Foreign qualifications and immigrants‘ prospects in the labor market: Survey experiments among employers

Ausländische Berufsabschlüsse und die Einstellungschancen zugewanderter Fachkräfte auf dem Arbeitsmarkt: Survey-Experimente unter Arbeitgebern

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Summary

With this thesis, I aim to provide a better understanding of immigrants' integration processes in internationalizing societies by studying how the structural conditions under which immigration takes place affect immigrants' economic incorporation. Immigrants' successful economic incorporation is key to their successful integration in the receiving society; yet, it is often impeded by immigrants' foreign qualifications that prove less valuable in the receiving labor market.

My research scrutinizes how national institutions shape the opportunities of immigrants with foreign qualifications in the labor market. First, I zoom in on the interplay between educational institutions in immigrants' sending and receiving countries, which I argue will determine the opportunity structure for importing foreign education. Depending on the institutional configuration in their sending country, immigrants will bring a certain type of education, and depending on the institutional configuration in the receiving country, employers will prefer a certain type of education that can prove more or less compatible with that supplied by immigrants. Second, I study the effectiveness of institutions that receiving countries put in place to improve immigrants' opportunities in the labor market. To facilitate employers' recognition of the foreign education that immigrants bring, several countries have introduced procedures to officially recognize foreign educational credentials.

In factorial surveys, I simulate hiring processes for medium-skilled positions in various occupations and study how employers respond to foreign-educated applicants that recently immigrated. Using vignettes, I experimentally vary the applicant profiles in several dimensions, and ask the employers to rate how likely they would invite the applicants to interview for jobs that correspond with their foreign qualifications, and how much on-the-job-training they expect would be required upon hiring the applicants. This controlled experimental setting provides excellent leverage for analyzing how national institutions shape immigrants' opportunities. By exploring how employers in different institutional contexts of reception respond to foreign-educated applicants from systems of various institutional configurations, I can clarify how the interplay between educational institutions in sending and receiving countries affects immigrants' prospects in the labor market. Moreover, by comparing how employers respond to immigrants with non-recognized foreign credentials, recognized foreign credentials, and credentials acquired in the receiving country, I can demonstrate the extent to which foreign credential recognition improves immigrants' prospects of successful positioning.

The empirical findings underpin that the institutional context in which immigrants have acquired their foreign education clearly matters to employers: Immigrants from countries where highly standardized vocation-oriented education and training systems are in place have better chances of importing their foreign qualifications and getting hired for adequate jobs than immigrants from countries with less vocation-oriented systems. Notably, this is the case both in labor markets where vocational pathways strongly regulate the allocation of workers to jobs, such as in Germany, and in more flexible markets, such as in England.

Nevertheless, there remains some hope for immigrants that do not have the right type of educational background: Further analyses reveal that under certain circumstances, they will be able to overcome the institutional shortcomings of their education – for example, when they bring extensive occupational experience from their sending country. Moreover, the analyses show that the official recognition of foreign credentials has considerable potential to effectively foster immigrants' labor market integration. Although foreign credential recognition does not lift foreign-educated applicants' hiring chances to the level of native-educated applicants, immigrants with recognized foreign credentials have significantly better prospects of accessing adequate jobs.

Taken together, this thesis highlights the institutional embeddedness of stratification processes and immigrants' integration in internationalizing labor markets and provides new insights into the conditions and strategies that allow immigrants to access jobs that correspond with their foreign qualifications.

Zusammenfassung

Die erfolgreiche Platzierung auf dem Arbeitsmarkt ist sicherlich eine wesentliche Grundvoraussetzung für eine langfristig erfolgreiche Integration von zugewanderten Personen in die Aufnahmegesellschaft. Deren Integrationsprozess wird jedoch häufig dadurch erschwert, dass sich im Ausland erworbene Qualifikationen auf dem Arbeitsmarkt als weniger wertvoll erweisen.

Die vorliegende Dissertation widmet sich der Frage, wie sich die institutionellen Rahmenbedingungen, unter denen qualifizierte Zuwanderung stattfindet, auf die Integration von ausländischen Fachkräften auswirken. Zum einen wird untersucht, welche Rolle die institutionelle Ausgestaltung von Ausbildungssystemen im Herkunfts- und Aufnahmeland spielt. Vom Zusammenspiel der Ausbildungssysteme wird wesentlich abhängen, ob der Typus von Qualifikationen, den ausländische Fachkräfte mitbringen, mit dem Typus von Qualifikationen, den Arbeitgeber im Aufnahmeland voraussetzen, kompatibel ist. Zum anderen wird untersucht, inwiefern die offizielle Anerkennung von ausländischen Berufsabschlüssen im Aufnahmeland dazu beitragen kann, die Integrationschancen zugewanderter Fachkräfte zu verbessern.

