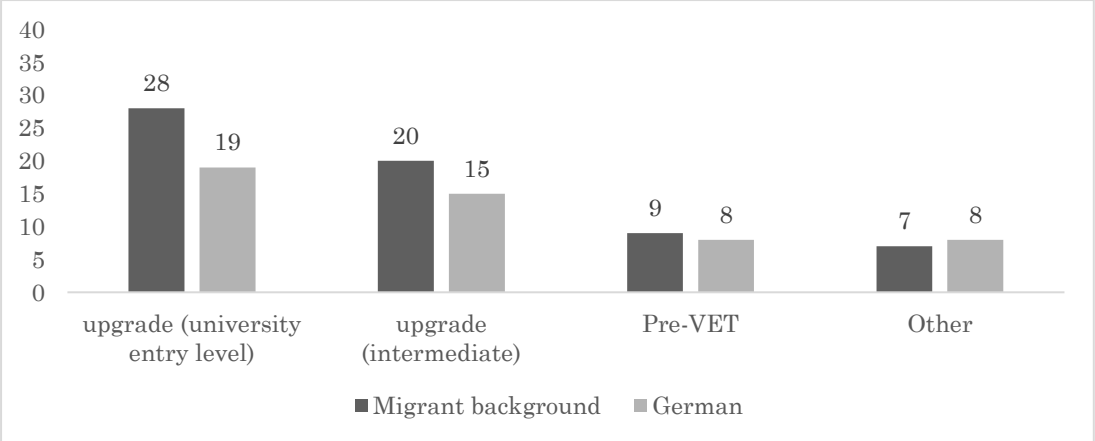
[11] The pre-VET system encompasses a variety of programs including *Einstiegsqualifizierung, berufsvorbereitende Maßnahme, Berufsgrundschuljahr, Berufsvorbereitungsjahr, Praktika.*

Lastly, a very small number of students may also enter full-time employment, unemployment, parental leave or military service.

Figure 2-1 shows the predicted probability to enter each outlined category versus VET (reference category) for German students and students with a migrant background net of gender, age, school grades, math skills, language skills, school type, VET market and Federal State.

The results clearly show that the main differences between German students and migrant students exist with regard to upgrading academic qualifications, particularly towards university entry levels. Students with a migrant background are 9 percentage points more likely to enter upgrading options that lead towards university entry levels compared to German students and 5 percentage points more likely to enter upgrade options that lead towards intermediate degrees. Interestingly, there are almost no differences between German and migrant students with regard to the more unfavorable options such as pre-VET and other (parental leave, military service, unemployment, direct employment).

Figure 2-1: Predicted probabilities of accessing various categories in upper secondary education (relative to VET) net of individual and structural characteristics, by migrant background



Note: Underlying model based on 'baseline choice' model in Table 2-1, Column 1. Predicted probabilities net of gender, age, school type, school grades, German language and math skills, regional VET market types and Federal State. See Footnotes 8, 9 and 10 for a detailed description of individual categories on the x-axis.

2.9 Discussion

Migrant students are 'disadvantaged' with regard to access to Vocational Education and Training (VET) in Germany. This study investigated the role of educational preferences for explaining such disparities in Germany's upper secondary education system. Previous research has often neglected preferences or assumed that they are equally distributed between students with and without a migrant background. Building on literature on 'ethnic choice effects' (secondary effects of ethnic origin) and so-called 'immigrant optimism', I proposed that different preferences and decision-making processes among migrant families have to be taken into account to produce more accurate estimates of disparities in VET access. I used large-scale, longitudinal data of students in non-university tracks at the end of lower secondary school in the National Educational Panel Study (NEPS) to test this hypothesis.

The results clearly indicate that educational preferences matter. Student and parent aspirations explain up to 40% of the initial disparity in VET access between German and migrant students. Migrant students are more likely to choose pathways that lead towards upgrading academic qualifications such as intermediate levels and, particularly, university entry levels (*(Fach) - Abitur*). This 'self-selection' among migrant students is to a large extent driven by the influence of parents and is particularly large for males and higher performing students. The results support the notion that if there is a choice (i.e. only students with similar school grades, school types and socio-economic backgrounds are compared), migrant students 'self-select' into alternative routes to VET driven by their high ambition for upward social mobility. Interestingly, this finding appears to resonate with the reality on the ground. A 2014 statement by 30 migrant organizations in Germany emphasizes that for many parents, only university appears to be the appropriate channel for social mobility (Migrantenorganisationen 2014).

The analysis showed that educational preferences (in the form of aspirations) is a powerful predictor of ethnic disparities in the transition into VET. However, they do not solve the puzzle entirely. Migrant students are still (significantly) less likely to access VET after controlling for educational preferences. It is important to

highlight that this finding adds credibility to similar findings in previous research which have been unable to measure math and language competences. Persistent disparities suggest that other explanations, such as employer discrimination, must be considered to fully account for disparities in VET access. The need to test additional mechanisms is further corroborated by the finding that migrants are less likely to turn their preferences into reality compared to their (otherwise similar) German peers. This supports previous claims about potential discrimination at the transition into VET.

Beyond discrimination, unequal endowment of relevant information may also be associated with disparities in VET access (Kristen, Reimer et al. 2008). Most migrant groups originate from countries where VET systems are small, uncommon, or unfavorable. As a result, the only alternative to achieve upward mobility is seen in university education. Migrant families may lack information on (or underestimate) the returns to VET programs and as a result favor academic options. A different aspect of the information argument is VET-relevant social capital. Given their lower structural integration in German society and lack of contacts with Germans, many migrant families may lack information on which VET positions are available. If they apply they may have less access to informal recommendations by members of their network which can be important in VET markets that use less standardized recruiting processes.

However, one advantage of this study is that information deficits – at least in theory - should already have been captured by educational preferences and as such been accounted for in the empirical models. A lack of information should lead migrant families to favor academic alternatives which then increases their likelihood to actually pursue those options. Based on this approach, my findings further support claims of discrimination effects because – in other words – not much else is left to account for remaining disparities. In conclusion, I argue that both self-selection and potential discrimination processes are relevant for the transition into VET in Germany. Both phenomena should be seen as complimentary and simultaneous rather than competing processes at this particular stage.

This study faced some limitations. While self-selection effects were tested directly, the study design was unsuitable for direct tests of discrimination. Similar to previous research, I have relied on a residual approach. Yet, as my research has shown it becomes increasingly difficult to discount discrimination effects given that most other convincing explanations have been tested. More can still be done to operationalize the information deficit argument. So far studies rely on subjective measures of information based on what students and parents think they know. Such measures may be insufficient and biased. Another more complex approach could be to examine more fine-grained geographic effects. The regional mobility of non-university track students is limited. This means that disparities could potentially be explained by variation in local labor markets that are difficult to capture in large-scale surveys.

Despite these limitations, I argue that the analyses make a clear contribution to the field – both for research and policy. Self-selection is an important process for explaining ethnic/ migrant disparities in educational transitions. Many voices have insisted that preferences are equally distributed between (ethnic/migrant) groups. This approach may have been deliberate to avoid a public perception that migrants are not interested in education and lack ambition. However, as the results presented here strikingly show, it is rather the opposite. Because migrant students are often *more* ambitious, motivated and optimistic, many of them avoid VET and pursue pathways that lead towards university. As a side effect, those students that have a choice will strive towards university education which potentially leaves the remaining pool of VET applicants with a migrant background negatively selected with regard to skills and ambition (which are difficult account for in survey research). Nevertheless, this study also provides strong support to previous claims about potential discrimination because ethnic/ migrant disparities remain after taking into account group-specific preferences and negative skill selection.

The evidence presented here points to a number of broader implications. In terms of research on ethnic inequality and VET access, the study shows that educational preferences – two years before making a particular transition - play a tremendous

role for explaining disparities in VET access. Educational preferences are not equally distributed between migrant and native students. This has to be taken into account in future research in this area. In addition, this study showed that parents appear to matter more for educational decision-making in migrant families compared to non-migrant families. Family dynamics and educational choices pose interesting research questions about how preferences are formed and transmitted. The results have also indicated that residuals remain after accounting for preferences. To the best of my knowledge, there is so far only one study testing discrimination effects in VET markets (Schneider, Yemane et al. 2014) in an experimental setting. More such experiments could reveal which sectors, which regions, which firms are most affected by preferential treatment in recruiting practices.

In terms of policy, some implications can be drawn. A growing number of projects in Germany are aimed at increasing participation of migrant students in VET in Germany. Such projects have to take into account diverging preferences and decision making processes in migrant families. Policies may be more effective when targeting parents. Furthermore, actors in the field can provide information about the potential of VET for upward social mobility, including returns, career prospects and amenities. Highlighting increasing links between academic university programs and vocational programs can be appealing to high achieving migrants who might otherwise be too narrowly focused on conventional pathways to university.

2.10 Appendix

Table 2-2: Operationalization of dependent and independent variables

Concept	Question	Categories / range
Dependent Variable		
VET access	Status one year after leaving 10th grade (the end of lower secondary education)	1 = Student is in VET 0= Student is not in VET
Transition into upper secondary education *(further analysis)*	Status one year after leaving 10th grade (the end of lower secondary education)	0= dual VET (apprenticeship) 1= school VET 2= pre-vocational training 3= school (university entry) 4= school (intermediate qualification) 5= Other (parental leave, military service, employment, unemployment)
Independent Variable		
Migrant background	Birth place of the parents	0 = both parents born in Germany 1= at least one parent born abroad
Migrant groups *(further analysis)*	Birth place of the parents	0 = both parents born in Germany 1 = at least one parent born in Turkey 2 = at least one parent born in former Soviet Union
Student university entry aspirations	What is the highest educational qualification that you wish to attain?	0 = below university entry 1 = University entry ((Fach-) Abitur)
Parental university expectations	What do you think your parents expect you to achieve?	0 = below university entry 1 = University entry ((Fach-) Abitur)

Table 2-3: Operationalization of control variables in all models

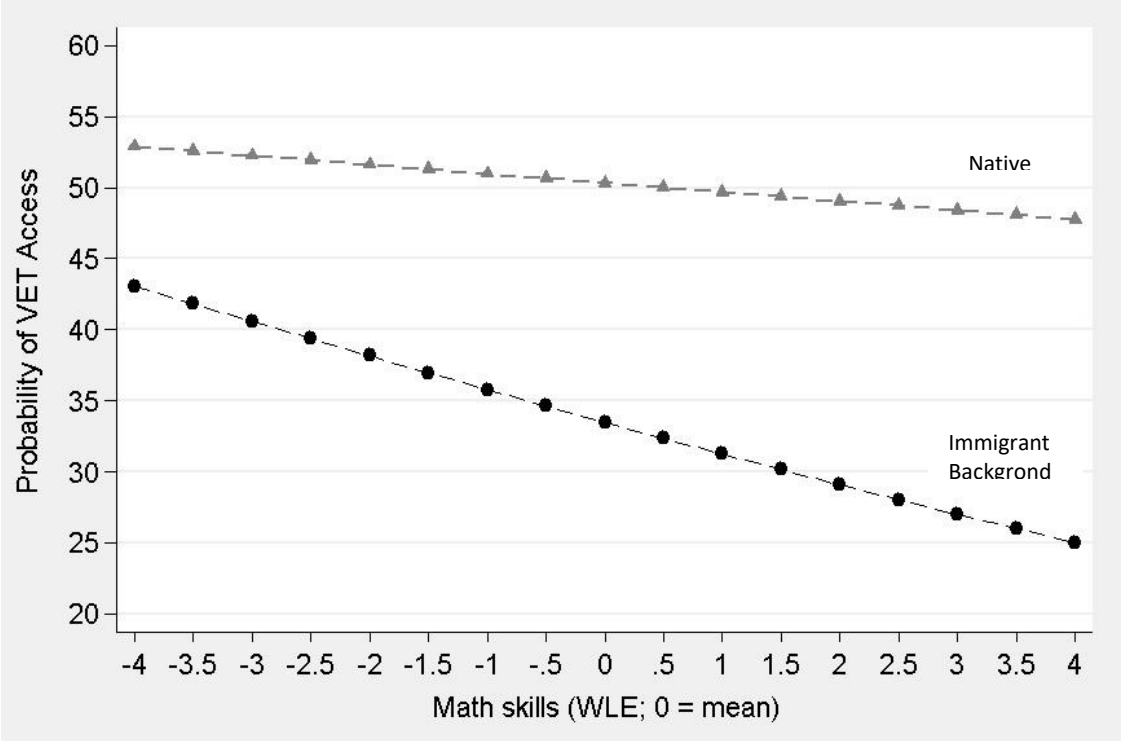
Concept	Question	Categories / range
Sex	Student answer in first wave, complemented by later/parent information if missing	Male = 0, female = 1
Age	Student answer in first wave	categories: 15 or younger, 16, 17 or older
Lower secondary school type	Recoded based on information from sampling	Regular lower secondary school track (Hauptschule); multi-track lower secondary school tracks (e.g. Sekundarschule); Intermediate track (Realschule); comprehensive schools (Gesamtschule)
VET market type	Composite indicator of regional VET-relevant characteristics (e.g., supply, demand, unemployment rates, school leaver rates, urban vs. rural, east vs. west)	10 types
German grade	What was your German grade in your last report card?	0 (low = grades 6, 5 and 4), 1 (medium = grade 3), 2 (high = grades 1 and 2)
Math grade	What was your math grade in your last report card?	0 (low = grades 6, 5 and 4), 1 (medium = grade 3), 2 (high = grades 1 and 2)
German reading test score	Standardized reading comprehension test	standardized score (grand mean of 9th graders = 0); WLES (see Pohl & Carstensen 2012, for more detail)
Math test score	Standardized math test	standardized score (grand mean of 9th graders = 0), WLES (see Pohl & Carstensen 2012, for more detail)
Socio-economic background	Highest parental occupational status (Socio-Economic Index of Occupational Status, ISEI)	16-90

Table 2-4: Distribution of model variables in Table 2-1, Model 2

	German				Migrant Background			
	mean	*SE*	*min*	*max*	*mean*	*SE*	*min*	*max*
Female	0,45	0,5	0	1	0,48	0,5	0	1
Age (in years)	15,45	0,64	14	18	15,67	0,75	13	18
Socio-Economic background (ISEI)	46,25	18,49	-14,48	100,71	39,62	18,58	-17,38	95,76
School type								
Lower level sec. (Hauptschule)	0,35	0,48	0	1	0,53	0,5	0	1
Combined sec. (Sekundarsschule)	0,14	0,34	0	1	0,07	0,25	0	1
Intermediate sec. (Realschule)	0,37	0,48	0	1	0,26	0,44	0	1
Comprehensive sec. (Gesamtschule)	0,14	0,35	0	1	0,15	0,36	0	1
German language comprehension skills	-0,33	1,1	-4,75	3,3	-0,74	1,13	-4,24	3,3
Math skills	-0,35	0,95	-4,37	4,54	-0,67	0,86	-3,01	4,58
German grade								
low	0,22	0,41	0	1	0,29	0,45	0	1
medium	0,51	0,5	0	1	0,5	0,5	0	1
high	0,28	0,45	0	1	0,21	0,4	0	1
Math grade								
low	0,31	0,46	0	1	0,37	0,48	0	1
medium	0,38	0,49	0	1	0,38	0,48	0	1
high	0,32	0,46	0	1	0,25	0,43	0	1
Student university entry level aspirations	0,33	0,47	0	1	0,38	0,48	0	1
Parental university expectations	0,17	0,37	0	1	0,36	0,48	0	1
N	4329				1918			

Note: German language skills and Math skills are based on 'weighted maximum likelihood estimates' (WLEs) which are standardized at zero for the mean performance of all 9th grade students in the whole NEPS sample. Values for Socio-Economic Status (ISEI) can exceed the original upper (90) and lower bounds (40) given that the data has previously been multiply imputed using chained equations.

Figure 2-2: Predicted probabilities of non-university track students accessing VET one year after leaving lower secondary education in Germany, by math skill, net of socio-demographic, socio-economic and structural background factors



Note: Predicted probabilities are net of gender, age, school grades, school type, German language performance, VET market type, and Federal State. See Table 2-1, Model 1 for more information. WLE stands for 'weighed likelihood estimator' where zero is the mean performance of all students in secondary education (see Pohl 2012, p. 380, for more information).

Table 2-5: The interaction effect of migrant group and gender on access to Vocational Education and Training (VET vs. No VET) of non-university track students in lower secondary education in Germany (OLS estimates)

	(1) baseline choice model	(2) self-selection model
	OLS (SE)	*OLS (SE)*
Migrant Background (Ref. German)	-0,17***	-0,11***
	(0,020)	(0,020)
Female	-0,12***	-0,12***
	(0,017)	(0,017)
Migrant Background: Female	0,07*	0,06*
	(0,029)	(0,028)
Student university entry aspirations		-0,15***
		(0,016)
Parental university expectations		-0,13***
		(0,017)
Controls (see Table 1)	yes	yes
Constant	0,45*	0,42*
	(0,178)	(0,171)
Observations	6247	6247
Adjusted R^2	.119	.154

*Note: Standard errors in parenthesis, clustered on school level. * p < 0.05, ** p < 0.01, *** p < 0.001. Both Models include an interaction term, main effects for migrant group and gender must be interpreted accordingly. Estimation based on multiply imputed datasets (m=10). Coefficients for all other control variables not reported.*

Table 2-6: The effect of migrant group on access to Vocational Education and Training (VET vs. No VET) of non-university track students in lower secondary education in Germany (OLS estimates)

	(1) baseline choice model	(2) self-selection model	(3) fulfilment model
	OLS (SE)	*OLS (SE)*	*OLS (SE)*
Migrant group (Ref.: German)			
Turkey	-0,20***	-0,13***	-0,15***
	(0,026)	(0,026)	(0,034)
former Soviet.	-0,17***	-0,13***	-0,17***
	(0,025)	(0,025)	(0,031)
Student university entry aspirations (UEA)		-0,15***	-0,18***
		(0,016)	(0,018)
Turkey x UEA			0,06
			(0,048)
former Soviet. x UEA			0,13*
			(0,051)
Controls (see Table 1)	yes	yes	yes
Constant	0,43*	0,40*	0,41*
	(0,177)	(0,170)	(0,172)
Observations	6247	6247	6247
Adjusted R^2	.116	.156	.164

*Note: Standard errors in parenthesis, clustered on school level. * p < 0.05, ** p < 0.01, *** p < 0.001. As Model 3 includes an interaction term, main effects for migrant group and student university entry aspirations must be interpreted accordingly. Estimation based on multiply imputed datasets (m=10). Coefficients for all control variables, parental student aspirations and other migrant groups are not shown due to presentation and data sensitivity issues.*

3 Study II: 'Ethnic Choice Effects' at the Transition into Upper Secondary Education in Switzerland[12]

3.1 Abstract

Compared to natives, students with an immigrant background are more likely to choose academic tracks over vocational alternatives. Evidence of so-called 'ethnic choice effects' is based on education systems where vocational tracks are often regarded as 'unfavorable'. This case study investigated 'ethnic choice effects' at the end of compulsory school in Switzerland, a country with a strong vocational training sector offering competitive incentives, particularly for students with low or average achievement. Based on longitudinal data from the 'Transitions from Education to Employment' (TREE) survey, we found that most migrant groups are more likely to choose university-track education over vocational alternatives leading to employment. Nested logistic regression analyses revealed that a large share of these 'ethnic choice effects' was explained by 'immigrant optimism'. Our findings shed light on general educational decision-making processes among migrant families and potential consequences for ethnic inequality in post-compulsory education.

Keywords: educational choice, educational transition, migrant, immigrant optimism, Switzerland, secondary school

[12] This study was conducted in collaboration with Prof. Dr. Katja Scharenberg. A different version of this chapter has been published as Tjaden, J. D., & Scharenberg, K. (2016). Ethnic choice effects at the transition into upper-secondary education in Switzerland. *Acta Sociologica*, First Published Online, December 19, 2016. Accessible at http://journals.sagepub.com/doi/abs/10.1177/0001699316679491.

3.2 Introduction

Previous research has shown that migrants are more likely to choose academic tracks over vocational alternatives at the upper secondary level given that socio-economic status and school performance are held constant (Brinbaum, 2007: 439; Jackson, 2012: 1144; Jonsson, 2011: 425; Kilpi-Jakonen, 2011: 426; Van de Werfhorst, 2007: 1178).