Hierfür wurden mit Hilfe von faktoriellen Surveys gezielt Bewerbungs- und Auswahlverfahren für verschiedene Berufe simuliert und analysiert, wie Arbeitgeber kürzlich zugewanderte Bewerberinnen und Bewerber, die ausländische Berufsabschlüsse mitbringen, bewerten. Dabei wurden Personalverantwortlichen eine Reihe von Vignettenbeschreibungen vorgelegt, in denen die Ausbildungsprofile und Individualmerkmale der ausländischen Bewerberinnen und Bewerber experimentell randomisiert wurden. Auf dieser Basis bewerteten die Befragten, mit welcher Wahrscheinlichkeit sie die ausländischen Fachkräfte zu Vorstellungsgesprächen für entsprechende Stellen einladen und mit welchem Einarbeitungsaufwand sie rechnen würden.

Survey-Experimente dieser Art bieten eine ideale Grundlage, um die Auswirkungen institutioneller Rahmenbedingungen im Detail nachvollziehen zu können. Indem Befragte in verschiedenen Aufnahmeländern jeweils Fachkräfte aus Ländern mit unterschiedlichen Ausbildungssystemen bewerten, kann herausgearbeitet werden, wie sich das Zusammenspiel der Ausbildungssysteme in Herkunfts- und Aufnahmeländern auf die Integrationschancen am Arbeitsmarkt auswirkt. Darüber hinaus kann unmittelbar verglichen werden, wie die Befragten auf Zugewanderte mit ausländischen Abschlüssen, offiziell anerkannten ausländischen Abschlüssen und im Aufnahmeland erworbenen Abschlüssen reagieren. Dieser Vergleich macht deutlich, inwieweit die offizielle Anerkennung ausländischer Abschlüsse die Aussichten der Zugewanderten auf adäquate Beschäftigung verbessert.

Die empirischen Ergebnisse zeigen zunächst, dass die institutionelle Ausgestaltung des Ausbildungssystems, in dem Zugewanderte ihre Ausbildung erworben haben, für die Übertragbarkeit ihrer Qualifikationen und ihre Arbeitsmarktchancen von Bedeutung ist: Zugewanderte aus Ländern mit stark standardisierten und beruflich ausdifferenzierten Ausbildungssystemen haben bessere Chancen, für entsprechende Jobs eingestellt zu werden. Interessanter Weise trifft dies sowohl auf dem deutschen Arbeitsmarkt, in dem der Zugang zu beruflichen Positionen stark an berufliche Abschlüsse gekoppelt ist, als auch auf dem englischen Arbeitsmarkt zu, den eine höhere Flexibilität und geringere berufliche Strukturierung kennzeichnen.

Es gibt jedoch auch Anlass zur Hoffnung für Zugewanderte, die nicht aus den bevorzugten Ausbildungssystemen stammen: Weitere Analysen zeigen, dass sie unter gewissen Umständen die institutionellen Defizite ihrer Ausbildung kompensieren können – zum Beispiel, wenn sie in ihrem Herkunftsland bereits ausreichend Berufserfahrung gesammelt haben. Darüber hinaus zeigt sich, dass die offizielle Anerkennung ausländischer Berufsabschlüsse beträchtliches Potenzial birgt, um die Arbeitsmarktintegration ausländischer Fachkräfte zu fördern. Obwohl mit anerkannten ausländischen Berufsabschlüssen nicht dieselben Arbeitsmarktchancen wie mit einheimischen Berufsabschlüssen erreicht werden können, verbessert die Anerkennung doch signifikant die Aussichten auf Zugang zu entsprechenden qualifizierten Arbeitsplätzen.

Zusammenfassend lässt sich festhalten, dass die institutionelle Einbettung einen wichtigen Beitrag zur Erklärung der Platzierung zugewanderter Fachkräfte auf dem Arbeitsmarkt leistet. Diese Dissertation liefert neue Einblicke, unter welchen Bedingungen und mit Hilfe welcher Strategien ihnen der Zugang zu Arbeitsplätzen, die ihren ausländischen Qualifikationen entsprechen, gelingen kann.