Increasingly, such 'ethnic choice effects' are described as a general pattern that has been confirmed in many European countries and the US (e.g. \Lessard-Phillips, 2014: 2088). However, the evidence for 'ethnic choice effects' in upper secondary education is mainly based on studies in comprehensive systems such as Sweden, the UK, the US and Finland. In these contexts, choice effects have been labelled as an 'immigrant advantage' and interpreted as a largely positive phenomenon (Jackson, 2012: 1145; Jonsson, 2011: 425; Kilpi-Jakonen, 2011: 426). There remains a lack of evidence on 'ethnic choice effects' in education systems with strong vocational training sectors that offer viable alternatives, such as Germany, Austria and Switzerland.

We use Switzerland as a case study. From a comparative perspective, Switzerland is an outlier with regards to vocational orientation and specificity at the upper secondary level. More students than in any other European country enroll in vocational programs dominated by apprenticeships combining in-company training with school (Bol, 2013: 1201). Roughly 60% of recent school leavers from compulsory education enter VET (SKBF, 2010: 2079; Hupka-Brunner, 2010: 1196). Comparative studies have found that VET programs can reduce unemployment risk, enhance smooth school-to-work transitions and offer competitive labor market returns (Gangl, 2003: 1916; Wolbers, 2007: 1239; Shavit, 2000: 1207; Wolter, 1999: 2080; Wolter, 2005: 2081; Backes-Gellner, 2010: 2082). Switzerland's VET sector offers higher economic incentives compared to most other European countries, particularly for low and medium achieving students at non-academic school tracks. Among low and medium achieving students, children with a migrant background are overrepresented. On return, it is reasonable that 'ethnic choice

effects' at this stage are smaller than in other countries where incentives for VET are less.

Our case study sheds light on the general-decision making processes among migrant families. In the case that 'ethnic choice effects' are less sensitive to viable short- and medium-term labor market incentives, migrants' choices are likely to be driven by other factors such as achievement norms. We further investigated this notion by providing a test for the 'immigrant optimism' hypothesis. This hypothesis states that migrants represent a selective population with regards to ambition and drive for upward social mobility. As such, migrants have, on average, higher aspirations and more motivation to attain higher educational qualifications (Heath, 2007: 438; Kristen, 2010: 339). We were able to test whether effects vary between different migrant groups. We examined more highly skilled European migrants that speak one of the official Swiss languages (Germany, Austria, Belgium, France, Italy), less skilled migrants that largely migrated as 'guest-workers' as well as recent low-skilled migrants (Spain, Portugal) and migrants from non-EU countries that are often in the focus of public discourse due to their relatively low socio-economic status (SES) and low achievement (Balkan countries, Turkey). We expect 'ethnic choice effects' to vary by the social status of the ethnic group. Aspirations for upward mobility (termed 'immigrant optimism') is often seen as the main driver of 'ethnic choice effects'. We argue that- among other reasons - mobility considerations should be relatively more important for groups that have more to gain – hence, groups with lower socio-economic status, from poorer countries and low structural integration in the host society.

Insights into educational choices at the transition into upper secondary education in Switzerland can inform policy-making to reduce inequality in education (Heath, 2007: 513; Kilpi-Jakonen, 2011: 426; Heath, 2014: 1706; Jackson, 2007: 445). Understanding whether migrant groups indeed make different choices and, if they do, which factors explain such differences, provides a starting point for designing possible interventions to reduce educational inequality in settings such as Switzerland with strong VET sectors. Our approach broadens the perspective on ethnic inequality at this stage which has previously often focused on disadvantages regarding access to vocational training and potential employer discrimination. If

migrants are more likely to choose more academic alternatives – given that socio-economic background and school performance is accounted for – migrants that apply to vocational training could be negatively selected with regards to unobserved ability, motivation and ambition. It remains unclear whether the strong strive for pathways leading to university education over vocational alternatives is an effective strategy for migrant students or whether migrants 'miss out' on advantages of the VET sector in countries where they offer viable returns.

3.3 The Swiss Context

The Swiss education system

In Switzerland, compulsory education ends after nine school years. Almost all students continue their education at the upper secondary level. Follow-up options after grade nine can be broadly distinguished as 'academic education programs'[13] (leading towards tertiary education) and 'vocational education and training (VET)' (leading to employment) (SKBF, 2010: 2079; Hupka-Brunner, 2010: 1196).

'General education programs' include academic Matura schools leading to a general, academic-track education for university entrance, teacher colleges and specialized middle schools on upper secondary level. Matura schools are regulated by cantonal law and provide access to universities. Specialized middle schools (SMS) prepare for tertiary education at universities of applied sciences in areas such as health or information technology. General education programs are academically more demanding and prepare students for university.[14]

VET programs include both apprenticeships and exclusively school-based VET programs. Exclusively school-based vocational training programs are limited to a small number of professions and more common in the French and Italian speaking

[13] In the Swiss context, academic-track options at the upper secondary level are often referred to as ‚general' education. To facilitate the difference to ‚vocational tracks', we use ‚academic' throughout this paper.

[14] For a graphical description see http://www.edudoc.ch/static/web/bildungssystem/grafik_bildung_e.pdf (09.05.2016).

regions of Switzerland (OPET, 2008: 1879). The vast majority of VET opportunities are apprenticeships. Apprentices are formally hired and trained by a company. They spend 1-2 days a week at school and earn a modest wage. Apprenticeships are offered in more than 250 occupations of widely varying academic demands. Some programs can thus integrate both academically low- and high-achieving young people (Hupka-Brunner, 2010: 1196).

A certain share of young adults faces difficulties in accessing general or vocational opportunities in upper-secondary education: Those students are either in some form of interim solution such as internships, pre-vocational programs, one additional school year, language courses or have completely dropped out of the education system (Keller, 2010: 1923; Scharenberg, 2014: 1786). Most alternatives in these groups will eventually lead towards VET.[15] 'Interim solutions' are generally seen as unfavorable because entry into the VET market is delayed and the various programs are, in the long run, ineffective in compensating for failure to access VET (Sacchi, 2016: 2120).

A successful transition into either academic-track education or vocational training versus doing neither is crucial for long-term employment prospects, further education, and life chances in general (Kalter, 2008: 807; Gangl, 2003: 1916).

[15] In our analysis, we also conducted a number of robustness checks by switching certain alternatives between the three broader categories. The key results remained the same.

Table 3-1: Educational alternatives after leaving compulsory education in Switzerland

Transition to…	General Education *(pathways to tertiary education)*	Vocational Education *(pathways to employment)*	Not in Education or Training/ Interim Solutions
Specialized middle schools (FMS/DMS)	✓		
Teachers college (kindergarten/primary)	✓		
Academic matura school	✓		
Apprenticeship with basic federal certificate of vocational education and training (2 years)(*Berufsattest*)		✓	
Apprenticeship with federal diploma of vocational education and training (*Eidgenössisches Fähigkeitszeugnis*) or equivalent (3 or 4 years)		✓	
Commercial college (WMS)		✓	
Courses to bridge gaps in training/ Additional school year			✓
Pre-vocational programs			✓
Internship			✓
Language stay, Au-Pair			✓
Other education (e.g. language course)			✓
No education or training			✓

Note: This categorization is consistent with the authors of the TREE projects that publish the data used in this study (Keller, 2010: 1923; Scharenberg, 2014: 1786).

Roughly 60% of students that leave compulsory education enter VET (SKBF, 2010: 2079). Roughly 30% go to a Matura school (leading to university). Of those high-achieving students 75% start a university education after completing upper secondary education (SKBF, 2010: 2079).

In Switzerland, VET provides much higher incentives than in any other EU country. If the benefits of VET (income, specific job skills) and the costs of tertiary education (long duration, foregone income, tuition) are taken into account, tertiary education brings only marginally higher returns than vocational programs (Wolter, 1999: 2080; Backes-Gellner, 2010: 2082). In addition, drop out from academic tracks are higher among migrants compared to natives in Switzerland

(OECD, 2012: 2103). In this context, VET represents a viable alternative at the upper secondary level, in particular for low- and medium- achieving students – among whom migrant students are relatively overrepresented.

Migrant population

Among European countries, Switzerland has one of the highest population share of foreigners in the OECD (OECD, 2004: 2093). The share of the population with a migrant background reached around 20% in 1990 where it remained until 2000 (the year of our study). The migrant population in Switzerland has three dominant characteristics: 'Guest worker' programs, asylum seekers and highly-skilled EU migration. Guest workers from Yugoslavia, Turkey and Portugal as well as Balkan asylum seekers were traditionally relatively low-skilled. In more recent decades, Switzerland received many – often highly skilled – migrants from surrounding EU countries, such as Austria, France, Italy and especially Germany due to residence and visa facilitations with the European Union.[16]

3.4 Theory and Current State of Research

'Ethnic choice effects'

In his seminal contribution, Boudon (, 1974: 476) proposed that educational inequality can be understood as the result of two distinct analytical categories: primary and secondary effects. Primary effects subsume factors related to the academic performance of students. In contrast, secondary effects include factors related to educational choices at given levels of academic performance. At various stages in the educational career (e.g. early childhood education; lower secondary school in Germany; upper secondary school, tertiary education), choices open up. These choices can vary between individuals with similar levels of academic performance. Based on (sociological) rational choice theories, educational choices are a function of costs, benefits, and anticipated probability of success associated with certain educational options (Breen, 1997: 463; Erikson, 1996: 464). Social or

[16] Due to space constraints, more information can be found here: http://www.bfs.admin.ch/bfs/portal/de/index/themen/01/22/publ/ausl/presentation.html

ethnic inequality, thus, may be explained by group-specific variation in those parameters. By extension, this approach has been applied to the study of *ethnic* inequality in education (Heath, 2007: 438; Jackson, 2012: 1144; Kristen, 2010: 339). 'Ethnic choice effects' can be defined as differences in educational transition probabilities between migrant groups and natives given that differences in school performance and social background have been accounted for in the estimation models.

'Ethnic choice effects' have been found in a number of countries with comprehensive educational systems, such as the UK (Jackson, 2012: 1145), Sweden (Jonsson, 2011: 425), Finland (Kilpi-Jakonen, 2011: 426) and France (Brinbaum, 2007: 439), the US (Waters, 2013: 1710) as well as moderate and strongly tracked systems such as the Netherlands (Van de Werfhorst, 2007: 1178), Switzerland (Griga, 2014: 1717) and Germany (Kristen, 2008: 387; Kristen, 2010: 339). However, there is still a lack of evidence regarding the transition into upper secondary education in education systems that offer strong vocational alternatives, such as Switzerland.

The transition into upper secondary education in Switzerland

In countries with strong sectors of vocational education, such as Germany, Austria, Switzerland and Norway, a mostly separate body of research emerged. While the key outcomes were similar (transition into post-compulsory education), models and terminology differed substantially. Transitions into upper secondary education were not modelled as 'choices' per se. The main focus was on barriers to accessing VET for different groups (Helland, 2006: 508; Hupka-Brunner, 2010: 1196; Hupka-Brunner, 2011: 1195; Imdorf, 2006: 2083; Diehl, 2009: 236). Similar to studies in Germany, evidence in Switzerland suggested that migrants were disadvantaged with regard to access to VET education (Hupka-Brunner, 2010: 1196; Sacchi, 2011: 2060; Scharenberg, 2014: 1786; Hupka-Brunner, 2011: 1195; Laganà, 2014: 604). Persistent ethnic disadvantages regarding access to VET in Germany and Switzerland led many scholars to argue that ethnic discrimination may partly explain such disadvantages (Diehl, 2009: 236; Haeberlin, 2005: 407; Hunkler, 2010: 238; Imdorf, 2011: 293). Studies on access to VET often limited their target population to students with an explicit preference VET or students at school types

that lead exclusively to VET.[17] In contrast, studies interested in ethnic choices look at *all* students that face a certain transition, across different school types and achievement levels, and produced estimates conditional on a wide range of background characteristics.

Immigrant Optimism

While there has been ample speculation about the reasons behind 'ethnic choice effects', we identified a clear lack of empirical tests. As the key mechanism of 'ethnic choice effects', 'immigrant optimism' has received most attention. The hypothesis states that immigrant families are a selective population with on average higher levels of ambition, drive and optimism compared to the general population in their countries of origin (Kao, 1995: 489; Heath, 2007: 438). A positive selection of immigrant parents and the perception of education as a possible channel to upward mobility may lead second-generation ethnic minority students to have higher educational aspirations (Jonsson, 2011: 425; Teney, 2013: 423) that lead to more ambitious choices. Migrant children may feel a sense of duty to succeed in the host country to honor their parents' sacrifices associated with starting a new life in a foreign country (Suárez-Orozco et al. 2009: 2095; Fuligni, 2002: 1654; Dreby, 2010: 1655). This applies particularly to migrants from low-income countries with lower educational opportunities.

The 'immigrant optimism' narrative has been supported by qualitative studies in the UK, the US and Germany (Louie, 2001: 419; Shah, 2010: 1397; Suárez-Orozco et al., 2009: 2095; Dreby, 2010: 1655; Relikowski, 2012: 384). There remains a lack of quantitative empirical tests of the hypothesis. Few studies have provided tacit support for the claim that immigrant optimism explains 'ethnic choice effects' at other stages in the education system (Kristen, 2010: 339; Relikowski, 2012: 384). In most designs, 'immigrant optimism' is measured by students' educational or occupational aspirations based on the beliefs that education is seen as a means for achieving high occupational status and social mobility (Lessard-Phillips, 2014:

[17] Note that restricting samples conditional on VET preferences could bias effects of migrant groups since migrant groups in other countries have been showed to avoid vocational tracks (Kilpi-Jakonen 2011). As a result, disadvantages regarding access to VET could – at least partly – be inflated as a result of negative selection.

2088). Aspirations are commonly operationalized through survey questions asking about the highest educational degree or occupation that the respondent wishes to attain in the mid-term future. Aspirations capture the aspect of goals and wishes which are key to the idea of motivation, drive and optimism.

Hypotheses

We set up two competing predictions for potential 'ethnic choice effects' in Switzerland at this stage:

H1: Smaller or Zero 'ethnic choice effects'

As described in previous sections, the Swiss context with competitive returns to VET alternatives at the upper secondary level could provide strong mid-term incentives especially for migrants. Some migrant groups are overrepresented in families with, on average, lower socio-economic status, higher unemployment and less financial resources available. As such, the benefits of an income during VET, job stability, smooth transition to the labor market and viable income prospects could be attractive for migrant students in particular. As VET is more favorable in Switzerland compared to other European countries, it is reasonable to expect smaller 'ethnic choice effects' because migrants may more readily consider VET to pursue upward social mobility than in other countries.

H2: Persistent 'ethnic choice effects'

As a counter-hypothesis, we would expect to find 'ethnic choice effects' at the transition into upper secondary education in Switzerland based on the 'immigrant optimism' argument. Migrant students may on average favor educational pathways leading to university education as university education is perceived as the hallmark of educational success and future occupational status and prestige. This may apply in particular to families with low socio-economic background from less developed countries without strong traditions of vocational education. The emphasis on upward social mobility should be larger in families that migrated for this specific purpose, in particular guest worker migrants and asylum seekers, from lower socio-economic backgrounds. Less educated migrants from poorer countries may see their country of origin as the main reason for their relatively

low status. Migration lifts this barrier and, as result, migrants from poorer countries have higher aspirations because they perceive upward mobility as more realistic in the receiving country. As a result, the pressure to move upwards for migrant children and also the relative benefit of university education should be relatively higher in migrant families with low socio-economic status from, on average, poorer countries. In other words, 'immigrant optimism' should be highest for those migrant families who have most to gain from migration.

H2.1: Group-specific predictions

We distinguish four different migrant groups in our data. First, the first group consists of Germany, Austria, France, Italy and Belgium. These are neighboring EU countries (except Belgium) that are highly developed countries with high cultural proximity to Switzerland. In addition, migrants from these groups show relatively high structural integration in Switzerland (education and labor market) and have higher socio-economic backgrounds. The second group consists of Spain and Portugal – EU countries with lower cultural proximity (language). Portuguese and Spanish migrants have lower levels of structural integration in Swiss society. In particular, labor migrants from Portugal play a salient role in public discourse due to their low education and poor labor market outcomes (Meyer, 2003: 1789; Seibert, 2009: 262; Swiss Federal Statistical Office, 2003: 1721; Meyer, 2003: 1789; Seibert, 2009: 262; Swiss Federal Statistical Office, 2003: 1721). The third group consists of Albania, Kosovo, Ex-Yugoslav countries and Turkey. These countries have the lowest structural integration and the lowest cultural proximity to Switzerland. Balkan migrants often came as vulnerable asylum seekers, and Turkish migrants came in the context of low-skilled guest-worker generations. This group is commonly at the center of public discourse, policy and research due to its disadvantaged position in the labor market and education (Griga, 2014: 1717; Hupka-Brunner, 2011: 1195; Meyer, 2003: 1789; Seibert, 2009: 262; Swiss Federal Statistical Office, 2003: 1721).

If evidence of 'ethnic choice effects' in Switzerland is confirmed, we expect the effects to be higher for group 2 (Portugal/ Spain) and 3 (Balkan, Turkey). The relative 'ethnic choice effect' in favor of pathways to tertiary education are assumed to be greatest for groups with low socio-economic backgrounds and

current low position in Swiss society (Group 2 and Group 3) because those groups migrated to move upward in society. Arguably, university education signals the highest perceived social mobility for families from countries where VET alternatives are not an option. We expect very little differences between Swiss natives and group 1 (Germany, Austria, France, Italy, Belgium) because the socio-economic status of these groups are comparable to the Swiss population.

3.5 Data and Methods

Data

We used data from the 'Transitions from Education to Employment (TREE)' survey. The initial sample of this longitudinal survey included 6,343 individuals who participated in the 'Program for International Student Assessment' (PISA) survey in the year 2000. Respondents were re-interviewed annually from 2001 to 2007, an eighth panel wave was conducted in 2010, a ninth one in 2014 (TREE, 2013: 1924). Our sample was limited to those individuals who participated in the base survey (PISA 2000) and in the first TREE follow-up panel wave (2001). Our final sample comprised 5,528 individuals, 35% of which had some sort of migrant background, i.e. having at least one parent born outside in Switzerland.

As common in longitudinal studies, panel attrition was of concern, in particular for migrants who generally have higher drop-out rates. We used the specific longitudinal weights provided with the TREE data (Sacchi, 2013: 1925) to account for panel attribution. In addition, we conducted robustness checks using separate design weights.

We applied multiple imputation using chained equations including all model variables, cluster variables and weights (m=10) (Van Buuren, 2012: 546). Missing values did not exceed 5% for each variable with the exception of socio-economic background (7.8%). 12.8% of respondents were missing for the dependent variable of transition into upper secondary education due to panel attrition.

Measurements

The operationalization of variables in the main analysis model can be seen in Table 3-4 in the appendix in Section 3.8. The dependent variable was defined as the educational status in the first year after the end of compulsory school (which is grade 9 in Switzerland) measured in the TREE follow-up panel wave in 2001. Regarding the transition status one year after leaving compulsory education, we distinguished between Vocational Education and Training (VET leading to employment), general education (general, academic track leading to tertiary education) and 'Not in Education/ Interim Solutions' (unfavorable transition state). This categorization followed the recommendation of the TREE authors (Scharenberg, 2014: 1786; Meyer, 2005: 2097; Keller, 2010: 1923) and was consistent with operationalizations in ethnic choice studies used in other countries. Table 3-1 in Section 3.3 describes all possible alternatives in greater detail.[18]

Our key independent variable were the most relevant ethnic groups in Switzerland as assessed in the PISA 2000 baseline survey: Neighboring EU countries (Germany, Austria, Belgium, and France, Italy); Southern EU countries (Spain and Portugal); and Non-EU countries (the Balkans and Turkey). In Section 3.4, we elaborated the reasons for this categorization and group-specific predictions. Generally, a migrant was defined as a person who was born to at least one foreign parent, meaning a parent that was not born in Switzerland. To account for biases resulting from the amount of time spent in Switzerland, we controlled for generational status. In the context of Switzerland, this categorization of different ethnic groups is commonly applied (Seibert, 2009: 262; Griga, 2014: 1717).

To assess occupational aspirations, students participating in the PISA 2000 baseline survey were asked what kind of job they expected to have when they were about 30 years old. Open answers stating the exact job title were recoded into the International Socio-Economic Index of Occupational Status (ISEI`; \Ganzeboom, 1992: 590). Educational and occupational aspirations are commonly used to measure 'immigrant optimism' (Kristen, 2010: 339; Kao, 1998: 1238; Kao, 1995: 489; Relikowski, 2012: 1176). In this sense, relative differences in the desired

[18] To assess the sensitivity of this categorization, we shifted minor options between the three groups. The results do not change when we allocate 'pre-vocational' alternatives to VET or when we allocate school-based VET to academic education.

future occupational status and the actual achieved status capture the sense of strive for upward social mobility that is inherent to the 'immigrant optimism' concept.[19]

Further control variables, as measured in the PISA 2000 baseline survey, are introduced to the model to account for variation demographic characteristics and institutional structure (see Table 3-4 in the appendix for a full list). Inherent to the concept of 'ethnic choice effects', we controlled parental socio-economic status and students' school performance measured by grades and reading competence. Table 3-5 and Table 3-6 in the appendix for this Chapter (Section 3.8) provide descriptive statistics of all control variables disaggregated by migrant group and by the dependent variable.

Analytical Strategy

As a first step, we conducted a bivariate analysis of transition rates to compare the participation in Vocational Education and Training (VET), General Education (GE) or 'Not in Education / Interim Solutions'. As a second step, we applied a set of logistic regressions to predict the probability of entering either option controlling for individual student characteristics (age, gender, highest parental socio-economic status), educational characteristics (school grades, reading performance, school type) and socio-geographical characteristics (language region). The set of logistic regression method allowed us to interpret effects relative to a broad reference category that included all alternative transition options.[20] We defined residual migrant group effects as the 'ethnic choice effect'.

As a third step, we performed a mediation analysis using a recent method for comparing coefficients in non-linear nested models called the KHB method

[19] We used an alternative measure for optimisms (plans for the next year) in order to test the sensitivity of our results. The findings remain unchanged.

[20] We previously used multinomial logistic regression. However, from a theoretical standpoint we opted for a set of logistic regression to assure that the reference categories incorporate all alternative transition options. In the multinomial framework, transition probabilities into VET, for example, are interpreted in relation to a different category, for example, Academic Education. However, since migrants more often participate 'interim solution' if no background characteristics are controlled, the predicted probabilities for Academic Education could be misleading if 'interim solutions' were excluded from the reference category. However, results based on multinomial logistic regression yielded very similar results.

(Karlson, 2012: 553).[21] This method allowed us to test to what degree 'ethnic choice effects' were mediated by measures of 'immigrant optimism'. For ease of interpretation, all coefficients resulting from multivariate analyses are reported in average marginal effects (AMEs; i.e. the marginal change in the predicted probability of the transition occurring given that all covariates are held constant at their observed values).

3.6 Results

One year after finishing compulsory school, ethnic minority groups in Switzerland differed with regard to their participation rates in upper secondary school. Our bivariate analysis (not shown here) confirmed the established pattern: If raw transition rates were presented without adjusting for student background characteristics, all migrant groups had lower participation rates in VET and general education compared to Swiss natives. In contrast, migrant groups, in particular migrants from the Balkans and Turkey, had higher participation rates in 'not in education/ interim solutions'.

When adjusting for school performance, social background and additional regional and socio-demographic background variables, the results changed markedly (see Table 3-2).

Regarding the transition probabilities into VET, we observe the common phenomenon established by previous research: Migrants had, on average, lower probabilities to transition into VET given similar levels of school performance, social background, gender, age, language or geographical region and school type. This finding supports the counter-hypothesis H2 (see section 3.4).

We found the largest differences between Balkans/ Turkey and Swiss natives (18 percentage points), whereas all other migrant groups had significantly higher probabilities to transition into general academic track compared to Swiss natives. Again, the differences were most pronounced for Balkans and Turks (see Table

[21] See more information in the KHB-method in the supplementary material.

3.2). Interestingly, we found no substantial differences with regard to 'not in education/ interim solution' contrary to what raw transition rates suggested.

Table 3-2: Adjusted predicted probabilities of transition into different alternatives one year after leaving compulsory education in Switzerland for different migrant groups (in %)

Migrant Background	AME[1]	SE	95% CI[2]	
VET (vs. Academic Education/ IS)				
Switzerland (N=3,520)	0.53	0.02	0.490	0.563
EU neighbors (N=842)	0.47	0.04	0.400	0.547
Spain/ Portugal (N=330)	**0.40**	0.05	0.310	0.489
Balkan/ Turkey (N=398)	**0.35**	0.04	0.274	0.424
Other (N=438)	**0.40**	0.05	0.300	0.492
Academic Education (vs. VET/IS)				
Switzerland (N=3,520)	0.25	0.01	0.218	0.273
EU neighbors (N=842)	0.29	0.03	0.232	0.338
Spain/ Portugal (N=330)	**0.35**	0.03	0.285	0.418
Balkan/ Turkey (N=398)	**0.37**	0.03	0.312	0.437
Other (N=438)	**0.32**	0.04	0.249	0.388
Interim Solutions (vs. Academic Education/ VET)				
Switzerland (N=3,520)	0.24	0.02	0.211	0.275
EU neighbors (N=842)	0.23	0.03	0.177	0.288
Spain/ Portugal (N=330)	0.27	0.04	0.195	0.344
Balkan/ Turkey (N=398)	0.25	0.03	0.195	0.313
Other (N=438)	0.26	0.03	0.199	0.329

Note: N= 5,528, weighed estimates. Adjusted for age, gender, school type, language region, school grades, reading performance, highest parental socio-economic status, mixed parental origin and migrant generation. Bold numbers indicate that the coefficients are (statistically) significantly different from the 'Switzerland' group. Robust standard errors on school level. Panel weights apply (Sacchi, 2013).

[1]AME: Average Marginal Effects, the average predicted probability of the event (transition) occurring given that all covariates (see note above) are held at their observed values.

[2]CI: confidence interval, upper and lower bound

In the next step, we further examined ethnic differences in transition probabilities into general, academic education in Switzerland by testing whether 'immigrant

optimism' – measured by occupational aspirations – could explain the 'ethnic choice effect'.

The reduced model in Table 3-3 represents the Average Marginal Effect of 'choosing' academic education over other options for each migrant group relative to Swiss natives. The full model represents how the effect changed after adding occupational aspirations to the model (mediation). Adding aspirations to the model significantly improved the model fit (Likelihood ratio test: $p < 0.001$).

Migrants from Spain/Portugal were 10 percentage points more likely to choose academic education than Swiss natives. 'Immigrant Optimism' accounted for roughly 18% of this 'ethnic choice effect'. As mentioned above, baseline differences were especially pronounced for migrants from Balkan/ Turkey (13 percentage points); 23% were explained by immigrant optimism. The immigrant optimism hypothesis proved to be even more powerful for the catch-all group of 'other' migrants – explaining almost half of the 'ethnic choice effect' at baseline.

Although the effects were mitigated to some extent, differences remained significant for Balkan/ Turkey and Spain/ Portugal. This suggests that other explanations are needed to fully explain ethnic differences at this stage.

As expected, we found no 'ethnic choice effect' for migrants from 'EU neighbors'. Differences in transition probabilities into academic education were marginal (3 percentage points compared to Swiss natives) and not significant. For the distribution of model variables and a full list of coefficients in the full model, see Table 3-5, Table 3-6, and Table 3-7 in the supplementary material. In general, these results support hypothesis H2 and H2.1 (see section 3.4).

Table 3-3: Mediation of the migrant background effect on the transition into academic education vs. VET/ Interim solutions, KHB-method (AMEs)

	EU neighbors *AME (SE)*	**Portugal/ Spain** *AME (SE)*	**Balkans, Turkey** *AME (SE)*	**Other** *AME (SE)*
Baseline Ethnic Choice Model	0.036 (0.026)	0.099 ** (0.032)	0.130 *** (0.030)	0.062 * (0.036)
Mediation/ Immigrant Optimism *(+Aspirations)*	0.020 (0.026)	0.081 ** (0.032)	0.100 *** (0.030)	0.034 (0.035)
Difference in AME	0.015	0.018	0.030	0.027
Mediation in %	42%	18%	23%	43%

*Note: N= 5,528; weighted; The baseline 'ethnic choice effect' model included all control variables. Note that coefficients can divert slightly as a result of the KHB method which corrects for scaling effects in nested models (see Karlson, Holm, Breen 2012). The 'Mediation' model estimates the mediation of occupational aspirations on the 'ethnic choice effect'. Significance level: *** p<0.001; ** p<0.05; * p<0.10.*

To test the sensitivity of our findings, we conducted a series of robustness checks including 1) various categorization of migrant groups 2) multinomial logistic regression with separate reference categories for 'not in education/ interim solutions' and VET and 3) previous applications to VET position. The results remain robust against all checks.

3.7 Discussion

Previous research found that migrants and ethnic minorities in many European countries choose general, academic-track education leading to university entrance over vocational alternatives in the upper secondary level when performance and social background are held constant. These studies were based in comprehensive education systems without strong vocational training sectors at the upper secondary level or based on limited target populations or methods failing to adjust for key background variables. To test the validity of the growing evidence in support of 'ethnic choice effects' (Lessard-Phillips, 2014: 2088), we examined whether such effects persist in Switzerland where the educational system offers strong vocational alternatives and viable incentives for direct pathways to employment.

First, the findings confirm persistent 'ethnic choice effects' in the Swiss setting. Most migrant groups – particularly from Turkey, Balkan countries and Portugal - were more likely than their Swiss peers to choose academic-tracks over vocational alternatives given that school performance and social background are controlled. We regarded our test as conservative given strong incentives of vocational tracks in Switzerland and the use of robust measures on school performance and socio-economic background. The results are consistent with our hypotheses stating that 'ethnic choice effects' should apply to groups with lower socio-economic backgrounds and low structural integration. The pressure to attain university education and its perceived benefits are higher for those groups compared to others that have less to gain.

Contribution to research

In sum, our findings make three contributions to the field. *First*, we provide further evidence building the case for 'ethnic choice effects' as a universal phenomenon. Previous evidence was largely based in countries with weak vocational alternatives. However, we showed that migrants favor pathways to tertiary education *even if* incentives for vocational options are comparable to academic alternatives.

Second, the findings suggest that educational decisions in migrant families are not sensitive to economic considerations regarding short- and medium-term economic benefits. This is consistent with the notion that migrant families cultivate specific achievement norms aiming at pursuing the highest perceived social mobility. In fact, we find that 'immigrant optimism' explains 18% of the 'ethnic choice effects' for respondents from Portugal/Spain and 23% for respondents from the Balkan/Turkey. Migrants' high occupational aspirations drive their choice for academic-tracks which is consistent with the interpretation that achievement norms matter more than purely economic considerations.

Despite providing evidence for 'immigrant optimism', our analysis also showed that 'immigrant optimism' is not the full story. Some differences remain unexplained after accounting for 'immigrant optimism'. This highlights the need for further research on the mechanisms behind 'ethnic choice effects'. Several

approaches – such as information deficit or anticipated discrimination – have been discussed in the literature (Heath, 2007: 438) and readily apply to countries with strong vocational training sectors. For example, certain immigrant groups may lack information on the benefits of VET alternatives, particularly when they come from countries where such options do not exist or are less valuable. Due to a lack of social resources, migrants may lack information on how to find a VET position which would increase search costs and increase the relative benefit of striving for general, academic track education. Furthermore, migrants may anticipate discrimination by employers. Firms evaluate the applicants' productivity based on limited information. Facing uncertainty, employers may rely on migrant background as a proxy for on average lower productivity (e.g. statistical discrimination). University education may protect them from discrimination as preferential treatment becomes less likely in labor markets that require university education. More empirical research is needed to disentangle the growing evidence in support of immigrant optimism from alternative explanations.

Third, the Swiss case calls into question the common interpretation of 'ethnic choice effects' as entirely 'positive'. As we have argued, the situation is more complicated in countries with strong VET options such as Switzerland. If migrants are more likely than natives to pursue university, educational attainment gaps should narrow in the long run. However, VET options in Switzerland can provide viable labor market prospects and it remains unclear if the long road to university is always the most effective choice, particularly for migrants with low and medium achievement in lower secondary school. The risk to drop-out from academic tracks in upper secondary education is 25 percentage points higher among migrants from low-SES families compared to their native peers. Furthermore, VET qualifications are increasingly open to upgrading academic qualifications and students can partly qualify for university education after completion of a VET program. Future research should use longitudinal surveys with older cohorts to assess whether migrants benefit from favoring pathways to tertiary education or whether they miss out on benefits of the vocational sector.

Limitations

Our study has some limitations. First, we examined 'ethnic choice effects' at one particular transition in the education system and focused on mechanisms applicable at this stage. Further studies are needed to assess potential long-term effects of such choices among migrant students. Second, in our efforts to unpack mechanisms that explain 'ethnic choice effects', we were only able to focus on the analysis of immigrant optimism. Our dataset did not have the ability to measure other explanations such as information asymmetries or anticipated discrimination. Future research should also explore a wider range of instruments to capture alternative explanations.

Despite these limitations, our study provides evidence that migrants are more likely than natives to choose academic track options at the upper secondary level *even if* VET incentives are comparable to academic-track alternatives – as is the case in Switzerland. This 'ethnic choice effect' is partly explained by migrants' optimism and strive for social upward mobility, adding support to the notion that decision-making in migrant families is less driven by short- and medium term economic incentives and rather by long-term aspirations for university education and high occupational prestige (Griga, 2014: 1717; Kristen, 2008: 387). In countries with strong VET options such as Switzerland, it remains unclear whether the focus on academic tracks pays off economically in the long-run or whether migrants instead 'miss out' on viable VET opportunities, contributing to ethnic inequality in educational attainment.

3.8 Appendix

Table 3-4: Operationalization of variables in main analysis model

Measurement	Item	Coding
Dependent Variable		
Transition into (post-compulsory) upper secondary education	Status one year after finishing compulsory education?	0 = Not in Education/ Interim Solution; Vocational Education and Training (VET) 1 = General Education *(See Table A in the Annex for details)*
Independent variables		
Ethnic group	The origin of at least one parent defined by country of birth.	0 = Switzerland 1 = Neighboring European (Germany, Belgium, Austria, France, Italy) 2 = Southern European (Spain, Portugal) 3 = Non- EU (Balkan and Turkey) 4 = Other
Occupational Aspirations	'What kind of job do you expect to have when you are about 30?'	Coded on ISEI Scale (Ganzeboom et al., 1992)
Control Variables		
Age	Student age	In years
Gender	Student gender	0 = Female 1 = Male
School type	What school type did you attend in grade 9?	0 = basic academic requirements; no (formal) tracking 1 = pre-gymnasial; extended academic requirements
Language region	Language region of the sampled school	0 = German, 1= French, 2 = Italian
Urban vs rural area	Region of sampled school	0 = Rural 1 = Urban
Mixed parental origin	Were both parents born abroad?	0 = both parents born abroad 1 = only one parent born abroad
Generational status	Student birthplace	0 = born in Switzerland 1 = born abroad
Math grade	Grade in math class	0 = at the pass mark 1 = below the pass mark 2 = above the pass mark
Grade in test language	Grade in language test (French, German, Italian) class	0 = at the pass mark 1 = below the pass mark 2 = above the pass mark
PISA reading literacy	PISA reading literacy score	WLE score (M = 515; SD = 87 for students participating in the first TREE panel wave) (Adams et al. 2003)
Social Background	Highest parental socio-economic status	HISEI score (min = 16; max = 90)

Table 3-5: Distribution of model variables by migrant background

	Switzerland			EU neighbors			Spain/ Portugal			Balkan/ Turkey			Others		
	mean	*min*	*max*	*mean*	*min*	*max*	*mean*	*min*	*max*	*mean*	*min*	*max*	*mean*	*min*	*max*
Transition to Academic Education	0.37	0	1	0.42	0	1	0.38	0	1	0.25	0	1	0.54	0	1
Sex (Ref. Female)	0.44	0	1	0.45	0	1	0.43	0	1	0.46	0	1	0.41	0	1
Age (in years)	15.52	14	18.25	15.36	13.75	19	15.5	13.417	18	15.92	14.25	18.167	15.51	14	18.75
German language region	0.57	0	1	0.29	0	1	0.14	0	1	0.53	0	1	0.33	0	1
French language region	0.34	0	1	0.41	0	1	0.77	0	1	0.28	0	1	0.58	0	1
Italian language region	0.09	0	1	0.3	0	1	0.09	0	1	0.19	0	1	0.09	0	1
Basic + no tracking school	0.27	0	1	0.34	0	1	0.38	0	1	0.55	0	1	0.24	0	1
Highest socio-economic status (HISEI)	52.01	16	90	50.52	16	88	41.5	16	88	38.74	16	90	55.85	16	88
PISA Reading literacy score	531.2	125.2	884.5	504.9	81.4	812.9	476.6	230.1	680.7	441.3	27.6	683.6	510.8	187.4	732.7
Urban region	0.59	0	1	0.74	0	1	0.82	0	1	0.75	0	1	0.81	0	1
Mixed background	0	0	0	0.71	0	1	0.32	0	1	0.11	0	1	0.61	0	1
First generation	0.00	0	0	0.13	0	1	0.46	0	1	0.64	0	1	0.33	0	1
Language grade: Above the pass mark	0.78	0	1	0.69	0	1	0.56	0	1	0.6	0	1	0.65	0	1
At the pass mark	0.03	0	1	0.05	0	1	0.06	0	1	0.08	0	1	0.05	0	1
Below the pass mark	0.19	0	1	0.26	0	1	0.38	0	1	0.33	0	1	0.3	0	1
Math grade: Above the pass mark	0.69	0	1	0.57	0	1	0.5	0	1	0.59	0	1	0.58	0	1
At the pass mark	0.09	0	1	0.13	0	1	0.14	0	1	0.13	0	1	0.12	0	1
Below the pass mark	0.22	0	1	0.3	0	1	0.37	0	1	0.28	0	1	0.31	0	1
Occupational Aspirations (ISEI)	50.43	22	90	52.52	19	88	54.01	19	90	47.89	22	88	57.66	22	88
N	3520			842			330			398			438		

Table 3-6: Distribution of model variables by the dependent variable

	Not in Education/ Interim Solution			VET			Academic Education		
	mean	min	max	mean	min	max	mean	min	max
Switzerland	0.59	0	1	0.67	0	1	0.62	0	1
EU neighbors	0.13	0	1	0.15	0	1	0.17	0	1
Spain/ Portugal	0.08	0	1	0.05	0	1	0.06	0	1
Balkan/ Turkey	0.11	0	1	0.08	0	1	0.05	0	1
Other	0.08	0	1	0.05	0	1	0.11	0	1
Sex (Ref. Female)	0.33	0	1	0.57	0	1	0.35	0	1
Age (in years)	15.71	14	18	15.6	14	19	15.34	13	18
German language region	0.62	0	1	0.54	0	1	0.34	0	1
French language region	0.34	0	1	0.32	0	1	0.49	0	1
Italian language region	0.05	0	1	0.13	0	1	0.17	0	1
Basic + no tracking school	0.48	0	1	0.39	0	1	0.11	0	1
Highest socio-economic status (HISEI)	45.11	16	88	46.93	16	90	57.14	16	90
PISA Reading literacy score	474.79	28	813	494.86	81	738	559.34	258	884
Urban region	0.62	0	1	0.59	0	1	0.75	0	1
Mixed background	0.17	0	1	0.15	0	1	0.22	0	1
First generation	0.19	0	1	0.12	0	1	0.11	0	1
Language grade:									
Above the pass mark	0.71	0	1	0.70	0	1	0.78	0	1
At the pass mark	0.05	0	1	0.05	0	1	0.03	0	1
Below the pass mark	0.25	0	1	0.26	0	1	0.19	0	1
Math grade:									
Above the pass mark	0.56	0	1	0.65	0	1	0.68	0	1
At the pass mark	0.14	0	1	0.1	0	1	0.08	0	1
Below the pass mark	0.29	0	1	0.25	0	1	0.24	0	1
Occupational Aspirations (ISEI)	44.72	19	88	45.57	19	90	61.03	22	90
N	1051			2353			2124		

Table 3-7: Full list of coefficients from full model (see Table 3-3)

	VET (vs. all other alternatives)			Academic Education (vs. all other alternatives)			NEET (vs. all other alternatives)		
	AME	*SE*	*p-value*	*AME*	*SE*	*p-value*	*AME*	*SE*	*p-value*
Migrant background (Ref. Switzerland)									
EU neighbors	-0.039	0.047	0.396	0.020	0.027	0.445	-0.004	0.038	0.912
Spain/ Portugal	-0.113	0.053	0.031	0.081	0.032	0.012	0.035	0.044	0.422
Balkan/ Turkey	-0.155	0.046	0.001	0.101	0.031	0.001	0.025	0.036	0.486
Other	-0.107	0.058	0.068	0.035	0.036	0.332	0.034	0.041	0.399
Female	0.237	0.019	0.000	-0.092	0.013	0.000	-0.150	0.016	0.000
age (years)	0.002	0.001	0.170	-0.001	0.001	0.315	-0.001	0.001	0.586
Region (Ref. German)									
French	-0.043	0.033	0.194	0.142	0.026	0.000	-0.075	0.025	0.002
Italian	0.012	0.035	0.721	0.234	0.029	0.000	-0.187	0.023	0.000
School type (low)	-0.013	0.029	0.656	-0.153	0.023	0.000	0.074	0.027	0.006
Socio-Economic Status	-0.002	0.001	0.000	0.004	0.000	0.000	-0.002	0.001	0.001
Reading competence	-0.001	0.000	0.000	0.001	0.000	0.000	-0.001	0.000	0.000
Urban	-0.085	0.028	0.003	0.073	0.027	0.006	0.021	0.022	0.339
Language grade (ref. Below average)									
average	0.018	0.055	0.747	-0.039	0.039	0.313	0.023	0.048	0.629
above average	0.045	0.056	0.428	-0.049	0.037	0.180	0.013	0.049	0.786
Math Grade (ref. Below average)									
average	0.044	0.032	0.166	0.054	0.020	0.007	-0.104	0.030	0.001
above average	0.022	0.036	0.529	0.020	0.019	0.282	-0.044	0.033	0.192
Mixed parental origin	-0.011	0.045	0.799	-0.006	0.025	0.817	0.040	0.037	0.285
First generation	-0.049	0.037	0.192	-0.010	0.022	0.655	0.058	0.032	0.071
Occupational Aspirations	-0.003	0.001	0.000	0.004	0.000	0.000	-0.002	0.001	0.001

Note: N= 5528, AME adjusted for all covariates.