1 Introduction

In the contemporary era of immigration, intensifying international mobility and demographic change draw added attention to the integration of skilled immigrants in many industrialized nations. International labor migration is expected to increase in the years to come (Castles and Miller, 2014) and migrants are increasingly attracted to high-income countries (OECD, 2016), turning their labor markets into more and more international hiring arenas. A prominent example that illustrates the ongoing internationalization of labor markets is the right of free movement and residence of workers within the European Union (EU) that entitles EU nationals to look for and take up jobs in other EU countries. Many of today's immigrants bring foreign qualifications that they have acquired back home. Looking ahead, countries can ill afford to fail with incorporating these immigrants – many countries must not only cope with an ageing domestic workforce and resulting skill shortages but also with the ethnic conflicts that may arise as their societies internationalize.

On the path towards immigrants' successful integration, their economic incorporation plays a pivotal part. Clearly, immigrants that succeed in the labor market will have better opportunities to earn their livelihood, pursue a promising career and foster their skills and economic well-being. However, whether immigrants can successfully position themselves in the labor market has further implications. Access to good jobs empowers immigrants to develop their social networks and cultural capital, boost their self-esteem and sense of belonging, and improve their socio-economic status and acceptance in the receiving society. Thus, a successful economic incorporation early upon arrival is perhaps the most important cornerstone in immigrants' social integration overall (Esser, 2001).

An issue of crucial importance is whether immigrants can utilize their foreign qualifications and access adequate positions. Prior research suggests that bringing foreign qualifications by no means guarantees that immigrants will be able to succeed in the receiving labor market. Rather, empirical evidence clearly shows that the returns to foreign education are typically lower than those to domestic education (Arbeit and Warren, 2013; Kanas and van Tubergen, 2009; Kreyenfeld and Konietzka, 2002; Zeng and Xie, 2004). Thus, being educated abroad often turns out to be an obstacle to immigrants' economic success.

In this thesis, I emphasize that immigrants' opportunities of utilizing their foreign education in the labor market will depend on national institutions. My contribution is twofold: First, I zoom in on the interplay between educational institutions in immigrants' sending and receiving countries, which I argue will determine the opportunity structure for importing foreign qualifications. I show

how similarities and differences in the configuration of education systems in sending and receiving countries enable or constrain the importability of foreign education and, thus, the chances that foreign-educated immigrants can access adequate jobs. Second, I study the effectiveness of institutions that receiving countries put in place to improve immigrants' opportunities of utilizing their foreign education in the labor market, namely official procedures for recognizing foreign educational credentials. Taken together, my thesis provides new insights into the conditions and strategies that allow immigrants to access jobs that correspond with their foreign education and thereby contributes to a better understanding of immigrants' integration processes in internationalizing societies.

1.1 The positioning of foreign-educated immigrants in the labor market

Immigrants' social integration is best described as a multidimensional process (Esser, 2001): In *acculturation* (or socialization) processes, immigrants may acquire relevant knowledge, competencies and skills that allow them to interact with and participate in the receiving society – most importantly, they develop skills in the host language and familiarize with the host culture. In *positioning* processes, immigrants become incorporated in the positional system of the receiving society. They are granted certain rights, such as citizenship or the right to work in certain occupations, and attain certain positions, such as in the education and training system or the labor market, that provide them with opportunities to acquire relevant capital. Through *interaction* with members of the receiving society, immigrants can develop inter-ethnic relationships and social networks by joining groups or organizations, tying friendships or getting married, for example. These social ties allow them to accumulate social and cultural capital. Finally, immigrants experience cognitive and emotional *identification* processes through which they may start feeling attached to the receiving society and develop a sense of belonging.

Obviously, the integration processes outlined above are highly interdependent, as one process often parallels another. Nevertheless, immigrants' positioning in the labor market will arguably be the key mechanism in their social integration because it can grant them access to essential material and immaterial goods and opportunity structures that help facilitate further sub-processes of integration (Esser, 2001; Kalter and Granato, 2002). In other words, much of what happens later in immigrants' lives can be expected to be shaped by their initial positioning in the labor market.