4 Study III: Optimism, Information, or Discrimination? Explaining Ethnic Choice Effects in Germany's Secondary Education System[22]

4.1 Abstract

Conditional on school performance and socio-economic status, the children of immigrants often prefer more ambitious educational options. Previous research has shown that compared to their native counterparts, minority students in several Western countries avoid vocational education and training in favor of general school-based education. We identify the decision to apply for vocational education as a particularly well-suited context for evaluating three key mechanisms: second-generation minority students might (1) exhibit positive selection with respect to optimism and motivation regarding upward mobility; (2) lack relevant information; or (3) try to compensate for anticipated discrimination. We use data from a large panel survey of students at the end of compulsory schooling in Germany. These students face the decision of whether to apply for dual vocational education and training. Using a decomposition method for nested non-linear models, we find substantial 'ethnic choice effects', i.e., second-generation minority students more often avoid vocational education in favor of further school-based education. We further find that these effects are best explained by immigrant optimism. Information and anticipated discrimination play minor roles.

Keywords: vocational education and training, inequality, migration, ethnic minority, discrimination, immigrant optimism

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4.2 Introduction

Many studies have found that class and ethnic-related[23] educational inequality result from two effects: a) differences in academic performance, usually referred to as primary or performance effects, and b) differences in educational choices conditional upon performance, usually referred to as secondary or choice effects (Boudon, 1974; Jonsson & Rudolphi, 2011). These choices are highly consequential for future education and long-term labor market prospects (e.g., Heath, Rothon, & Kilpi, 2008, p. 218). A number of studies have documented substantial differences in the educational choices made by ethnic minority groups and natives. Conditional on performance and social class, ethnic minority students often choose more ambitious academic tracks than their native peers (e.g., for France (Brinbaum & Cebolla-Boado, 2007); England and Wales (Jackson, 2012); Sweden (Jonsson & Rudolphi, 2011); Finland (Kilpi-Jakonen, 2011); Germany (Kristen & Dollmann, 2010; Kristen, Reimer, & Kogan, 2008); the Netherlands (Van de Werfhorst & Van Tubergen, 2007). While the evidence for such 'ethnic choice effects' is growing, less is known about the drivers behind these effects. In our study, we investigate the educational choices of second-generation ethnic minority students in Germany, i.e., students whose families migrated before they entered school or students who were born in the country but have at least one parent born abroad. Germany presents an interesting application due to its sizable share of students with a migration background (e.g., 28.9% of ninth graders have a migration background (Olczyk et al., 2016, p. 47)) and its tracked education system with strong vocational specificity.

[23] We use the term 'ethnic' to refer to groups that are 'defined socially as sharing a common ancestry in which membership is therefore inherited or ascribed whether or not members are currently physically or culturally distinctive' (Bonacich, 2001: 2218). Note that with respect to educational and labor market outcomes, virtually all of the numerous disadvantaged ethnic minority groups in Germany have a recent migration history. We focus on the educational choices of second-generation migrants. In line with the previous literature (e.g., Jackson, 2012, Heath & Brinbaum, 2007), we refer to them as 'second-generation ethnic minority students' or, shortened, 'minority students'.

Three dominant explanations for 'ethnic choice effects', hereafter EC effects, are generally proposed in the literature (Heath & Brinbaum, 2007). The first explanation, *immigrant optimism*, proposes that migrants may be positively selected with regards to ambition, drive, and optimism. Therefore, they may aim higher for their offspring's education. The second explanation, *information deficit*, is that minority students choose to continue education or select academically more prestigious tracks because their families lack relevant information or are less confident about their information; this may lead them to underestimate the potential of alternative options or make it harder to access them. Third, within the blocked opportunities approach, some scholars propose *anticipated discrimination*. Ethnic minorities may opt for the higher option or overinvest in education in order to compensate for (anticipated) discrimination in the labor market. Previous research has found some empirical support for the first two mechanisms, whereas evidence regarding anticipated discrimination is scarce. Moreover, most previous research has not focused on the relative importance of the three mechanisms. Beyond epistemological considerations, estimating the relative relevance and possible joint effects of all three factors is highly relevant because each mechanism implies different policy responses.

This paper responds to these research gaps by conducting a concurrent empirical test of the three hypotheses: immigrant optimism, information deficit, and anticipated discrimination. Our analysis also indicates the relative importance of each mechanism. Beyond providing an inclusive analysis to understand the EC phenomenon, the insights gained from our study can indicate where policy interventions may be most effective in reducing ethnic inequality in education. In particular, we focus on low-performing students in Germany. For those students – among whom minority students are overrepresented – the transition into Germany's dual vocational education and training (VET) system is crucial, because it is the entry ticket to stable employment and often above-average occupational status for this group. Our results demonstrate that minority students favor general school-based education over the vocational education alternatives. Contrary to common hypotheses, migrants do not appear to 'avoid' vocational education because they lack information or because they anticipate discrimination. In contrast, the findings support the immigrant optimism hypothesis. We find that

– ceteris paribus – transmitted family norms in the form of parental expectations play a key role in explaining ethnic choices. Therefore, intervention policies may be best addressed towards parents.

Specifically, we study the educational choices of students at the end of compulsory school in Germany using data from the National Educational Panel Survey, a large-scale panel survey that began with ninth graders in 2010 (Blossfeld, Roßbach, & von Maurice, 2011). At this stage in German education, students are faced with the decision to either continue general education or to pursue dual vocational education and training (hereafter 'dual VET').[24] We argue that this transition is an ideal case for testing the three proposed mechanisms. The three mechanisms discussed in the literature (information, discrimination, and optimism) apply directly to this decision. First, the vocational training sector is information sensitive, as students need to acquire information about training job postings, job requirements, and potential returns. Second, selection into training positions is executed at the discretion of employers, and several scholars suggest that ethnic discrimination is a major reason for the lower access of ethnic minorities to vocational training (Diehl, 2009: 236@48; Helland, 2006: 508@348). The risk of discrimination is a more acute and relevant scenario for minority students at the end of compulsory school compared to more distant, abstract alternatives, e.g., completing academic track education and then entering the labor market. Third, as an expression of 'immigrant optimism', their personal environment (i.e., parents, friends, teachers, etc.) may drive minority students to avoid vocational education in favor of pursuing higher general education that allows access to universities. Most high prestige professions associated with higher incomes (lawyer, medical doctor, etc.) require a university degree. Dual VET, however, also provides access to stable employment and often allows for above-average income and status (Kalter, 2006: 610; Becker, 2011: 268). In addition, there are no formal academic requirements, and the opportunity costs, especially in terms of training length, are much lower compared to university degrees. Hence,

[24] Dual VET refers to the most common vocational training arrangement in Germany. Apprentices receive on-the-job training in companies but are subject to state regulations and must attend part-time school-based training in public so-called 'Berufsschulen', as they hold training contracts with the employer.

it is surprising that among academically low-performing students in particular, second-generation minority students consistently prefer tracks leading to a university degree, although dual VET may be a more viable alternative.

Vocational training is particularly relevant in the German setting. However, specific vocational preparation and differentials in acquiring on-the-job training experience have also been related to race and gender disparities in countries where vocational education is less formalized (Tam, 1997: 2217; e.g. for the United States: \Altonji, 1999: 2216).

We begin by providing some background on Germany's education system and migration history in section 4.3. Section 4.4 and Section 4.5. review the relevant literature on EC effects in Europe and the US. After describing the data and measures in Section 4.6, we apply non-linear nested decomposition models, proposed by Karlson, Holm, and Breen in a series of recent articles (Karlson, 2012: 553; Karlson, 2011: 558), to estimate the magnitude of the EC effects and the relative importance of each of the three mechanisms in Sections 4.7 and 4.8. We conclude with a discussion of results and implications in Section 4.9.

4.3 The German context

At present, Germany is the world's second most important immigration country due to the increasing number of asylum seekers from the Middle East and the Balkan countries (OECD, 2015: 2180). The current ethnic minority population is mostly composed of four groups of post-war immigrants. The 'oldest' group consists of 'labor migrants' from Turkey, Spain, Italy, the former Yugoslavia, and Greece, who were invited to migrate during the 1950s to 1973 to fill shortages in less qualified sectors of the labor market. The labor migrants and their families constitute the largest minority group; due to the initial migration motive, slow social mobility and replenishing marriage migration, this group is still negatively selected in terms of formal education (Olczyk, 2015: 2073). The second largest group is ethnic Germans from Poland, Romania and, since the 1990s, the former Soviet Union (FSU). This group usually obtains German citizenship very quickly

and is not negatively selected in terms of formal education. The most recent immigration wave consisted of labor migrants from eastern European states due to European Union legislation. This group is free to live and work in any European country, but in general, their children are not yet visible in the German education system. Finally, Jewish refugees from the FSU are also less visible due to comparatively small numbers. They are often grouped together with the heterogeneous group of asylum seekers. Official figures show that 20.3% of the German population has a migration background, 13.4% migrated after 1950, and 6.8% are descendants of migrants (Destatis, 2015). Among students at the end of compulsory school (ninth grade), this percentage increases to 28.9% (Olczyk et al., 2016), out of which the majority (78.6%) were born in Germany. The largest ethnic groups originally migrated from Turkey (18.3%), the FSU (16.1%), and Poland (10.7%).

The German educational system can be characterized as highly stratified, with a number of different tracks at various levels of schooling. It also has a strong vocational specificity, with vocationally oriented tracks from the lower secondary level onwards (Allmendinger, 1989). Usually after the fourth grade, students choose between three major secondary school types; their choice is limited in some states by a teacher's track recommendations. The upper level secondary school ('Gymnasium') prepares students for higher tertiary education. The lower ('Hauptschule') and the intermediate ('Realschule') secondary schools traditionally prepare for vocational education, which is dominated by the dual VET system. The official statistics show that the dual VET system absorbs more than 60% of a cohort (Bildungsberichterstattung, 2012: 204).

Over the last decade, some reforms have taken place, e.g., a move to more comprehensive secondary school types and an extension of several transitional programs to prepare students for vocational education. However, the German educational landscape has not lost its basic structure. In most states nine years of general school attendance are obligatory, i.e., for most students ninth grade is the last year of compulsory school. In practice, this applies mostly to students in the lower track ('Hauptschule'), while students at the other school types commonly advance to at least the 10th grade. Students in the lower track face increasing

difficulties entering dual VET (e.g., Kleinert & Jacob, 2012). As a response to growing structural problems and the transition difficulties of low-achieving students, many German Federal States have attempted to facilitate access to intermediate degree qualifications and expanded the abovementioned transitional programs. As a result, students at the final stage of lower secondary education – the target population of this study – are offered several different choices: to continue school, advance to the intermediate degree either at the same school or a different general school, obtain a dual VET contract with a firm or in various school-based programs, or enter the transitional system (Schuchart, 2013). The pivotal choice is between pursuing VET or continuing general education; dropping out is extremely rare due to additional compulsory (vocational) education regulation. While dual VET offers decent labor market prospects and employment security, staying in school carries the potential of upgrading more easily to a university-track education.

The German educational setting at this point constitutes a strategic research site for studying EC effects for two reasons. First, the complexity of options available after the ninth grade is optimal for testing the information deficit mechanism. Second, while access at all stages to other tracks of the German system is formally defined by academic merit, for dual VET, employers are completely free to hire whomever they wish, regardless of formal qualifications (even in the absence of any secondary school degree). This unique mode of access has led to the argument that ethnic discrimination is the major reason that migrants access dual VET at substantially lower rates (Diehl et al., 2009; Scherr et al., 2013). Regardless of actual discrimination, the anticipation of non-meritocratic modes of access would be sufficient to generate EC effects. Hence, this setting is ideal for testing the (anticipated) discrimination mechanism.

4.4 Ethnic Choice Effects

The literature on educational inequality has highlighted two causal pathways linking the social or ethnic background of students to their educational achievements. First, familial activities and resources affect student performance.

Performance, in turn, is a key predictor for educational transitions at crucial branching points. The second pathway is via educational choices. At given levels of performance, members of status-defined or ethnically defined groups have been found to make systematically different decisions. Several models have been proposed that conceptualize educational decisions as a function of the expected costs and benefits of an educational alternative, the benefits often being weighted by the expected probability of succeeding in the chosen track (e.g., Breen & Goldthorpe, 1997; Erikson & Jonsson, 1996). Group differences then largely stem from variations in these parameters.

Traditionally, research has focused on how educational choices (re-)produce social class differentials in educational achievement. Several studies have shown that children from low status families are less likely to continue school and less likely to choose academic branches of study even when performing at the same level as more privileged students (e.g. \Jackson, 2013: 1179). The picture is markedly different for minority students. For instance, in Sweden, even when controlling for school performance and socio-economic status, 'students from most ethnic minority groups exhibit a clearly higher propensity of choosing academic over vocational study programs' (Jonsson, 2011: 425@502).

This ethnic choice pattern is found in several studies covering different countries, immigrant populations, and educational transitions. Previous evidence from France (Brinbaum and Cebolla-Boado, 2007), the Netherlands (van de Werfhorst and van Tubergen, 2007), Sweden (Jonsson and Rudophi, 2011), the UK (Jackson, 2012), and Finland (Kilpi-Jakonen, 2011) found that ethnic minority students are more likely to choose more ambitious options at the upper secondary level. Such ethnic choice patterns have been described as an 'avoidance of vocational schools' (Kilpi-Jakonen, 2011) and a preference for academic routes (Jackson, Jonsson, & Rudolphi, 2012).

Kristen and Dollmann (2010) and Kristen, Reimer, and Kogan (2008) found similar EC effects at both major sorting points in the German education system, i.e., at the transition into lower secondary school tracks and at the transition into higher tertiary education. Several other studies documented a similar pattern with regard to educational choices at different stages for Germany (B. Becker & Gresch, 2015).

Despite the accumulating evidence for strong EC effects in several countries and at multiple stages, we found fewer attempts to explain these differences. Hypotheses have been proposed in the literature: immigrant optimism, information deficits, and anticipated discrimination. However, the available research is characterized by strong heterogeneity in the definition and operationalization of the dependent variable. Educational choices are usually measured as actual transitions. The outlined mechanisms are also commonly applied to the related concept of educational aspirations (i.e., what students wish to achieve regardless of constraints) and expectations (i.e., what students expect to achieve given constraints). In particular, educational expectations, and – to a degree – aspirations, have been highlighted as strong predictors of eventual educational choices (e.g., Cheng & Starks, 2002; Glick & White, 2004; Kristen & Dollmann 2010). Therefore, the following review includes relevant studies on migrants' educational expectations and aspirations in addition to research on actual transitions.

Immigrant optimism

The general idea behind immigrant optimism is that immigrants are a positively selected group with regard to character traits such as ambition, optimism, and motivation. The motivation to migrate is associated with low risk aversion and high motivation for upward social mobility through educational success (Heath & Brinbaum, 2007; Kao & Tienda, 1995). The positive selection of immigrant parents and the perception of education as a possible ticket to upward mobility may lead second-generation ethnic minority students to have higher educational aspirations that then lead to more ambitious choices (Jonsson & Rudolphi, 2011, p. 488; Teney, Devleeshouwer, & Hanquinet, 2013). Attitudes such as educational aspirations are commonly transmitted from parents to their (second-generation) children (Phalet & Lens, 1998). Given the setting of our study, it is also reasonable to assume that parents are directly involved in their 14- to 16-year-old children's educational decisions (Hunkler, 2014, p. 35). Strong ties among minority families might further increase the transmission of high aspirations, especially when the parents' own upward mobility has been slow. This may especially apply to students of Turkish origin because in comparison to other minority groups, their families' networks are

more often 'ethnic' (Haug, 2003: 615; Kalter, 2006: 610), more family centered and local (Janßen, 2006: 620).

A similar argument is made with respect to the educational level. Ichou (2014) and Feliciano (2005) showed that migrants may also represent a (positively or negatively) selected group when it comes to their educational attainment. If migrants are representative of the highly educated population in their *origin* countries, regardless of their relative formal educational attainment (i.e., compared to the destination country), then this could be an alternative explanation for why they have higher aspirations for their children. We do not think that this is the case for the majority of minority students according to our German data. Large numbers are descendants of predominantly low-skilled guest workers (Olczyk et al., p. 36f. and p. 62). Dronkers et al. (, 2010: 1705) provide an empirical indication that Turks are particularly negatively selected with regard to their educational attainment. More generally, despite its similarity, the 'immigrant optimism' hypothesis differs from the selective migration argument. The former refers to a selection on *character traits* such as optimism and motivation, whereas the latter refers to educational attainment. Optimism and motivation could be present independent of the level of educational attainment. In theory, less educated migrants, such as the Turks, could have even higher aspirations for their children than those who are highly educated because they might attribute their status to structural barriers in their country of origin rather than to their ability. Separating these two possibly divergent selections highlights the empirical challenges of properly measuring immigrant optimism.

Several studies using educational aspirations and expectations as a measure for immigrant optimism and striving for upward social mobility have confirmed a direct effect of 'optimism' on ethnic differentials in educational choices for the German context (Kristen and Dollmann 2010, Kristen et al. 2008, Relikowski et al. 2012, p. 112 and Salikutluk 2016). Xie and Goyette (, 2003: 1843) show similar results for the US with respect to the higher college enrollment rates of Asian students. Furthermore, there is support for the optimism mechanism based on qualitative research. Most interviewed minority students in the United Kingdom, Germany, and the United States describe the strong influence of parental

expectations on their educational achievement and expectations (Louie, 2001: 419; Kasinitz, 2008: 1716; Portes, 2001: 1600; Shah, 2010: 1397; Suárez-Orozco et al., 2008: 2095). High educational achievement is seen as a way to vindicate parents' struggle in migrating and adapting to the receiving society.

Information deficit

Kao and Tienda (1998) have postulated that second-generation minority students may lack information and specific knowledge about the host country's educational system because their parents have less experience with it (Rosenbaum, 2008: 1849`, also espoused a similar theory@353). This applies to knowledge regarding the school system, but can also apply to information related to the average returns of different degrees or track types. Such information deficits can have different consequences for EC effects with regard to the dual VET:

(1) While in most countries, a degree in medicine or law requires a higher tertiary degree and the returns to such degrees are usually high, migrant families from countries without a vocational training system may not consider vocational degrees to be viable alternatives. Traditionally, it is argued that missing information about the potential returns to a certain educational degree leads to lower educational aspirations, as students may be unaware of the relative gains of higher education. The argument here works in the opposite direction for minority families, especially at this particular stage in the educational career. A lack of information about access and returns to vocational training could, instead, boost higher academic track aspirations because dual VET is disregarded or appears less attractive. Recent developments in the field of educational decision-making have extended this argument regarding the simple lack of information or the presence of biased information. Building on Bayesian tradition, Morgan (, 2005: 1599@164) stresses that information is considered less plausible if it is extreme compared to both prior beliefs and new information. Moreover, he argues, convincingly, that uncertainty in beliefs (e.g., on the returns to degrees) may play an independent

role. Other extensions concern students' risk aversion and time discounting preferences in educational decision-making (Breen, 2014: 1582).

(2) Additionally, due to missing or biased information about vocational education, minority families may be unaware of the full range of options available to them. Even if they do have knowledge about the spectrum of opportunities, they may lack knowledge, information and contacts for acquiring a VET placement. If entering vocational training appears more difficult to achieve, they may be more likely to strive for academic education.

(3) A third information problem that minority families face might be the accurate assessment of school performance. They might overestimate their school performance because they attribute poor results to transitory problems, e.g., language barriers and unfamiliarity with the host country's educational system.

A lack of information in these domains may contribute to second-generation students favoring academic tracks, i.e., contribute to the explanation of positive EC effects. Moreover, families are likely to obtain information and advice from their network of relatives, friends and neighbors. These networks often consist of individuals who have the same ethnic origin. Therefore, the risk of exchanging incomplete or misleading information is high. Thus, ethnic networks might not be helpful for finding opportunities such as firms offering interesting dual VET positions.

Dual VET is available in Poland, but it is hardly known in other origin countries, especially Turkey (OECD, 2015: 2180). We therefore expect weaker EC effects for Polish immigrants and, in particular, no contribution from the information mechanism for this group. For Turkish families, due to their more segregated living situation and ethnically more homogenous networks, information deficits may contribute to stronger EC effects.

We are aware of two papers that studied the effect of information resources in Germany and showed mixed results. Relikowski, Yilmaz and Blossfeld (2012, p. 113) found that migrant parents have less knowledge about Germany's education system. Furthermore, they found evidence that Turkish parents systematically overestimate their children's academic abilities. However, neither the lack of

information nor the overestimation of school performance appeared to explain migrant parents' high aspirations. Similarly, Salikutluk (2016) used two questions testing knowledge of the educational system administered to students attending grade nine or ten. Her findings do not support the claim that information deficits help explain minority students' higher educational expectations regarding upper secondary education.

Anticipated Discrimination

Anticipated discrimination has been frequently highlighted in the literature as an explanation for higher aspirations (Heath & Brinbaum, 2007). The basic argument is that minority students anticipate ethnic discrimination in the labor market, though this perception supposedly varies depending on the visibility of their ethnic heritage or on structural disadvantages. As a result, they tend to overinvest in higher education to gain a head start and compensate for the anticipated disadvantage. Following this argument, minorities face (or perceive) lower opportunity costs associated with continuing higher education (Heath, Rothon, & Kilpi, 2008). Hence, their pursuit of higher general education might be considered a defensive strategy. A related argument is that the labor market may be perceived as being more meritocratic at higher qualification levels, 'in which case it makes more sense to continue in school and to choose an academic rather than a vocational alternative' (Jonsson & Rudolphi, 2011).

This argument applies particularly well to the setting of our study: the access to dual VET in Germany. Here, the allocation of school graduates to apprenticeship positions follows the same market-based hiring logic as in regular labor markets, but for several reasons, discrimination might be especially prevalent. Generally, discrimination is most feasible in the hiring process (Petersen, 2004: 1466): candidates may not even know that they have been discriminated against, as they have no information on the competing candidates. More specifically, in dual VET markets, employers have access to few indicators of potential productivity when evaluating candidates. Therefore, employers may be more prone to use other characteristics such as ethnic background instead of purely meritocratic ones (Müller & Gangl, 2003). Additionally, the apprentices' contribution to the firm's profits will be low over the training period, and not all apprentices will obtain a

regular contract after the VET. These conditions make the hiring for dual VET a setting where discrimination against minorities might be expected because market competition does not drive out discriminatory employers (see also Diehl et al., 2009). Moreover, some experimental studies suggest that ethnic discrimination occurs more often for manual work opportunities (Carlsson, 2012: 1679; Pager, 2007: 1665; Schneider, 2014: 829). This may introduce an extra penalty for minorities on dual VET that predominantly train for crafts and industry occupations. In addition, the majority of dual VET training is offered by small- and medium-sized companies, which usually lack standardized or formalized recruiting processes and hence may be more prone to discriminatory hiring. This explanation corresponds to field experiments finding lower call-back rates for migrant applicants at smaller firms (e.g., Schneider et al., 2014). Note that the argument of *anticipated* discrimination works even for ethnic groups who face little or no discrimination. A perception of discrimination alone could result in the proposed effect. The perception could be driven by the disadvantaged labor market positions of their parents' generation.

For the German case, several scholars suggest that second-generation Turkish students face a higher risk of experiencing discrimination (e.g., Blohm et al. 2008). Therefore, it is likely that the effects of (anticipated) discrimination have a stronger influence for this group. A Belgian study directly tested the anticipated discrimination hypothesis using a mixed methods approach. Teney and colleagues (2013, p. 595) found no effect in either their quantitative or their qualitative analysis.

4.5 Complementary Effects

The three explanations for EC effects – immigrant optimism, information deficit and anticipated discrimination – could also be regarded as complementary rather than competing hypotheses. Migrants who are optimistic about pursuing university education may be less inclined to gather relevant information about dual VET, which could potentially influence their disposition. In addition, optimistic educational aims and anticipated discrimination could reinforce each

other. Another possibility is that ethnic minority students' optimism regarding their educational plans could be partly driven by their anticipation of discrimination in the VET market. However, while the potential interplay in the formation of the three mechanisms poses new and interesting research questions, the available data restrict us to study their relevance for ethnic educational choice effects only at the end of compulsory secondary education.

4.6 Data and methods

Data

Our study is based on a sample of German ninth grade students who have been surveyed by the National Educational Panel Study (NEPS) since 2010.[25] The survey focuses on the acquisition of education and its consequences for individual life courses in Germany (Blossfeld et al., 2011). The NEPS Starting Cohort 4 is based on a random sample of ninth graders in regular schools, stratified by school type. Within the sampled schools, all students of two randomly selected classes were invited to participate.[26] In addition, NEPS also collects information from teachers, parents, and principals. The information used in this study is almost exclusively based on students' responses.[27] We estimate our models based on cross-sectional data combining information from the first data collections in the fall of 2010 and spring of 2011.

Sample

[25] This paper uses data from the National Educational Panel Study (NEPS): Starting Cohort 4–Grade 9, Release 4.0.0, doi: 10.5157/NEPS:SC4:4.0.0. From 2008 to 2013, NEPS data were collected as part of the Framework Program for the Promotion of Empirical Educational Research funded by the German Federal Ministry of Education and Research (BMBF). As of 2014, the NEPS survey has been conducted by the Leibniz Institute for Educational Trajectories (LIfBi) at the University of Bamberg in cooperation with a nationwide network.

[26] The initial participation rate on the school level was 55.5%. Within schools, 61.8% of students agreed to participate in the panel and 95.4% of these actually did (International Association for the Evaluation of Educational Achievement, 2010, pp. 20–23).

[27] There are two exceptions. We used parents' self-reports on their occupation to reduce the magnitude of missing information in students' responses regarding their parents' occupation. Sensitivity analysis showed that our results are robust against either source for generating the socio-economic status variable. In addition, we used a regional vocational labor market indicator provided by the Institute for Employment Research.

For the analysis, we select students who attend lower level secondary schools ('Hauptschulen') and equivalent tracks within comprehensive schools in the ninth grade– their last official, compulsory school year. Within the same grade cohort, they can vary marginally in age (the age range is 14 to 16); despite this, all students at this stage face the choice of pursuing VET or continuing schooling. In contrast, students in the medium or upper track, i.e., 'Realschule' and 'Gymnasium', face a different situation because they have between one and four more years of schooling, respectively, before having to decide in favor or against dual VET.[28] We used multiple imputation to impute missing values in order to maximize the use of available information and minimize complete case analysis bias (Rubin, 1987; Van Buuren, 2012).[29]

We focus on native students and second-generation ethnic minority students. The latter are defined as students who were born in Germany to migrant parents and students who migrated to Germany before the age of 6 (i.e., the age for starting school). Students who migrated after the school-starting age are a small group in the current data. This group did not allow us to distinguish different ethnic groups and was therefore excluded. For second-generation students, the data allow us to distinguish the four largest sending contexts: (1) Turkey, (2) 'other labor migrants' whose parents came from Greece, the former Yugoslavia, Italy, Spain, and Portugal, (3) Poland, and (4) the countries of the FSU. All other sending countries

[28] VET preference for ninth graders may have different meanings for students at different school types. Students in the highest track, in particular, rarely plan to apply for vocational training in grade 9. Most would instead wait until at least after grade 10 or 13 before they start dual VET. Given that the dependent variable explicitly states 'during ninth grade', while students in Gymnasium often face decisions related to vocational vs. general school tracks 3-4 years later, it is not surprising that the rate of 'yes' answers is much lower (i.e., 4-7% for students in Gymnasium vs. up to 60% in the other tracks). For Gymnasium students, dual VET preference in grade 9 may appeal to those who are struggling to keep up with the curriculum. In the case of Realschule students, a dual VET preference may reveal better performing students who start the application process for VET very early to maximize their placement probabilities one year later. We performed a series of sensitivity analyses to evaluate the effect of different samples, and the basic results do not change (more details in Section 4.8).

[29] We used chained imputations as implemented in the statistical software package Stata. Missing values are iteratively replaced ten times by using predictive mean matching for continuous and semi-continuous variables and logit estimation for binary variables (see van Buuren 2012, Chapter 3). Imputed values for the dependent variable are excluded from the analyses. The imputation model was carefully designed to account for missing value patterns and potential clustering in the data.

were grouped in an 'other' category due to their small sizes. The final analysis sample is restricted to students who gave a valid answer to the question on dual VET application. This leaves us with 2,315 students for the analyses.

Measurements

In addition to large sample sizes, NEPS provides appropriate measures for analyzing EC effects, including standardized test scores and school grades to measure performance. The data also include the very detailed International Socio-Economic Index of Occupational Status (ISEI) to measure the parents' socio-economic status. Moreover, we use a sophisticated composite indicator to control for regional variation in the labor and VET markets, including differences between East and West Germany. Previously, most research had to rely on single measures (e.g., unemployment rates), which have proved to be inadequate for measuring the relevant features of VET markets (Kleinert & Kruppe, 2012).[30] Table 4-1 provides an overview of the controls used in the analyses.

Table 4-1: Operationalization of control variables

[30] The results remain robust against excluding the regional VET indicator.

Concept	Question	Categories / range
Sex	Students answer in first wave, complemented by later/parent information if missing	Male = 0, female = 1
Age	Students answer in first wave, complemented by later/parent information if missing	Categories: 15 or younger, 16, 17 or older
Lower secondary school type	Recoded based on information from sampling	Regular lower secondary school track; multi-track lower secondary school tracks; comprehensive schools
VET market type	Composite indicator of regional VET-relevant characteristics (e.g., supply, demand, unemployment rates, school leaving rates, urban vs. rural, east vs. west)	10 types
German grade	What was your German grade in your last report card?	0 (poor = grades 6, 5 and 4), 1 (average = grade 3), 2 (good = grades 1 and 2)
Math grade	What was your math grade in your last report card?	0 (poor = grades 6, 5 and 4), 1 (average = grade 3), 2 (good = grades 1 and 2)
German reading test score	Standardized reading comprehension test	Standardized score (grand mean of all NEPS students = 0), WLEs (see Pohl & Carstensen 2012, for more detail)
Math test score	Standardized math test	Standardized score (grand mean of all NEPS students = 0), WLEs (see Pohl & Carstensen 2012, for more detail)
Socio-economic background	Highest parental occupational status (Socio-Economic Index of Occupational Status, ISEI)	16-90

The *dependent variable* is a binary indicator based on the intention to apply for an apprenticeship training (dual VET) position. Students choose VET against further education given that completely 'dropping out' is legally not possible due to the regulation on compulsory education until the age of 18, and it is therefore empirically very rare. Table 4-2 provides the operationalization of all key measures. We use parental expectations to operationalize immigrant optimism, and information resources are operationalized using four items that enter the analyses as single binary indicators. Anticipated discrimination is operationalized by a question about the likelihood of discrimination based on a 'foreign name' when applying for vocational education. It should be noted that even though all students were asked whether they expect applicants to be rejected based on foreign sounding names, we set the values for Germans to zero. This technique is occasionally referred to as 'linear spline specification' because any effect of the

modified variable must be attributed to the minority students only. Even though the spline specification reduces the variance by setting the response for all Germans to zero, considerable variation remains between ethnic groups: while 45% of students of Turkish origin anticipate discrimination, only 28% of FSU students do; the other groups are between these extremes (detailed descriptive statistics by group are provided in the appendix, Table 4-4, Section 4.10). Setting Germans to zero is reasonable, as we do not expect that a general anticipation of *ethnic* disadvantage on the dual VET market will have any effect on *non-ethnic* applicants. The results are robust when using the original version.

Table 4-2: Operationalization of the dependent and central independent variables

Concept	Question / Info	Categories / range
Dependent variable		
VET application	Do you intend to apply for an apprenticeship [i.e., dual VET position] during the ninth grade?	1 = yes, 0 = no
Central independent variable		
Ethnic minority group	Students who were born to immigrant parents or who migrated to Germany before the school-starting age of 6.	0 = Natives 1 = Turks 2 = Other Labor Migrants (Greece, Ex-Yugoslavia, Italy, Spain, and Portugal) 3 = Poles 4 = Former Soviet Union (FSU) 5 = Others
Explanatory variables		
Immigrant optimism	What kind of education would your parents like you to get after you have left school? My parents would like me to …	1 = … go to college, 0 = … do an apprenticeship/ … get no training / … have no opinion about this
Information resources	1) Imagine you are looking for an apprenticeship. How likely is it that someone from your personal life will inform you about interesting apprenticeships?	0 = very/rather unlikely, 1 = very/rather likely
	2) How likely is it that someone from your personal life will make an effort towards getting you an apprenticeship?	0 = very/rather unlikely, 1 = very/rather likely
	3) Performance bias in math constructed based on the difference between perceived and actual math grades.	0 = accurate, 1 = overestimate
	4) Performance bias in German constructed based on the difference between perceived and actual grades.	0 = accurate, 1 = overestimate
Anticipated discrimination	It is not easy to find an apprenticeship. Do you think that you are more likely to be turned down if you have a name that sounds foreign?	0 = no/rather no, 1 = yes/rather yes [set to '0' for native students]

Analytical strategy

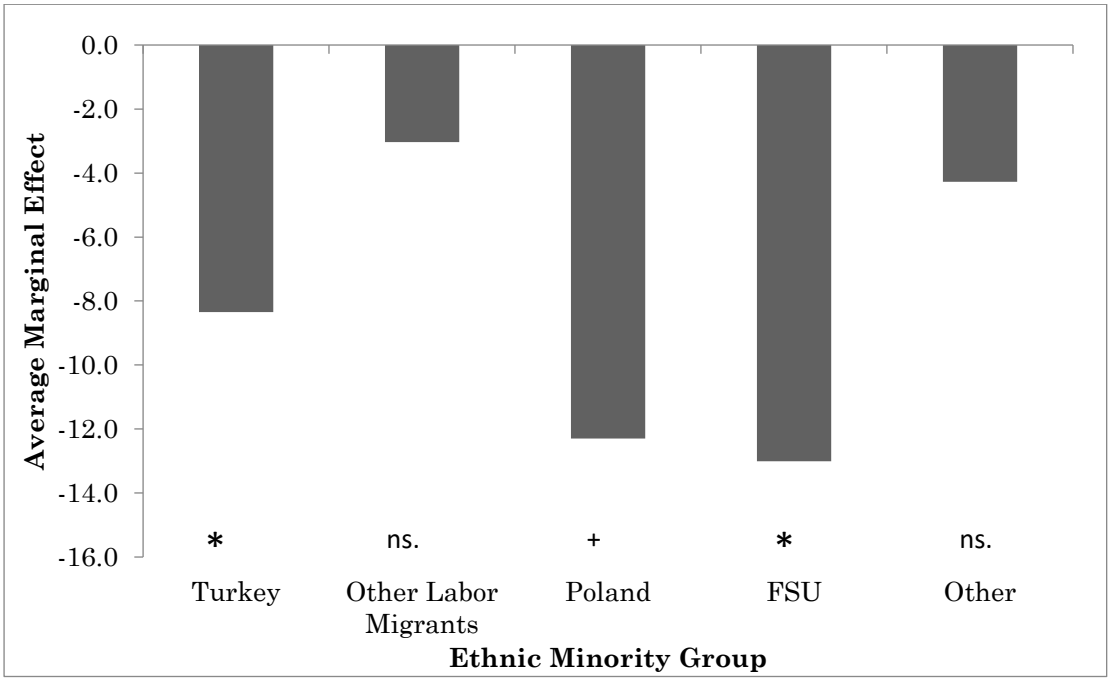
We are primarily interested in the mediation effect of the three proposed mechanisms on EC effects. Conventionally, the reduction in the effect of the key independent variables – ethnic minority group – would be considered the mediated effect, i.e., the share of the effect, which is accounted for by the explanatory variables added. Because the coefficients across nested logit models are not comparable (Best & Wolf, 2012; Mood, 2010), we use the Karlson-Holm-Breen (KHB) decomposition method for nested non-linear probability models (Karlson & Holm, 2011). The KHB method is a general decomposition method that is unaffected by the rescaling or attenuation bias that arises when comparing coefficients across non-linear models. It allows for the effects of both discrete and continuous variables to be broken down. To facilitate interpretation, we report both direct and indirect effects (before and after the mediating variables are added) as average marginal effects (AMEs).

4.7 Results

5.1 Are there 'ethnic choice effects' in access to dual vocational education?

EC effects are usually defined as differences in choices between ethnic minority groups and natives net of socio-economic status differences and school performance (Jackson et al., 2012). Figure 4-1 shows the differences between natives (zero line) and second-generation ethnic minority groups in the predicted preference for dual VET after adjusting for the parents' highest ISEI status, school performance (grades and test scores) and additional basic socio-demographic characteristics (sex, age, school type, VET market type).

Figure 4-1: Average marginal effects of ethnic minority status (relative to natives) on dual VET preference net of controls, in percentage points



*Note: N = 2,315. The horizontal reference line (at value 0) represents native students. The regression model used controls for school performance, socio-economic status, and regional and socio-demographic factors. Significance is based on robust standard errors on the school level and two-tailed tests: + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, ns. $p \geq 0.10$.*

Overall, we find strong EC effects at the end of compulsory school in Germany. Native students in the lower tracks more often report a preference for dual VET than second-generation minority students. This holds for all ethnic groups that we are able to distinguish. Note that the differences are most pronounced for Polish and FSU students, being greater than 10 percentage points. For Turkish students, for whom we expected the strongest effects, the difference is less pronounced, although it is still quite large (8.4 points) and significant. For the children of the other labor migrants, we only find a very small and insignificant tendency against dual VET.