Theory predicts that once immigrants fail to access skilled positions in the labor market, they may incur persistent disadvantages in the longer run. According to dual labor market theory (Doeringer

and Piore, 1971), individuals that fail with entering jobs in the skilled segment will be confined to jobs in the lower-skilled segments of the labor market. These jobs are more prone to turnover and unemployment and therefore relatively unstable, they offer low pay and limited access to further training on the job, make it hard to finance further study or training outside of work, and provide few network resources for reaching better positions. Once immigrants have arrived in these jobs, they may not be able to acquire the necessary capital for upward mobility into the skilled segment and can get stuck in outsider positions (Lindbeck and Snower, 1988). Moreover, provided that (upward) mobility into other segments will be difficult, immigrants may deliberately refrain from making the necessary investments towards better positions and fall into 'ethnic mobility traps' that perpetuate their initial economic disadvantages (Wiley, 1967). Overall, such processes may contribute to ethnic segmentation that will severely hamper immigrants' integration (Esser, 2001).

In immigrants' positioning in the labor market, their *individual characteristics* naturally play a major role – above all, their level of education and relevant human capital (Becker, 1964; Mincer, 1974). The literature provides a series of theoretical explanations as to why foreign individuals who have acquired their education abroad may incur disadvantages in the labor market. First, immigrants often arrive with educational credentials that are on a lower level than those in the receiving country, or of lower relevance. This can be due to disparities in the level of educational opportunity across countries, especially between less-developed sending countries and industrialized receiving countries (Borjas, 1994). In addition, it can be attributed to the fact that human capital is not fully transferable but partly country-specific (Chiswick and Miller, 2008, 2009; Friedberg, 2000). Part of the skills and knowledge that immigrants have acquired in their sending country will therefore typically prove less productive in other societal contexts. Important examples include language skills and knowledge about national institutions and the functioning of the labor market. Through cross-border migration, such skills and knowledge are often discounted, which results in a devaluation of immigrants' human capital. Second, following signaling (Spence, 1974) and screening (Stiglitz, 1975) theories of labor market allocation, employers in the receiving country may have a limited understanding of the productivity that educational credentials from foreign education and training systems accredit. Foreign credentials are therefore assumed to have a lower signaling value (Smoliner, 2011; Weins, 2010), which puts foreign-educated immigrants at a disadvantage in hiring processes (Damelang and Abraham, 2016). Third, foreign-educated immigrants may incur disadvantages if employers discriminate against foreigners due to imperfect information about their productivity (Aigner and Cain, 1977; Phelps, 1972) or ethnic prejudice (Becker, 1971). Fourth, immigrants' individual preferences and motives, such as their inclination to return to their home country at a later point in time (Bonacich, 1972), will determine the extent

to which they will invest in host country-specific human capital and impact their aspirations in the labor market. If employers assume that immigrants will only stay temporarily, they may be reluctant to hire them (Offe and Hinrichs, 1977).

The central argument that I stress in this thesis is that beyond individual characteristics, the positioning of immigrants in the labor market will hinge upon the *structural conditions* under which immigration takes place. In migration research, these economic opportunity structures must be considered when studying integration processes (Esser, 2008). Immigrants' labor market integration can only be understood by considering the interplay between immigrants' individual resources and receiving countries' structural constraints (Kogan et al., 2011).

National institutions are an essential part of the structural conditions that impinge upon immigrants' opportunities in the labor market. In my research, I study how national institutions will shape the opportunities of foreign-educated immigrants to access skilled positions that correspond with their foreign qualifications. First, I account for the interplay between educational institutions in immigrants' sending and receiving countries. I argue that this institutional interplay provides distinctive opportunity structures for importing foreign qualifications, because educational institutions shape how employers assign workers to positions in the labor market (Abraham et al., 2018). Depending on the institutional context of reception, employers will prefer a certain type of education, and depending on the educational institutions in sending countries, immigrants will bring a certain type of education that can prove more or less compatible with that demanded by employers. Thus, cross-national differences in educational institutions can constrain foreign-educated immigrants from accessing skilled positions in the receiving labor market despite their ability to access comparable positions back home. Second, I address the effectiveness of institutions that receiving countries put in place to support immigrants' integration. To facilitate employers' recognition of the foreign education that immigrants bring, several countries have introduced official procedures for recognizing foreign educational credentials. The expectation is that with officially recognized foreign credentials, immigrants will have better prospects of accessing jobs that correspond with their foreign education.

Unlike previous empirical research on foreign education and immigrants' integration in the labor market, which has traditionally focused on the supply side and analyzed worker data, I shift the attention to processes on the demand side of the labor market and study how employers respond to immigrants with foreign education in hiring processes. Despite employers' pivotal role in the positioning process in the labor market, surprisingly few studies have focused on their decision-making (Bills et al., 2017). By exploring how employers in different institutional contexts of

reception respond to foreign-educated immigrants from systems of different institutional configurations, I can clarify how the interplay between educational institutions in sending and receiving countries affects immigrants' prospects in the labor market. Moreover, by comparing how employers respond to immigrants with non-recognized and recognized foreign credentials as well as credentials acquired in the receiving country, I can demonstrate the extent to which foreign credential recognition improves immigrants' prospects of successful positioning.