Do immigrant optimism, information deficits, or anticipated discrimination mediate 'ethnic choice effects'?

To answer the core question regarding the role of the outlined mechanisms in mediating the ethnic effects, we first estimated a reduced model that represents adjusted EC effects (see Figure 4-1). We then estimate the full model, which adds the key explanatory variables to the equation (i.e., the measures for information deficits, migrant optimism, and anticipated discrimination).

Table 4-3 shows that the three added mechanisms, depending on the minority group studied, explain up to 36% of the EC effects; for the 'other' group, the explanation increases to 54%. Moreover, with the exception of FSU students, the added mechanisms fully account for the EC effects identified above. The remaining ethnic differences are no longer statistically significant. However, a look at effect sizes indicates some heterogeneity with respect to how large the remaining effects are. They range from 5 percentage points (Turkey) to 11.1 percentage points (FSU), disregarding the other labor migrants, who had very weak EC effects to begin with. The mediation effects are sizable. However, these indirect effects – when entering all three mechanisms in one block – are not statistically significant, but the indirect effect of immigrant optimism is statistically significant. We will elaborate on this finding in the next section.

Table 4-3: Joint test for mediation of the ethnic minority effect by the theoretical mechanisms (KHB method, average marginal effects)

Model	Turkey	Other labor migrants	Poland	FSU	Other
	AME	*AME*	*AME*	*AME*	*AME*
Reduced model	-0.084 *	-0.030	-0.123 +	-0.130 **	-0.043
Full model	-0.053	-0.021	-0.094	-0.111 *	-0.020
Mediation	-0.030	-0.009	-0.029	-0.019	-0.023
Share in %	35.7%	30.0%	23.6%	14.6%	53.5%

*Note: N = 2,315. 'Mediation' indicates the difference in average marginal effects between the reduced and the full model. 'Share in %' shows the mediation as a percentage share of the baseline effect. Significance is based on robust standard errors on the school level and two-tailed tests: + p < 0.10, * p < 0.05, ** p < 0.01.*

Turning to the explanatory variables, most effects are as expected (see Table 4-5 in the appendix, Section 4.10). Having dual VET-specific information resources and contacts increases the preference for VET (although the latter effect is very small and not significant), while students who overestimate their school performance show a lower VET preference (remember that we also control for the actual level of performance). Also consistent with the optimism mechanism, those students who perceive that their parents favor academic tracks show a lower preference for VET. This effect is particularly strong (15 percentage points). The measure for anticipated discrimination does not show the expected effect.[31] We expected minority students who anticipate discrimination on the VET market to have reduced VET preferences. However, the AME is close to zero and not statistically significant.[32]

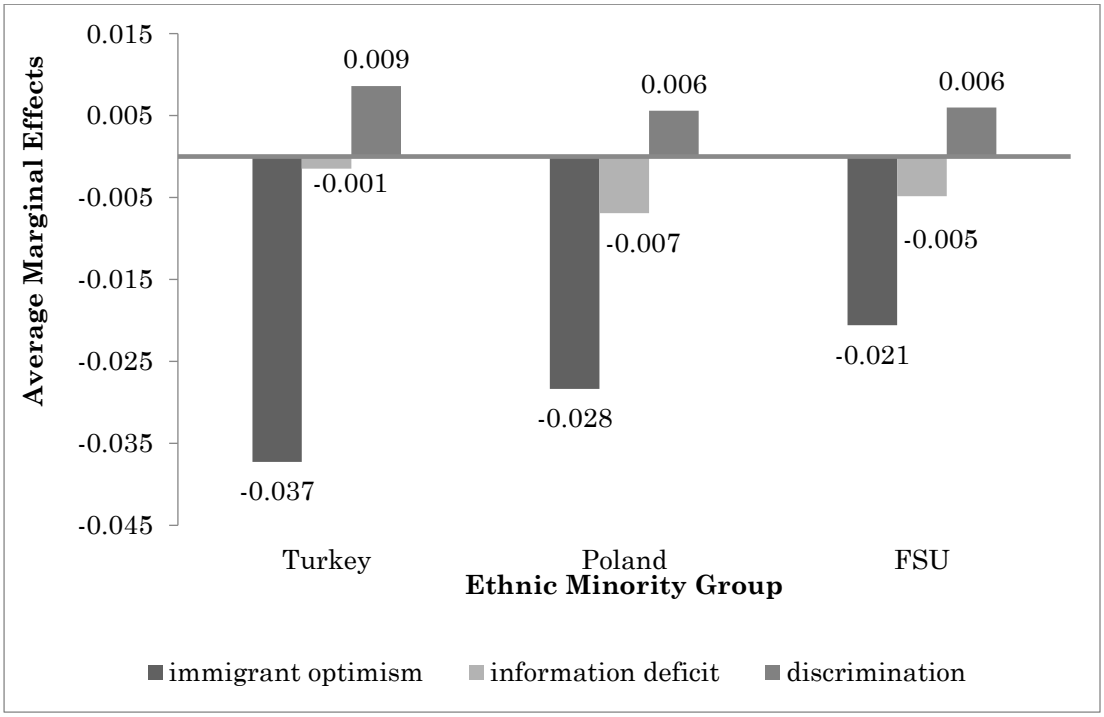
What share of the 'ethnic choice effects' are explained by the mechanisms?

We test the relevance and relative importance of each theoretical mechanism by decomposing the total mediation effects. In other words, the KHB technique allows us to attribute the share of the reduction in the EC effects of each minority group to the respective (set of) explanatory variables. For ease of interpretation, Figure 4-2 provides the estimated mediation effects of each mechanism. We omit the other labor migrants and the 'other' group here because of their small and insignificant EC effects in the baseline model (see Figure 4-1).

[31] Note that due to the spline specification, these effects, in contrast to all others, are only attributable to migrants.

[32] We checked whether the effect of the discrimination measure is contingent on any other variables in the model, i.e., if there is actually a total direct effect that is mediated or suppressed. To that end, we started with a model that only included the ethnic group variables and the discrimination measure and subsequently added all other variables back into the equation. The effects are robust against any specification, i.e., in all equations slightly positive and not significant. Hence, the effect is not suppressed and the finding indicates either that the mechanism does not mediate 'ethnic choice effects' or that the operationalization is suboptimal.

Figure 4-2: Decomposition of the 'ethnic choice effect' by individual mechanisms, (average marginal effects)



Note: Figure 4-2 represents a decomposition of the mediation effects in Table 4-3. The average marginal effects show the size of the mediation of the baseline EC effects attributable to each mechanism. Negative effects indicate that ethnic differences at baseline are reduced, and positive effects indicate the opposite. FSU stands for former Soviet Union.

The general results are straightforward. First, the measurements for the information deficit hypothesis have little explanatory power with respect to reducing the EC effects. Combined, they account for at most 7% of the initial differences between natives and the respective ethnic groups. Note that the information mechanism actually explains EC effects best for students from Poland, the sending context where dual VET is more common. Second, the measure for anticipated discrimination marginally increases differences between ethnic minority students and natives rather than explaining them. This effect is comparatively small; however, it runs counter to our theoretical expectations. This may suggest that the theoretical mechanism is mis-specified or that it only applies to certain sub-groups. Remember also that we did not find a significant effect of anticipated discrimination on dual VET preferences overall. Third, immigrant optimism is the most important driver of EC effects. As a share of the baseline EC effect, the measure explains 16% for FSU students, 23% for Polish students, and

45% for students of Turkish origin (i.e., the mediation effect of immigrant optimism divided by the baseline choice effect). Thus, high parental expectations appear to be particularly relevant for Turkish minority students. Testing for the significance of indirect mediation effects supports our interpretation: only the optimism effect significantly mediates the EC effects for all migrant groups (all $p < 0.05$). The mediation effects for information are small and not statistically significant. The counterintuitive effects for anticipated discrimination also do not significantly contribute to the mediation. This explains that the overall test for mediation is not significant when testing for all three mechanisms combined above, even though we observe sizable mediation effects.

4.8 Robustness Checks

The regression equations used for the decomposition above assume homogeneous effects across groups for the purpose of the decomposition. However, it is conceivable that some of the mechanisms work differently for natives and the ethnic minority groups. To test this, we estimated the full model, including interaction terms between ethnic groups and the three mechanisms. The pattern in terms of direction, size, and significance is similar across groups. Furthermore, adding the interactions to the model does not improve the model fit. This justifies the specification in the decomposition analyses above.

Another concern is limiting the sample to students in the lower secondary school tracks. This could bias the results due to regional variation in the institutional setup of tracking and school types and to potential effects from ability composition within and between school types. Dual VET may be a relevant option for students at medium or comprehensive secondary schools or for lower achieving students more generally. To diffuse such concerns and assess the robustness of our findings, we estimated the same models, including intermediate lower secondary school types, i.e., students in all non-university tracks. We also re-ran the analyses on a sample of the lowest quartile of the school performance distribution across all school types. The effects are robust against the different sample definitions and

even appear more pronounced (see Table 4-7 and Table 4-8 in the appendix, Section 4.10).

4.9 Summary and Conclusions

Compared to natives, various migrant groups in Western countries make systematically different educational choices at different branching points in the respective educational systems. Previous research has indicated that, conditional on school performance and socio-economic status, migrants often prefer the more ambitious options (e.g., choosing school types at lower and upper secondary levels that lead to higher tertiary university education).

We outlined the three dominant mechanisms currently being discussed: immigrant optimism, information deficit, and anticipated discrimination. We use Germany as an ideal test case to provide broader insights into the mechanisms driving EC effects. Low-performing secondary students in Germany must decide whether to pursue vocational training. Applying models for non-linear logistic regression, we tested the magnitude of the mechanisms and examined their relative importance.

The results show substantial EC effects for lower secondary school students at the end of compulsory school in Germany. Second-generation minority groups – ceteris paribus – prefer dual VET less often than their native peers. The effect varies in size between different groups. In combination, all three theoretical mechanisms – immigrant optimism, information deficit, and anticipated discrimination – help to explain roughly 24% of EC effects for Polish students, 36% for Turkish students, 30% for other labor migrant groups, and 15% for the FSU group. Baseline differences are not significant for students from the other former labor migration countries, i.e., excluding the large group from Turkey. These findings hold against a number of robustness checks, including different model specifications, operationalization of key variables, and sample definitions.

Which mechanisms best explain EC effects? Our results do not lend much support to the argument that ethnic minorities make more ambitious choices because they are misinformed or fear discrimination. The lack of information or of helpful

contacts for finding a VET position do not explain why migrants more often opt for general education in our data. Furthermore, anticipated discrimination does not contribute to explaining the EC effects. It is important to note that this finding does not rule out the possibility that migrant students may experience actual discrimination on the VET market. However, perceiving discrimination as an issue in the VET sector does not appear to push migrant students towards general education.

We find that immigrant optimism mediates most of the reduction in EC effects. At its core, the immigrant optimism hypothesis highlights the transmission of particular family norms. It appears that parents' high expectations regarding their children's educational achievement encourage migrant students to avoid vocational education at the end of compulsory schooling and to prefer continuing general education. This finding is largely in line with previous findings on educational aspirations, expectations and transitions into higher secondary and tertiary education (Cheng, 2002: 416; Glick, 2004: 506; Marjoribanks, 1992: 1824; Kristen, 2010: 339; Goyette, 1999: 1180; Portes, 2013: 1565).

Regarding specific group differences, we expected that information deficits and anticipated discrimination would provide strong explanations for EC effects for Turks. VET is less established in Turkey compared to other origin countries (especially Poland). Previous research also suggests that the 'ethnically closed' networks of the Turkish community may hamper access to VET-relevant information. Furthermore, Turkish students could be more likely to be discriminated against due to a greater social distance from the majority population compared to other minority groups. None of the findings support these expectations. However, the results confirmed our prediction regarding the role of 'immigrant optimism' in Turkish families. Given the group's relative structural disadvantage – upward mobility of the parents has been slow – it is not surprising that they often expect their children to go to college. This, in return, translates into greater pressure for children to decide against dual vocational education.

This study has some limitations that should be acknowledged. While we benefited from a rich set of measures that were not previously available, they have some weaknesses. We were unable to operationalize certain aspects of the information

deficit hypothesis (e.g., knowledge about the school system or returns to dual VET). Moreover, we assessed the effect of mean differences in the availability and accuracy of information between the groups, but could not operationalize possible differences in the certainty of information. We encourage future research in this direction.[33]

There were also some challenges regarding the operationalization of the immigrant optimism mechanism and anticipated discrimination. For example, the measurements for discrimination captured general perceptions rather than individually perceived risks of being discriminated against. Although we believe that our study provides a strong foundation, developing better measurements and applying direct tests of these hypotheses could contribute to future research in this field.

Furthermore, common to most non-experimental research designs, we note potential endogeneity issues. Students could have adjusted their responses on the measures for optimism, information and anticipated discrimination according to their educational choice, which would reverse the causal pathway. We argue that the careful wording of the questions reduces this potential bias. In addition, such reverse causality could not explain why the effects differ between natives and ethnic groups. A solution to this problem lies in more advanced research designs, e.g., instrumental variable estimation or more frequent panels to research the formation of the mechanism.

Finally, the study focused on a specific branching point in the German educational system. While our results resemble those of studies at other branching points and in other European countries, we caution against direct comparisons with different educational systems. In countries with less stratified educational systems, such as the UK and Sweden, the EC effect is often considered to be a 'positive' effect. However, this interpretation does not transfer easily to the German context. While choosing university may represent a 'good' choice in countries without viable non-

[33] In fact, in two of the four information indicators, namely the overestimation of the school grade variables, we observe slightly but significantly higher standard deviations in the minority groups, as indicated by Bartlett's test for equal variances. Thus, the availability of information varies to a larger extent; however, this is not a direct indication of lower certainty.

academic alternatives, the situation in Germany is more complicated – in particular for low-achieving students in lower secondary schools. For those students, pursuing dual VET at this stage may be a 'positive' choice in the long run. VET still offers solid labor market returns and stable careers, and it is possible to upgrade school-based qualifications at later stages.

Overall, this study significantly contributes to the understanding of a key contributor to ethnic inequality: ethnic differences in educational choices. These effects are indeed relevant to policymakers concerned with reducing ethnic inequality in education and, as a consequence, inequality in labor markets. Understanding migrants' choices provides information that could assist migrants – a population with growing importance – to succeed in their trajectories.

Our results highlight the special role of transmitted family norms regarding educational achievement. Support programs and policy interventions may be most effective if additional effort is made to reach out to migrant parents instead of investing in information provision or improving awareness and reducing discrimination. A recent policy paper presented at the Seventh German Integration Summit on December 1, 2014, and signed by 30 migrant associations also emphasizes the role parents play in students' choices regarding vocational education. For many parents, only university education appears to be an appropriate channel for upward mobility (BAGIV, 2014: 1401) despite viable labor market prospects through dual VET. In this context, our finding also has potential implications for research on ethnic inequalities in access to dual VET programs. If migrants systematically more often 'avoid' dual VET programs, those who apply represent a systematic selection. This constitutes another source of unobserved heterogeneity that makes estimates for access to dual VET more susceptible to bias.

4.10 Appendix

Table 4-4: Distribution of model variables in key model (see Table 4-3, full model)

	Native	T	LM	P	FSU	Other	Total	Missing (%)
Dual VET preference	0.53	0.53	0.57	0.42	0.42	0.52	0.52	*)
Age								0.0
14 and below	0.30	0.25	0.25	0.34	0.27	0.29	0.29	
15	0.51	0.48	0.44	0.54	0.51	0.44	0.49	
15 and over	0.20	0.27	0.31	0.12	0.21	0.27	0.22	
Female	0.47	0.42	0.52	0.51	0.43	0.49	0.47	0.0
Lower secondary school type								4.2
Regular lower secondary school	0.90	0.95	0.93	0.86	0.93	0.91	0.91	
Multi-track lower secondary	0.04	0.02	0.04	0.07	0.01	0.04	0.04	
Comprehensive school	0.05	0.03	0.03	0.07	0.06	0.05	0.05	
VET market type								0.0
1	0.19	0.19	0.14	0.19	0.20	0.19	0.19	
2	0.26	0.19	0.20	0.31	0.32	0.22	0.25	
3	0.06	0.02	0.02	0.03	0.05	0.04	0.05	
4	0.19	0.15	0.18	0.15	0.14	0.17	0.18	
5	0.14	0.17	0.16	0.14	0.15	0.16	0.15	
6	0.05	0.15	0.20	0.07	0.06	0.13	0.09	
7	0.06	0.10	0.07	0.08	0.07	0.07	0.07	
8	0.04	0.02	0.01	0.03	0.01	0.03	0.03	
Highest parental occupational status (ISEI)	40.25	34.11	35.83	36.86	36.92	38.84	38.71	19.7
German grade								9.9
poor	0.24	0.40	0.36	0.24	0.31	0.27	0.28	
medium	0.50	0.41	0.49	0.58	0.51	0.47	0.49	
good	0.26	0.19	0.14	0.19	0.18	0.26	0.23	
Math grade								10.0
poor	0.34	0.40	0.46	0.37	0.36	0.40	0.37	
medium	0.37	0.34	0.40	0.34	0.35	0.38	0.37	
Good	0.29	0.25	0.13	0.29	0.29	0.21	0.26	
German reading test score	-0.71	-0.97	-1.01	-0.65	-0.72	-0.90	-0.79	2.7
Math test score	-0.79	-1.30	-1.02	-0.91	-1.01	-0.92	-0.90	6.2
Immigrant optimism								
Parental expectations	0.09	0.33	0.17	0.25	0.22	0.28	0.17	12.7
Information resources								

Access to information	0.72	0.64	0.69	0.61	0.55	0.69	0.69	3.9
Access to contacts	0.85	0.75	0.83	0.80	0.82	0.81	0.83	4.2
Overestimating German skills	0.13	0.17	0.17	0.15	0.16	0.12	0.14	11.2
Overestimating math skills	0.15	0.17	0.17	0.15	0.17	0.16	0.16	11.0
Anticipated discrimination								
Name discrimination	0.00	0.45	0.34	0.34	0.28	0.38	0.16	1.2
N	1,314	252	166	59	175	349	2,315	

*Notes: *) Missing values for all model variables based on the analysis sample in the original data. In other words, the percentage of responses that have been subject to multiple imputation in the full analysis excluding missing values on the dependent variable. T stands for Turkey, LM for other Labor Migrants, P for Poland and FSU for Former Soviet Union.*

Table 4-5: Full list of model coefficients in 'reduced' and 'full' model (see Table 4-3)

	Average Marginal Effects	
	Reduced Model	Full Model
Natives (Ref.)		
Turkey	-0.08 *	-0.053
Other labor migrants	-0.03	-0.021
Poland	-0.12 +	-0.094
Former Soviet Union	-0.13 **	-0.111 *
Other	-0.04	-0.020
14 or below (Ref.)		
15	0.01	0.015
above 15	0.07 *	0.074 *
Female	-0.03	-0.039
Lower secondary school type regular (Ref.)		
Special	-0.19 **	-0.184 **
Comprehensive	-0.23 **	-0.225 **
VET market type		
1	0.09 +	0.093 +
2	0.04	0.053
3	0.08	0.086
4	0.01	0.012
5	0.19 *	0.193 *
6	0.01	0.022
7	0.16 *	0.166 *
Parental socio-economic status (ISEI)	0.00	-0.001
German grade (Ref.: poor)		
average	-0.04 +	-0.073 **
good	-0.12 **	-0.144 **
Math grade (Ref.: poor)		
average	-0.05 *	-0.062 *
good	-0.06 *	-0.082 *
Math test score	-0.02	-0.018
German reading test score	-0.04 **	-0.038 **
Immigrant optimism		
Parental expectations		-0.149 **
Information resources		
Access to information		0.048 *
Access to contacts		0.019
Overestimating German skills		-0.086 *
Overestimating math skills		-0.073 *
Anticipated discrimination		
Name discrimination		0.019

*Notes: N = 2,465; Significance is based on two-tailed tests: + p < 0.10, * p < 0.05, ** p < 0.01.*

Table 4-6: Detailed decomposition of 'ethnic choice effect' on item level (see Figure 4-1)

		T	LM	P	FSU	Other
Information deficit	*Access to information*	-0.002	0.000	-0.006	-0.005	-0.001
	Access to contacts	-0.001	-0.001	-0.001	0.000	-0.001
	Overestimating German skills	0.000	0.002	-0.001	-0.001	0.002
	Overestimating math skills	0.002	0.002	0.001	0.001	0.000
Anticipated discrimination	*Name discrimination*	0.009	0.007	0.006	0.006	0.007
Immigrant optimism	*Parental expectations*	-0.037	-0.019	-0.028	-0.021	-0.030
unexplained		0.053	0.021	0.094	0.111	0.020

Note: N = 2,465. T stands for Turkey, LM for other Labor Migrants, P for Poland and FSU for Former Soviet Union.

Table 4-7: Joint test for the mediation of the ethnic minority effect by theoretical mechanisms, (KHB method, AMEs), based on 'low performance sample'

	T	LM	P	FSU	Other
	AME	*AME*	*AME*	*AME*	*AME*
Reduced model	-0.108 **	-0.068	-0.101	-0.130 **	-0.097 **
Full model	-0.058	-0.048	-0.075	-0.095 *	-0.055
Mediation	-0.050	-0.020	-0.026	-0.034	-0.041

*Note: N = 2,465; 'Mediation' indicates the difference in AMEs between the reduced and the full model. 'Share in %' shows the mediation as a percentage share of the baseline effect. Significance is based on robust standard-errors on school level and two-tailed tests: + p < 0.10, * p < 0.05, ** p < 0.01.*

Table 4-8: Joint test for the mediation of the ethnic minority effect by theoretical mechanisms, (KHB method, AMEs), based on sample of 'all school types except Gymnasium'

	T	LM	P	FSU	Other
	AME	*AME*	*AME*	*AME*	*AME*
Reduced model	-0.124 **	-0.078 **	0.071 +	-0.127 **	-0.105 **
Full model	-0.056 *	-0.045	0.022	-0.084 **	-0.058 **
Mediation	-0.068	-0.034	0.048	-0.042	-0.048

*Note: N = 7,489; 'Mediation' indicates the difference in AMEs between the reduced and the full model. 'Share in %' shows the mediation as a percentage share of the baseline effect. Significance is based on robust standard-errors on school level and two-tailed tests: + p < 0.10, * p < 0.05, ** p < 0.01. FSU stands for Former Soviet Union.*

5 Study IV: Shooting for Stars: Explaining Ethnic Differences in University Expectations in Germany

5.1 Abstract

Previous evidence has consistently found that many migrant groups in Western countries show higher educational aspirations and make more ambitious educational choices than natives given equal socio-economic background and school performance.

Empirical evidence on mechanisms driving these differences is limited. Two hypotheses are commonly proposed in the literature: First, immigrant students lack crucial information about the education system (information deficit) and, second, immigrant students are more optimistic and ambitious about their educational achievement due to high mobility expectations in their community (immigrant optimism).

Using a large-scale representative survey of students' educational expectations at the end of compulsory school in Germany, I will test the significance and relative importance of both mechanisms. The data enables me to operationalize broad and novel measures for 'immigrant optimism' and 'information deficit' that exceed previous studies.

The findings strongly support the 'immigrant optimism hypothesis'. Ethnic differentials in educational expectations are best explained by parental and peer expectations, as well as general attitudes towards the value of education. These effects support the notion that strong achievement norms in migrant families as an expression of a particular 'immigrant optimism' drive educational decision-making. A lack of or biased information about labor market returns or the education system appear to play a minor role.

Keywords:

Migration, expectation, aspiration, education, immigrant optimism

5.2 Introduction

Research on ethnic educational inequality in the US and Europe consistently finds that many migrant groups show, on average, higher educational aspirations, expectations or goals for educational and occupational attainment as compared to natives (Relikowski, 2012: 384; Bowden, 2010: 526; Bohon, 2006: 565; Glick, 2004: 506; Cheng, 2002: 416; Louie, 2001: 419; Goyette, 1999: 1180; Kristen, 2008: 341; Kristen, 2009: 2057; Brinbaum, 2007: 439; Van de Werfhorst, 2007: 1178). The study of migrants' expectations is relevant because they have been shown to be a strong predictor for migrants' effort in school (Domina, 2011: 1181), participation in post-secondary education (Glick, 2004: 506), and transition into higher secondary school tracks and university, given equal social background and school performance (Jonsson, 2011: 425; Kilpi-Jakonen, 2011: 426; Jackson, 2012: 1144; Kristen, 2010: 339). Most of research exploring explanations for differences in educational expectations and choices has been conducted in the US context and it remains unclear whether findings hold in other countries (Feliciano, 2015: 1653). In Europe, where large scale survey data involving migrants has become increasingly available, there has been renewed interest in studying the educational expectations of migrants (Portes, 2010: 567; Portes, 2013: 1565; Teney, 2013: 423; Alarcón, 2013: 1287) showing varying results.

Previous studies have proposed a number of hypotheses that explain migrants' high aspirations and ambitious choices, most prominently 'immigrant optimism'. Other hypotheses include, for example, the 'information deficit' hypothesis. While these hypotheses are often cited in the literature, there remains a lack of empirical evidence and a lack of clarity about how to operationalize certain concepts.

This study aims to start closing this gap by testing several mechanisms using a number of new measurements. Using a large-scale panel survey of German students at the end of compulsory education (grade 10), I will analyze whether migrant students, as well as different ethnic groups in Germany, have higher educational expectations for higher, university track secondary education over

lower alternatives.[34] Furthermore, I demonstrate the relative importance of distinct hypotheses for ethnic disparities in expectations. In sum, the objective of this study is twofold: 1) Provide insights into ethnic differences in educational expectations in Germany 2) Test the relevance and relative importance of alternative mechanisms that have been proposed to account for ethnic differences in educational expectations.

5.3 Explaining Ethnic Differences in Educational Expectations

In the sociology of education, educational expectations are considered one part of the concept of aspirations. This concept emerged in the field of social psychology and entered the field of sociology of education through the Wisconsin School (Sewell, Haller, and Ohlendorf 1970). According to by Haller (1968), aspirations can be defined as the 'cognitive orientational aspect of goal-oriented behavior' (Haller, 1968: 461@484). They can be distinguished analytically by realistic and idealistic aspirations. Idealistic aspirations represent students' *wishes*, which are thought to be less dependent on external settings (Stocké, 2012: 430). Idealistic aspirations are supposed to reflect the non-instrumental processes of norm internalization and preference formation.[35] In contrast, this study focuses on realistic aspirations – also called *expectations.* Expectations reflect people's beliefs about what they can reasonably expect to achieve given their own resources and their opportunity structure. They can be defined as intended behavior or choice. Expectations have been thought of as more 'concrete' attitudes as compared to the 'abstract' nature of aspirations (Mickelson, 1990: 571). Educational expectations

[34] Throughout this study, 'migrants' refer to students with at least one parent that was not born in Germany. 'Natives' refer to students without a migrant background (i.e. both parents born in Germany) regardless of students' legal citizenship status or place of birth.

[35] The study of educational expectations varies considerably in terminology and concepts within and across disciplines in social sciences. Since the emergence of this sub-field, there have been on-going discussions on its actual meaning and effects (Jencks, Crouse, and Mueser 1983, Alexander and Cook 1979, Kerckhoff 1976). Many studies use similar terms such as expectations, aspirations, preference, intention, plan, goal, and choice interchangeably to describe a largely similar phenomenon.

take into account the constraints to realizing certain educational options. As such, they could exhibit greater predictive power for later educational attainment as compared to idealistic aspirations. In the following sections, key hypotheses for explaining ethnic differences in educational expectations in the literature will be explored in detail.

Immigrant Optimism

High educational expectations among migrant students are frequently explained as the result of 'immigrant optimism' (Kao, 1995: 489; Kao, 1998: 1238; Heath, 2007: 438). At the core of 'immigrant optimism' lies the assumption that migrants are selected on personality traits such as drive, ambition and optimism. These characteristics could lead to a disproportionally strong strive for upward social mobility (Kao, 1995: 489) which is to be achieved via educational attainment. These findings fit well with broader debates about a 'second generation advantage' (Kasinitz, 2008: 1716; Feliciano, 2015: 1653). The concept of 'second generation advantage' states that children in immigrant families have access to cultural resources specific to migrants that allow them to advance socioeconomically despite disadvantages in terms of parental education and financial resources. Immigrant parents have demonstrated drive, ambition, courage and strength by moving from one nation to another (Kasinitz, 2008: 1716@352). The drive to better his or her situation is something parents are likely to transmit to their children (ibid.).

At the heart of the concept lies the idea of selection. Following this logic, the ideal direct test of 'immigrant optimism' would be a relative score of drive, ambition and optimism based on a large, representative survey done in the country of origin and the destination country prior to migration. This would allow comparing relative 'optimism' levels of immigrants with the native population. To my knowledge, such a direct test is not available. This is why most work relies on indirect tests of 'immigrant optimism'.

Some work has been done on educational selectivity of migrants in the US and France (Ichou, 2014: 1704; Feliciano, 2005: 1760; Feliciano, 2006: 566). However,

this research focuses on selection on educational *attainment* (the educational level achieved by immigrant parents in relation to average educational attainment in the country of origin). This should not be taken as the same as selection on character traits such as drive, ambition and optimism (van de Werfhorst, 2014: 1708). There appears to be little reason to reject the claim that negatively selected immigrants with relatively low educational attainment also exhibit similar levels of ambition, drive and optimism compared to positively selected migrants. Migrants with lower attainment could attribute their relatively low position in the host country society to structural barriers (e.g. education system, lack of economic opportunities) rather than to their ability. As a consequence, these groups could show equally high levels of 'immigrant optimism' in the destination country given that they perceive less structural barriers and better opportunities to realize their true potential.

In the US, Feliciano (2006) claims that positive educational selectivity among immigrants is positively associated with parents' expectations for their children (Feliciano, 2006: 566). However, there is so far neither research indicating that this is true for other migrant groups in other countries nor a theoretical reason why negative selection should have the opposite effect on aspirations relative to natives. As we will see in the analysis section, most immigrants in Germany are negatively selected in regard to their educational attainment but still show high levels of educational expectations.

The implicit assumption underlying 'immigrant optimism' is that these 'positive' traits are transmitted from parent to child in the form of personality traits or values and norms (Phalet, 2001: 1634; Schönpflug, 2001: 1633; Nauck, 1995: 1596; Nauck, 1998: 572; Kwak, 2003: 1636). Together these characteristics enable a strong strive for upward social mobility which then translates into high educational goals and expectations.

Rather than resulting from inherited personality traits from parents, high expectations among migrant students could be described as the result of a certain 'intergenerational project for upward mobility' (Teney, 2013: 423). A major motivation for the decision to migrate is often to provide a better life for children. However, migration can come with sacrifices. These include a series of

psychological stressors, such as the separation and loss associated with leaving one's native country while simultaneously adapting to the new, unfamiliar environment of a host country. Migrant children feel a sense of duty to succeed in the host country to honor their parents' sacrifices (Suárez-Orozco et al., 2008: 2095). In the context of 'immigrant optimism', students' high aspirations could be a way of honoring the sacrifices made by parents and grandparents (Fuligni, 2002: 1654; Dreby, 2010: 1655). Accordingly, the parent-child has been described as an 'immigrant bargain' (Louie, 2012: 2195).

A history of migration within a family can connect individuals across generations and generate a common narrative. This migration narrative creates an imperative for success, especially when parents have not yet achieved their own mobility aspirations. This applies particularly to migrants from low-income countries with lower educational opportunities. As such, educational and occupational success of the second generation could justify initial investment costs of the parental generation (Nauck, 1995: 1596). Children may readily adopt parental values of upward mobility because their education is regarded as a collective long-term family project. According to theories of social production functions (Lindenberg, 1990: 1595), conforming to parental expectations provides the additional benefit of avoiding guilt, shame and disappointment.

A novel way of thinking about migrants' optimism builds on the 'status maintenance' hypothesis from the field of social inequality research in education. This body of research borrows from prospect theory (Kahneman, 1979: 2213) claiming that individuals are naturally wired to avoid loss. In the field of educational attainment, this means that students' ultimate goal is to at least maintain the status of their parents. This hypothesis has proven powerful in explaining why lower status students make less ambitious educational choices compared to higher status students (Becker, 2009: 440; Stocké, 2007: 444).

Regarding migrants, I argue, the hypothesis does not apply in the same way. Risk aversion theory assumes a common baseline reference. In the case of educational choices, the reference is the status (e.g. the educational attainment) of the parent.

This reference is not valid for migrants since the education of their parents has mostly not been attained in the host country and may not be perceived as comparable to natives. Where students without a migrant background aim to achieve not less than their parents, migrant students aim to achieve more than their parents. The finding that migrants' expectations are less dependent on parents' actual achievement compared to natives (Relikowski, Yilmaz, and Blossfeld 2012) is tentative support for this interpretation.

'Information Deficit'

Another explanation for why migrants may have higher educational expectations derives from the 'information deficit' argument (Kao, 1998: 1238; Heath, 2007: 438; Kristen, 2008: 341). The argument states that migrants may lack information or have wrong or irrelevant information. This information deficit could be expressed in several ways: Migrants may systematically overestimate the average expected income of certain occupations because they compare the labor market returns of their host country to the often lower labor market returns in their country of origins. Using their origin countries as a point of reference for estimating future returns may skew factual information on labor market returns. From a classical economic perspective, it is reasonable to assume that migrants would be more likely to have higher educational expectations if they inflate potential labor market returns. However, to the best of my knowledge, there has not been empirical evidence supporting the hypothesis that migrants systematically inflate potential labor market returns.

Alternatively, 'information deficit' could also be explained by lack of knowledge about the education system. Migrants may obtain insufficient or incorrect information about requirements for certain degrees (Kerckhoff, 1977: 1589; Coleman, 1966: 1590; Rosenbaum, 1980: 1591). Migrant families may have less accurate information on the education system in the host country because parents have not gone through the different system themselves. For example, Turkish migrants in Germany are not accustomed to the Germany vocational training sector because Turkey does not have such a sector. Migrant parents more often lack tertiary education as compared to natives. Parents that have not gone to university may underestimate the requirements of academic performance for

university attendance. In general, there is, so far, limited support for variations of the information deficit argument (Salikutluk, 2016: 2119; Relikowski, 2012: 384).

Previous research largely supports the 'immigrant optimism' hypothesis as an expression of an intergenerational project for upward social mobility, using both qualitative designs (Louie 2001, Shah, Dwyer, and Modood 2010, Relikowski, Yilmaz, and Blossfeld 2012, Suárez-Orozco et al., 2008, Dreby 2010) and quantitative designs (Salikutluk, 2016: 2119; Hagelskamp, 2010: 1608; Teney, 2013: 423). In quantitative studies operationalization of the hypothesis varies substantially. It has been measured by the importance students place on working in an occupation that is better than the occupation of their parents (Salikutluk, 2016: 2119) and the general value placed on education (Relikowski, 2012: 384). Other studies have used educational expectations as a proxy for 'immigrant optimism' (Kristen and Dollmann 2010, Kristen, Reimer, and Kogan 2008). Yet many studies still put forward 'immigrant optimism' as an explanation for ethnic differences in educational expectations and choices without providing any empirical test (e.g. Heath, Rothon, and Kilpi 2008, Kilpi-Jakonen 2011, Jackson, Jonsson, and Rudolphi 2012).

5.4 Data and Methods

Data and Sample

This study uses the National Educational Panel Study (NEPS), a large-scale representative survey of German secondary school students at the end of compulsory school, established in 2010 (Blossfeld, Roßbach, and von Maurice 2011).[36] The NEPS survey is based on a random sample of regular schools, stratified by school type. Within the sampled schools, two classes were randomly

[36] This paper uses data from the National Educational Panel Study (NEPS): Starting Cohort 4–Grade 9, Release 4.0.0, doi: 10.5157/NEPS:SC4:4.0.0. From 2008 to 2013, NEPS data were collected as part of the Framework Program for the Promotion of Empirical Educational Research funded by the German Federal Ministry of Education and Research (BMBF). As of 2014, the NEPS survey is carried out by the Leibniz Institute for Educational Trajectories (LIfBi) at the University of Bamberg in cooperation with a nationwide network.

selected and all students from these classes were invited to participate.[37] For the analysis, I use students at non-university tracks surveyed at the end of upper secondary education in grade 10 (at the age of 15/16). I exclude university tracks (Gymnasium) because there is little variation in the educational expectations given that those students are already on a direct path to university entry qualification.

I apply multiple imputation using chained equations to deal with missing values (Rubin, 1987: 544; Van Buuren, 2012: 546)

Measurements

This analysis defines the dependent variable as expectations for a university entry diploma (Abitur, leading towards university) as compared to lower qualifications (leading towards vocational education). Students were asked about the highest educational attainment at the secondary level that they expect to achieve: lower secondary education (leaving school after grade nine, *Hauptschulabschluss*), intermediate secondary education (leaving school after grade 10, *Realschulabschluss*) or a university entry diploma (leaving school after grade 12 or 13, *Abitur*).[38]

The central independent variable is migrant status. I will conduct separate analysis for migrant background (migrant background vs. German) and migrant/ ethnic group (German, Turks, Poles, ex. Labor Migrants, former Soviet Union)[39].

[37] The initial participation rate at the school level was 55.5%. Within schools, 61.8% of students initially agreed to participate in the panel and 95.4% of these students actually participated (International Association for the Evaluation of Educational Achievement, 2010, pp. 20–23).
[38] The German educational system can be characterized as highly stratified, with many different tracks at various levels of schooling. It has a strong vocational specificity, with vocationally oriented tracks from the lower secondary level onwards (Allmendinger 1989). Secondary schools are stratified in lower secondary (Hauptschule), intermediate secondary (Realschule) and upper secondary (Gymnasium) schools. The upper secondary school (Gymnasium) prepares students for higher tertiary education (universities) ending with a university entry diploma (Abitur). Additional school types such as schools combining the lower and intermediate secondary school as well as schools combining all three tracks have been increasing in number across the German federal states. The lower and the intermediate secondary schools ('Hauptschule' and 'Realschule') traditionally prepare a student for the vocational education sector, which is dominated by the dual VET system. Due to structural difficulties for students at lower secondary schools and a common push for more university participation, more options have been created to allow students to complete a university entry diploma (Schuchart 2013).
[39] Ex. Labor Migrants include migrants from Portugal, Spain, Greece, Italy and ex. Yugoslavia.

The selected groups represent the most dominant groups in Germany and are possible to analyze due to sufficient sample sizes.[40]

'Immigrant optimism' is measured using a set of factors including perceived parental university expectations, friends' educational aspirations, and general attitudes towards education. As I have argued above, 'immigrant optimism' states that migrant families cultivate certain achievement norms that are conducive for upward mobility. Such achievement norms are reflected in parental expectations and peer aspirations. As a separate measure, I use the students' general attitude towards the value of education. This measure is useful to test whether 'immigrant optimism' is solely driven by external pressures or internal, intrinsic motivation. The 'information deficit' hypothesis is measured using self-reported knowledge about availability and requirements of educational degrees in Germany and expected labor market returns.

Table 5-1 and Table 5-2 provides a full list of all model variables, including concepts, items and scales.

[40] Germany's current migrant population is mostly made up by four groups of post-war immigrants. The 'oldest' group are the 'labor migrants' from Turkey, Spain, Italy, former Yugoslavia and Greece who were invited to migrate from the 1950s to 1973 to fill shortages in less qualified sectors of the labor market. The labor migrants and their families constitute the largest migrant group, which due to their initial migration motive is still negatively selected in terms of formal education. The second largest group are ethnic Germans from Poland, Romania and, since the 1990s, the former Soviet Union. This group usually gets German citizenship quickly and is not negatively selected in terms of formal education. The most recent immigration wave consists of labor migrants from Eastern European states. Due to European Union legislation, they are free to live and work in any European country, but their children are usually not yet visible in the German education system. Less visible due to comparatively small numbers are the Jewish quota refugees from the former Soviet Union. They are often grouped together with the heterogeneous group of asylum seekers.