1.2 Foreign vocational qualifications in the German labor market

My empirical analyses primarily concern immigrants with foreign vocational qualifications in the German labor market. How German employers respond to foreign-educated immigrants is becoming all the more relevant as Germany's population is ageing and skilled immigration is promoted as a viable strategy to sustain the supply and augment the skill base of the domestic labor force (BMWi, 2019). Currently, Germany ranks among the top destinations for labor migration in Europe and approximately 64 percent of its recent labor immigrants bring qualifications from abroad (BAMF/BMI, 2020). These recent newcomers therefore largely differ from the early cohorts of low-skilled immigrants that Germany started recruiting as "guest workers" during the 1960s (Kogan, 2011).

Germany's highly vocation-oriented configuration of the education system and the labor market imposes considerable institutional constraints upon the importability of foreign education (Kreyenfeld and Konietzka, 2002). For most occupations, Germany has clear-cut vocational pathways between the education system and occupational positions in the labor market (Müller and Shavit, 1998; Müller et al., 1998). The strong vocational orientation is particularly evident in the medium-skilled segment, where Germany's dual system of vocational education and training provides vocation-specific apprenticeships for over 300 occupations (BIBB, 2019: p. 79). Access to most of these occupations is not formally regulated, as employers are not obliged to require certain degrees from applicants that want to work in them. Nevertheless, when hiring in these occupations, employers pay high attention to the vocational credentials provided by the dual system because these credentials reliably signal that job applicants have the relevant occupational skills (Gangl, 2001; Leuze, 2011). This is because Germany's institutional framework ensures that the vocation-specific skills that get promoted in the dual system closely correspond with the skills that employers demand in different occupations and are standardized at the national level. Given the high degree of vocational specialization and standardization, employers share a common understanding of what to expect of apprentices in an occupation and design their jobs according

to the supply of skills as laid out in the training system (Marsden, 2000). Consequently, vocational credentials acquired within the German system are prerequisites for accessing employment even in the nonlicensed occupations in the German labor market (Konietzka, 1999; Solga and Konietzka, 1999; Kalter and Granato, 2007).

Whereas such vocation-oriented institutional settings facilitate the transitions from domestic vocational education and training into matching labor market positions (Damelang et al., 2018), they have been noted to have negative side effects for immigrants' labor market integration (Lancee, 2016). Most countries have less vocation-oriented systems and immigrants therefore often lack the specific occupational skills and degrees that employers in countries with vocation-oriented systems demand (Lancee, 2016; Lancee and Bol, 2017). Unless employers recognize immigrants' foreign vocational credentials as equivalent to native ones, immigrants will struggle with accessing jobs that correspond with their education.

Accordingly, labor market outcomes in Germany are highly dependent on whether vocational qualifications are acquired in Germany or abroad. The employment rate of immigrants with foreign qualifications lies almost 15 percentage points below that of immigrants with German qualifications (OECD/EU, 2018: p. 75), and the overqualification rate among the foreign-educated is twice as high as among their peers with German education (OECD/EU, 2018: p. 86). It has also been shown that in Germany's vocational segment, foreign-educated applicants fall short of the average German-educated applicant in the hiring competition (Damelang and Abraham, 2016). Moreover, immigrants have been found to receive lower wage returns to their vocational qualifications than German natives with comparable qualifications (Kreyenfeld and Konietzka, 2002). Their situation in the labor market worsens if they fail with accessing the occupation in that they were trained – in fact, there is evidence that immigrants who fail with accessing their trained occupation are treated as if they had no vocational education and training at all and, thus, remain confined to unskilled and semi-skilled jobs (Kreyenfeld and Konietzka, 2002). This bears a high risk for immigrants of becoming entrapped in dead-end jobs that offer precarious work, poor pay and low status. Further evidence suggests that once immigrants are allocated within Germany's secondary labor market segments, they are likely to end up in a vicious cycle with a higher risk of losing their employment and finding re-employment only within the unskilled sector (Kogan, 2004). These mechanisms contribute to the marked disadvantages that are observed for immigrants in the German labor market (for an overview, see Kalter and Granato, 2018).