Table 5-1: Operationalization of dependent, independent and intervening variables

Concept	Variable	Survey Item	Measured in	Categories/ range
Dependent variables				
Educational Expectations	Expecting University Entry Diploma	Given everything you know right now, what will be the highest degree attained when you leave school?	2011	University entry diploma (Abitur) (1) vs. Lower Diplomas (0)
Central independent variables				
Hypothesis: 'Immigrant Optimism'				
Parental Aspirations	Perceived Parental Expectations	'What is the level of education that your parents wish you would achieve?'	2010	University (1)/ Other (0)
Peer Aspirations	Perceived Peer Aspirations	'How many of your friends plan to pursue a university entry diploma?'	2011	More than half (1) / half or less (0)
Achievement Norm	Attitude towards the importance of education	'Students should achieve upper secondary education at any price'	2011	Do not agree – fully agree (1-5 scale)
Hypothesis: 'Information deficit'				
Knowledge	1. Degrees 2. Requirements	1. 'How well do you know about which degrees one can attain in Germany?' 2. 'How well do you know which requirements you have to meet in order to achieve different degrees?'	2011	Very bad- very well (1-5 scale)
Expected Labor Market returns	Expected Monthly Salaries	Difference between average monthly salary of a first year doctor (1) and teacher (2) with the respective expected monthly salary in 100€.	2011	Continuous

Table 5-2: Operationalization of control variables

Control variables				
Gender	Sex		2010	Female (1) vs. Male (0)
Age	Age in years		2011	Continuous
School type	School type at secondary level	Lower Secondary School (Hauptschule = 0), Intermediate Secondary School (Realschule = 1), Two-Track Schools (Schulen mit mehreren Bildungsgängen = 2), Comprehensive School (Gesamtschule = 3)	2010	Categorical (0-3)
School performance (grades)	1. German grade 2. Math grade	1. 'What was your German grade in your last report card?' 2. 'What was your math grade in your last report card?'	2011	0 (bad= grades 6, 5 and 4), 1 (average= grade 3), 2 (good= grades 1 and 2)
School performance (test scores)	1. German reading test score 2. Math test score	1. Standardized reading comprehension test 2. Standardized math test	2010	Standardized, continuous score (grand mean of all NEPS students in grade 9 = 0), WLEs (see \Pohl, 2012: 380 for details)
Social background	Socio-economic background	Highest parental occupational status (Socio-Economic Index of Occupational Status (ISEI)) - See Ganzeboom, De Graaf, and Treiman (1992)	2010	Continuous (16-90)

Analytical Strategy

I use descriptive and multivariate regression techniques to investigate educational expectation differences between students with and without a migrant background. The analysis is conducted in three steps. Step one presents a baseline analysis of ethnic differences in expecting a university entry diploma (given equal gender, age, school type, school performance and socio-economic background). Meaningful group comparisons of educational expectations should account for different school performance levels since performance is one of the main predictors for expectations. In most EU countries, migrants are overrepresented among lower social classes. For my baseline model, ethnic differences in educational expectations are defined as differences in the average predicted probability of expecting a university entry diploma given school performance and social background.

In step two, I analyze the mechanisms using a mediation framework. In other words, I estimate the indirect effect of migrant background and migrant group on educational expectations, i.e., the share of the migrant effect that is mediated by adding measurements for the two mechanisms (immigrant optimism and information deficit) to the model.

Despite the binary form of the dependent variable, I use linear probability models for ease of presentation and interpretation. OLS estimates are identical with Average Marginal Effects derived from non-linear regression model. Since we are interested in point estimates rather than the non-linear relationship per-se, it is 'reasonable' and 'appropriate' to use linear probability models (Mood, 2010: 555).

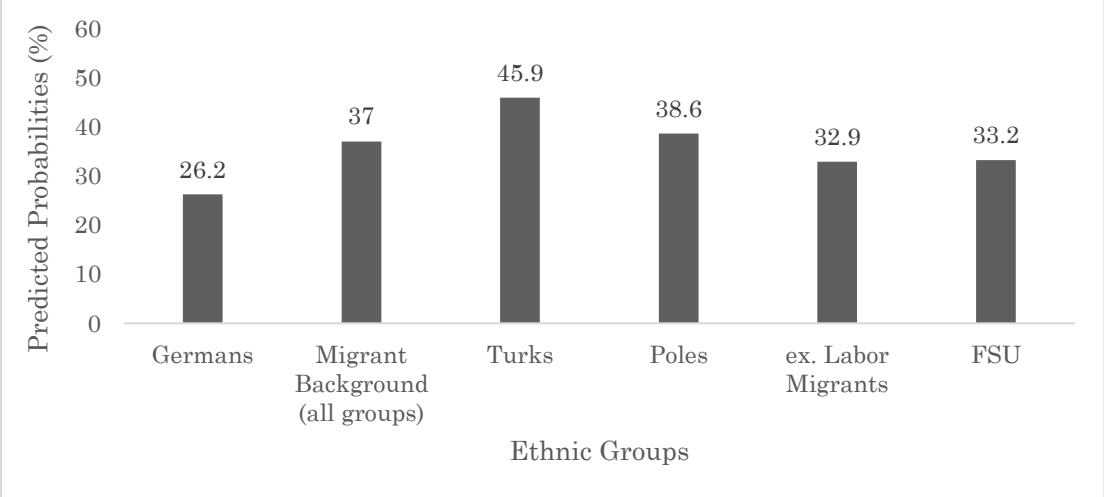
Common to education data, observations may not be independent of each other but instead clustered within classes or schools. As a result, I apply clustered standard errors on school level to all models. Sensitivity analysis showed that clustering on class level – when possible – did not yield substantially different results.

5.5 Results

Baseline Differences in Educational Expectations

Overall, the baseline analysis shows considerable differences between migrants and natives. Figure 5-1 shows that non-university track students with a migrant background are, on average, 10 percentage points more likely than Germans to expect a university entry diploma at the end of lower secondary education (net of all controls). There is considerable variation between different migrant groups. Differences between Germans and migrant students is larger for the group of Turks (ca. 20 percentage points) and Poles (12.5 percentage points) compared to other groups.

Figure 5-1: Predicted probabilities of expecting a university entry qualification (Abitur) of non-university track students by migrant background and migrant group (in %)



Note: Predicted probabilities adjusted for age, gender, school type, German and math grade, German and math test score. Sample includes only non-university track students. Robust standard errors are used at school level. N= 6445. FSU stands for Former Soviet Union.

What explains ethnic differences in educational expectations?

In this section, I further test outlined hypotheses (immigrant optimism and information deficit) to see whether they contribute to explaining ethnic differences

in educational expectations applying mediation analysis (see Table 5-3 and Table 5-4).

The results are straight-forward. Adding measures of 'information deficit', such as knowledge about the education system (model 2) or biased income estimates (model 3) to the model, does not change the effect of migrant background, i.e. The information deficit does not contribute to explaining ethnic differentials in educational expectations (see Table 5-3).

Adding measures of 'immigrant optimism' (model 4 and 5) to the model, substantially mediates the effect of migrant background. Parental and peer aspirations mediate 60% of the baseline migrant effect. After adding the student's achievement norm (general attitude towards the value of education) further reduces the migrant effect which also becomes statistically insignificant. Net of peer influences (parents and friends), personal attitudes carry some explanatory power. This suggests that 'immigrant optimism' is not only a result of external pressures, but also driven by personal attitudes.

Table 5-3: Mediation of the migrant background effect on educational expectations towards university entry qualification (OLS estimates)

	(1) baseline choice model	(2) + info I	(3) + info II	(4) + peers	(5) + attitude
Migrant Background (Ref. None)	0,10*** (0,012)	0,10*** (0,012)	0,10*** (0,012)	0,04** (0,012)	0,02 (0,012)
Info about Degrees		-0,01 (0,009)	-0,01 (0,009)	-0,01 (0,009)	-0,01 (0,009)
Info about Requirements		0,06*** (0,008)	0,06*** (0,008)	0,04*** (0,007)	0,04*** (0,007)
Estimated Return Bias (Doctor)			0,00*** (0,000)	0,00*** (0,000)	0,00*** (0,000)
Estimated Return Bias (Teacher)			0,00* (0,000)	0,00 (0,000)	0,00 (0,000)
Parental Aspirations				0,19*** (0,014)	0,17*** (0,015)
Peer Aspirations				0,14*** (0,015)	0,12*** (0,014)
Achievement Norm					0,05*** (0,005)
Controls	Yes	Yes	Yes	Yes	Yes
Constant	0,50*** (0,112)	0,36** (0,115)	0,36** (0,115)	0,37*** (0,112)	0,32** (0,111)
Observations	6445	6445	6445	6445	6445
Adjusted R^2	0.232	0.239	0.241	0.295	0.309

*Note: All models net of gender, age, school type, school grades, German and math competence and socio-economic background (ISEI). Sample includes only non-university track students. Standard errors in parentheses, clustered on school level. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.*

Table 5-4 shows the coefficients for different migrant groups based on the same model strategy. There is variation between groups. Migrant students with a Turkish origin are more likely than other groups to have high expectations. Again, accounting for information deficits does not change the coefficients for any group. However, 'immigrant optimism' considerably reduces the migrant effect, in particular for the Turkish group. In fact, effect sizes indicate that there are no more differences between ex. Labor migrants and Germans, FSU migrants and Germans after accounting for 'immigrant optimism' (model 5). For Turks and Poles, the differences with Germans become more similar, small and not statistically significant. This finding suggest that the 'immigrant optimism' hypothesis explains more of the variation for Turks compared to other groups.

Table 5-4: Mediation of the migrant group effect on educational expectations towards university entry qualification (OLS estimates)

	(1) baseline choice model	(2) + info I	(3) + info II	(4) + peers	(5) + attitude
Migrant Group (Ref.: German)					
Polish	0,12***	0,11**	0,11**	0,05	0,04
	(0,035)	(0,034)	(0,035)	(0,034)	(0,034)
Turk	0,18***	0,17***	0,17***	0,08***	0,05
	(0,022)	(0,022)	(0,022)	(0,023)	(0,024)
LM	0,07*	0,05	0,05	0,00	-0,00
	(0,029)	(0,029)	(0,029)	(0,030)	(0,030)
FSU	0,07**	0,07**	0,07**	0,02	0,00
	(0,025)	(0,025)	(0,025)	(0,024)	(0,023)
Info about Degrees		-0,01	-0,01	-0,01	-0,01
		(0,009)	(0,009)	(0,009)	(0,009)
Info about Requirements		0,06***	0,06***	0,04***	0,04***
		(0,008)	(0,008)	(0,007)	(0,007)
Estimated Return Bias (Doctor)			0,00***	0,00***	0,00***
			(0,000)	(0,000)	(0,000)
Estimated Return Bias (Teacher)			0,00	0,00	0,00
			(0,000)	(0,000)	(0,000)
Parental Aspirations				0,19***	0,17***
				(0,015)	(0,015)
Peer Aspirations				0,14***	0,12***
				(0,015)	(0,014)
Achievement norm					0,05***
					(0,005)
Controls	Yes	Yes	Yes	Yes	Yes
Constant	0,49***	0,35**	0,35**	0,37**	0,31**
	(0,112)	(0,115)	(0,115)	(0,111)	(0,111)
Observations	6445	6445	6445	6445	6445
Adjusted R^2	0.228	0.223	0.227.	0.294	0.308

*Note: All models net of gender, age, school type, school grades, German and math competence and socio-economic background (ISEI). Sample includes only non-university track students. Standard errors in parentheses clustered on school level. * p < 0.05, ** p < 0.01, *** p < 0.001. LM stands for former Labor Migrants and FSU stands for former Soviet Union. Coefficients for other groups not reported.*

In sum, the results demonstrate that migrant students at the end of compulsory school are – ceteris paribus – more likely than natives to expect a university entry diploma (Abitur) over lower and intermediate secondary school degrees. These differences are best explained by the 'immigrant optimism' hypothesis. Migrant students are driven by higher expectations from their parents and peers. These results support findings about the crucial role of peers in the US context (e.g. Portes et al. 2013, Feliciano and Lanuza 2015, Glick and White 2004). General attitudes towards the value of education also play a role. This means that student attitudes – in the form of internalized norms – have an effect on expectations that goes beyond the influence of parents and peers. These results suggest that family transmission of particular achievement norms is the best explanation for higher expectations among migrants. The results do not provide support for the 'information deficit' hypothesis.

5.6 Discussion

Previous evidence has consistently found that many migrant groups in Western countries show higher educational expectations and make more ambitious educational choices than natives given equal socio-economic background and school performance. A limited number of studies, particularly in the European context, have assessed the relevance of individual factors explaining these differences. The 'Immigrant Optimism' and 'Information Deficit' are the two dominant hypothesis that are proposed to account for ethnic differentials in expectations, however, empirical evidence is limited. Using novel operationalization of both mechanisms, I tested their significance and relative importance. The results are based on a large-scale representative survey of (non-university track) German students at the end of compulsory school.

Findings provide clear support for the immigrant optimism hypothesis. Immigrants aim higher because of specific achievement norms that are cultivated in migrant communities. These norms are transmitted through parental and peer expectations. Net of peer effects, general attitudes towards the value of education also explain ethnic differentials in educational expectations. Achievement norms

in immigrant communities are driven by so-called immigrant optimism. Migration is seen as a sacrifice of the parental generation who, in turn, place high expectations on the next (student) generation to attain upward social mobility and justify the initial investment of migration for the family.

In contrast to much discussion in the literature, migrants do not appear to aim higher because they lack information about the education system or because they have biased information about returns associated with different educational qualifications. As such, the results present little support for the 'information deficit' hypothesis.

However, this study faces certain limitations. First, no objective measures for the information about the information about the education system were available and I had to rely on self-reports. Secondly, there is large variation in estimated returns to different occupations. It is possible that 15/16 year olds simply do not have a clear idea about salaries associated with certain jobs. Measurement issues could apply here. Third, the study was unable to address other explanatory factors such as 'anticipated discrimination' (Heath, 2007: 438).

Despite these limitations, certain conclusions can be drawn from this study. *First*, the findings suggest that 'immigrant optimism' plays the major role for explaining relatively higher educational expectations among migrant students. The results point to the influence achievement norms which cultivated through parental and peer influences. Migrant students place higher value on the role of education which is an expression of such achievement norms. Achievement norms must be seen in the context of migration as an 'intergenerational mobility project' (Teney, 2013: 423) or 'immigrant bargain' (Louie, 2012: 2195) where children are expected to and strive towards paying off the sacrifice of migration invested by the parental generation. The key drivers behind ethnic differences in educational expectations appear to be factors dominant in the tradition of the classical Wisconsin Model: significant others (in particular, parents) and general attitudes towards education. This implicitly supports strong value transmission processes and internationalization among migrant families. Future studies should focus on value

transmission in migrant families as my results provide ample support for the relevance of such processes. In addition, more and better measurements for 'immigrant optimism' and 'information deficit' should be developed to further disentangle 'immigrant optimism' in education.

5.7 Appendix

Table 5-5: Summary statistics of model variables, by migrant group

	German				Polish				Turkish			
	Mean	*SD*	*Min*	*Max*	*Mean*	*SD*	*Min*	*Max*	*Mean*	*SD*	*Min*	*Max*
Educational Expectations	0.29	0.45	0	1	0.34	0.48	0	1	0.33	0.47	0	1
Female	0.48	0.5	0	1	0.59	0.49	0	1	0.47	0.5	0	1
Age (in years)	14.7	0.67	11	18	14.78	0.7	14	16	14.87	0.72	14	17
Lower Sec.	0.21	0.41	0	1	0.23	0.42	0	1	0.4	0.49	0	1
Intermediate Sec.	0.47	0.5	0	1	0.47	0.5	0	1	0.33	0.47	0	1
Combined Sec	0.14	0.35	0	1	0.11	0.32	0	1	0.04	0.19	0	1
Comprehensive Sec	0.16	0.37	0	1	0.18	0.38	0	1	0.23	0.42	0	1
German Grade - Poor	0.2	0.4	0	1	0.26	0.44	0	1	0.3	0.46	0	1
German Grade - Medium	0.48	0.5	0	1	0.45	0.5	0	1	0.47	0.5	0	1
German Grade - Good	0.32	0.47	0	1	0.28	0.45	0	1	0.23	0.42	0	1
Math Grade - Poor	0.28	0.45	0	1	0.28	0.45	0	1	0.34	0.47	0	1
Math Grade - Medium	0.37	0.48	0	1	0.42	0.49	0	1	0.37	0.48	0	1
Math Grade - Good	0.35	0.48	0	1	0.3	0.46	0	1	0.29	0.45	0	1
Socio-Economic Background (ISEI)	48.4	18.7	11.6	88.9	40.8	18.2	14.2	88.7	34.9	17.7	11.74	88.7
German Language Competence	-0.18	1.06	-4.02	3.3	-0.43	1.03	-2.82	2.8	-0.89	1.05	-3.43	3.3
Math Competence	-0.24	0.95	-4.07	4.62	-0.43	0.87	-2.32	2.06	-0.79	0.76	-2.59	2.28
Achievement Norm	2.29	1.07	1	5	2.73	1.16	1	5	3.25	1.22	1	5
Info Degrees	4.16	0.69	1	5	4.1	0.77	2	5	4.19	0.75	1	5
Info Requirement	3.84	0.82	1	5	3.96	0.82	2	5	3.99	0.8	1	5
Estimated Return Bias (Doctor)	0.38	157	-35	947	6.39	82	-34	965	1.44	45	-35	765
Estimated Return Bias (Teacher)	-2.45	39	-26	974	3.35	82	-25	974	1.72	53	-26	974
N	4375				151				363			

Table 5-5 continued…

	EU labor migrants				FSU			
	Mean	*SD*	*Min*	*Max*	*Mean*	*SD*	*Min*	*Max*
Educational Expectations	0.25	0.43	0	1	0.26	0.44	0	1
Female	0.52	0.5	0	1	0.51	0.5	0	1
Age (in years)	14.95	0.82	13	17	14.92	0.72	14	17
Lower Sec.	0.33	0.47	0	1	0.35	0.48	0	1
Intermediate Sec.	0.44	0.5	0	1	0.42	0.49	0	1
Combined Sec	0.03	0.17	0	1	0.05	0.23	0	1
Comprehensive Sec	0.19	0.39	0	1	0.16	0.37	0	1
German Grade - Poor	0.25	0.43	0	1	0.25	0.43	0	1
German Grade - Medium	0.5	0.5	0	1	0.47	0.5	0	1
German Grade - Good	0.25	0.44	0	1	0.28	0.45	0	1
Math Grade - Poor	0.41	0.49	0	1	0.33	0.47	0	1
Math Grade - Medium	0.38	0.49	0	1	0.35	0.48	0	1
Math Grade - Good	0.21	0.4	0	1	0.32	0.47	0	1
Socio-Economic Background (ISEI)	41.03	19.16	14.21	88.96	39.23	18.19	14.21	82.41
German Language Competence	-0.61	1.15	-3.09	3.3	-0.51	1.06	-4.05	3.3
Math Competence	-0.62	0.81	-2.59	2.84	-0.48	0.83	-3.16	2.54
Achievement Norm	2.52	1.14	1	5	2.62	1.14	1	5
Info Degrees	4.26	0.73	1	5	4.13	0.73	1	5
Info Requirement	4.1	0.77	2	5	3.82	0.84	1	5
Estimated Return Bias (Doctor)	-1.38	26.62	-30	265	-1.76	22.22	-35	165
Estimated Return Bias (Teacher)	-2.38	15.77	-25.7	174	-1.85	19.93	-26	299
N	234				352			

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Erklärung

Hiermit erkläre ich, dass ich die Dissertation selbstständig verfasst, dabei keine anderen Hilfsmittel als die im Quellen- und Literaturverzeichnis genannten benutzt und alle aus Quellen und Literatur wörtlich oder sinngemäß entnommenen Stellen als solche kenntlich gemacht habe.

Ich versichere außerdem, dass weder die gesamte Dissertation, noch Bestandteile daraus bereits einer anderen Prüfungsbehörde zur Erlangung des Doktorgrades vorlagen.

Zum Zeitpunkt der Einreichung wurden keine Bestandteile der Dissertation an anderer Stelle publiziert.

Jasper Dag Tjaden

Berlin, 01.09.2016