Regarding institutions and strategies that may improve the situation of foreign-educated immigrants in the labor market, empirical studies suggest that the official recognition of foreign

credentials in Germany (BQFG, 2012) will improve immigrants' prospects of entering skilled positions (Brücker et al., 2016; Kogan, 2012, 2016). Notwithstanding these improvements, evidence also suggests that immigrants' wages will not fully catch up with those of German natives even when immigrants' credentials are officially recognized (Kreyenfeld and Konietzka, 2002).

1.3 New insights from factorial survey experiments among employers

Although prior studies have acknowledged the important role played by the institutional configuration of education and training systems in immigrants' integration (e.g., Kogan, 2006; Lancee, 2016), they have rarely integrated the interplay between the educational institutions in immigrants' sending and receiving countries in the empirical analyses. Migration studies have only just begun to develop research designs that link and compare the contexts of departure and reception (e.g., Diehl et al., 2016). Thus, the hypothesis that immigrants incur disadvantages in the receiving labor market because they come from incompatible educational systems often lacks direct empirical testing.

Moreover, little is known about how employers act on foreign qualifications. Despite employers' gatekeeping role in the labor market, very few studies have examined employers' decision-making regarding foreign education (e.g., Damelang and Abraham, 2016). This is peculiar – after all, the way that employers act on foreign education will have a strong impact on immigrants' integration in the receiving country.

With this thesis, I aim to bridge these gaps by shifting the focus to how employers respond to foreign education depending on the institutional context. Using factorial surveys, I simulate hiring processes among employers and study how vocational qualifications acquired in foreign education and training systems affect their decisions. Factorial surveys incorporate the experimental methodology into classical survey research (for a comprehensive methodological introduction, see Auspurg and Hinz, 2015). The survey respondents evaluate series of short descriptions of hypothetical situations (vignettes) that vary experimentally in several characteristics (dimensions) on values (levels) specified by the researcher. All the experimental dimensions and their respective levels are combined with each other and, thus, the dimensions are not correlated (Rossi and Anderson, 1982). With such orthogonal designs, the effect sizes for each dimension can be estimated (Wallander, 2009).

The simulated hiring processes primarily concern jobs in the medium-skilled segment of the German labor market where employers typically require the relevant vocational credential. In the

surveys, the employers are shown randomized vignette profiles of applicants who recently immigrated. Across these profiles, the applicants vary experimentally in their educational background and individual characteristics, among other dimensions. Based on the provided information, the employers are asked to rate the applicants regarding how likely they would invite the applicants to a job interview, and how much on-the-job training the applicants would require upon hiring.

The experimental logic inherent in factorial surveys has several advantages over analyzing data from traditional surveys (Wallander, 2009). In factorial survey experiments, one can thoroughly control the information upon which employers base their decisions and hold potentially confounded variables constant. Unlike traditional survey data, the experimental data fully disclose the characteristics of all the job applicants that employers evaluate and therefore avoid unobserved heterogeneity bias. In factorial surveys, one can even collect detailed information on the unsuccessful applicants that employers are likely to screen out, which is rarely available in other data. Moreover, compared to conventional survey items, the simultaneous variation of multiple experimental stimuli makes it less likely that employers give socially desirable answers. Thus, factorial survey designs help minimize the risk of social desirability bias. These advantages render the factorial survey methodology ideal for establishing the causal relationships between applicants' characteristics of interest and employers' decisions. Accordingly, factorial survey designs are state-of-the-art for studying employers' decision-making in the hiring context (see, e.g., Damelang and Abraham, 2016; De Wolf and van der Velden, 2001; Di Stasio, 2014; Di Stasio and Gërxhani, 2015; Di Stasio and van de Werfhorst, 2016; Protsch and Solga, 2017).

For in-depth studies on how foreign qualifications affect employers' hiring decisions, factorial survey designs have the additional advantage that they can be used to break down foreign education and training systems into their distinctive institutional dimensions. I carefully develop survey designs that consider the distinctive educational backgrounds and credentials of applicants educated in foreign countries. At the same time, I ensure that employers' evaluations are not biased by discrimination against applicants of certain foreign nationalities. By introducing all applicants as foreigners without naming their countries of origin, I prevent that national stereotyping and ethnic prejudice by employers suppress the effects of interest and bias the results. In this way, I can isolate the effect of having certain types of foreign qualifications from that of being a foreigner. Beyond the identification of single effects, integrating several applicant characteristics in my survey design and letting employers assess them simultaneously allows me to study interactions between various applicant characteristics – for example, can applicants make up for having

qualifications from less compatible systems with other characteristics, such as occupational experience?

With this powerful research design at hand, I survey managers in firms who have responsibility for personnel and a say in hiring decisions. Considering that labor markets can be characterized by considerable vocational segmentation, I simulate hiring processes for jobs in different occupations – both white- and blue-collar – that can be found across a variety of sectors from industry to trade, manufacturing and craft, catering and services. By studying firms' hiring behavior across these occupations, the thesis at hand provides comprehensive insights into the role that foreign education plays in immigrants' prospects in the labor market.

1.4 Overview

In the chapters that follow, I present insights from four different studies. Whereas all the studies employed factorial surveys to simulate hiring processes among employers, the survey design for each study was adapted to the specific research interest.

In Chapter 2 "Effects of national institutions on the transferability of human capital – Insights from factorial survey experiments among employers in medium-skilled segments of the German labor market", I start out by highlighting the role that national institutions play in the transferability of human capital across countries. I argue that the extent to which immigrants succeed with importing their human capital skills will depend on differences and similarities in the configuration of vocational education and training systems in sending and receiving countries. I develop a factorial survey design that allows me to scrutinize how the institutional configuration of the systems in sending countries affects the transferability of immigrants' human capital to Germany's highly vocation-oriented labor market. In simulated hiring processes, I compare the productive capacity of immigrants from countries with more and less vocation-specific configurations of the vocational education and training system. To measure the productive capacity, I let German employers rate how much on-the-job training the immigrants would require upon hiring at their firm. My empirical analyses show that throughout the medium-skilled vocational segments under study, more vocation-specific configurations of the training system in sending countries significantly reduce the amount of on-the-job training that employers in Germany deem necessary when hiring immigrants. These findings confirm the theoretical expectation that compatible institutional configurations of training systems in sending countries will enhance the transferability of

immigrants' human capital to vocation-oriented labor markets, whereas less compatible institutional configurations will constrain it.

Chapter 3 "The hiring prospects of foreign-educated immigrants: A factorial survey among German employers", which I coauthored with Martin Abraham, Andreas Damelang and Sabine Ebensperger, further explicates on the conditions under which employers in Germany grant immigrants access to jobs commensurate with their foreign education. In detail, we analyze whether employers trade off the less compatible educational characteristics of immigrants against other favorable attributes. Again, the focus is on the institutional configurations of the foreign education systems that the immigrants come from – more specifically, the systems' degree of standardization and vocational orientation. We argue that foreign educational credentials from more standardized and more vocation-oriented systems will better signal the suitability of a jobseeker and therefore prove more favorable in the hiring process. Correspondingly, we develop a factorial survey design with which we can compare the value of foreign credentials from these types of systems, ceteris paribus. In simulated hiring processes, we let employers rate the likeliness that they would invite applicants with credentials from these systems to a job interview. Our findings are twofold: On the one hand, the empirical results underpin that the transferability of foreign qualifications to Germany strongly depends on the institutional characteristics of foreign education systems. German employers prefer applicants from systems that are vocation-oriented and standardized – i.e., applicants from systems similar to that in Germany – and, thus, applicants from other types of systems are disadvantaged. On the other hand, the results show that German employers are willing to accept differences in education because they consider institutional differences a trade-off against other attributes, such as relevant foreign work experience. In this way, immigrants in Germany can compensate for their lack of vocation-oriented and standardized education.

Chapter 4 "How national institutions shape skilled immigrants' chances of getting hired – Evidence from harmonized factorial surveys with employers in Germany and England" is also coauthored with Martin Abraham, Andreas Damelang and Sabine Ebensperger. It expands on the insights from Chapter 3 in that it examines the conditions under which immigrants get hired for jobs commensurate with their foreign education in a cross-country comparison. We argue that countries provide distinct opportunity structures for immigrants' integration, because the national socio-economic environment shapes the job assignment process. Thus, immigrants' hiring chances depend on the interplay between institutions in sending countries, which determine the type of education that immigrants bring, and institutions in receiving countries, which shape employers'

preferences for certain types of education. We develop a factorial survey design that considers this interplay and allows us to directly compare how education from sending countries with different institutional arrangements is rated by employers in Germany and England, two countries with widely divergent institutional contexts of reception. Using a harmonized survey design across the two countries, we simulate hiring processes and evaluate the chances that German and English employers would invite foreign-educated immigrants to interview for jobs commensurate with their education. The survey design makes it possible to experimentally vary the institutional settings in which immigrants acquired their education in the sending country and isolate their effect on employers' ratings. The key finding is that immigrants from sending countries with highly standardized and vocation-oriented education systems prevail in the hiring competition irrespective of the education system in the receiving country. In both Germany and England, immigrants with highly standardized vocation-oriented education have better chances of getting hired.

Chapter 5 "Foreign credential recognition and immigrants' chances of being hired for skilled jobs – Evidence from a survey experiment among employers", coauthored with Andreas Damelang and Sabine Ebensperger, provides insights into how the disadvantages of having foreign education can be effectively countered. In this chapter, we examine the extent to which having recognized foreign credentials in Germany improves immigrants' chances of getting hired for jobs commensurate with their foreign education. We develop a factorial survey design with which we can isolate the causal effect of foreign credential recognition on the chances of getting hired. In simulated hiring processes, we let German employers rate the likeliness that they would invite applicants with foreign credentials, recognized foreign credentials, and native credentials to a job interview at their firm. The central finding is that having recognized foreign credentials considerably narrows but does not completely close the gap in the hiring chances between foreign- and native-trained applicants. Thus, foreign credential recognition is a promising tool to highlight immigrants' skill potential and reduce the disadvantages of the foreign-trained in the labor market, but it hardly harmonizes the hiring chances of native- and foreign-trained applicants. Moreover, we find that the extent to which applicants benefit from foreign credential recognition varies with their occupational experience but not with the quality of the educational system in which they were trained.

In Chapter 6, I conclude with a discussion of the implications and limitations of the presented findings and provide an outlook on future research in the field.

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2 Effects of national institutions on the transferability of human capital – Insights from factorial survey experiments among employers in medium-skilled segments of the German labor market

Abstract

This study highlights the role that national institutions play in the transferability of human capital across countries. It builds on the assumption that the extent to which immigrants succeed with importing their human capital skills will depend on differences and similarities in the configuration of training systems in sending and receiving countries. I develop a factorial survey design that allows me to study specifically how the institutional configuration of training systems in sending countries affects the transferability of immigrants' human capital to Germany's highly vocation-oriented labor market. Using vignettes, I simulate hiring processes for medium-skilled positions and let German employers assess the productive capacity of immigrants from countries with more and less vocation-specific configurations of the training system. My empirical analyses show that throughout the medium-skilled vocational segments under study, more vocation-specific configurations of the training system in sending countries significantly reduce the amount of on-the-job training that German employers deem necessary when hiring immigrants. These findings confirm the theoretical expectation that compatible institutional configurations of training systems in sending countries will enhance the transferability of immigrants' human capital to vocation-oriented labor markets, whereas less compatible institutional configurations will constrain it.

2.1 Introduction

The extent to which skilled immigrants can transfer the human capital that they have accumulated in the sending country to the country of destination largely determines their prospects in the receiving labor market. Prior research has shown that immigrants' human capital is typically not fully transferable from one country to another but depreciates upon immigration (Chiswick and Miller, 2008, 2009; Friedberg, 2000; Kanas and Van Tubergen, 2009; Zeng and Xie, 2004). Comparative studies have found that the extent to which immigrants' human capital depreciates depends on the institutional configuration of the training system in the receiving country. Immigrants have especially low employment prospects in receiving countries where the training system is more vocationally oriented (Lancee, 2016; Lancee and Bol, 2017). In view of these findings, it is often assumed that immigrants will have different opportunities of transferring their human capital to the receiving labor market even when they formally have the same level of qualification.

In this paper, I highlight that institutional configurations of training systems play a significant role in the transferability of immigrants' human capital across countries. I argue that the extent to which immigrants succeed with importing their skills will depend on institutional differences and similarities between sending and receiving countries. The institutional configuration of the training systems in sending and receiving countries will determine whether the skills that immigrants supply are compatible with the skills that employers demand. Countries have pursued widely divergent trajectories in terms of the training and skill regimes that they institutionalized (Thelen, 2004). In some countries, institutional configurations are in place that ensure that training promotes highly functional vocation-specific skills for different occupations, whereas in others, training is less oriented towards specific occupations but towards more general cognitive skills, such as literacy and numeracy (Breen, 2005).

Against this theoretical background, I empirically examine how the institutional configuration of training systems in sending countries affects the transferability of immigrants' human capital to the German labor market. Germany provides an ideal-typical example for a country where training is highly vocation-specific and accordingly, employers demand vocation-specific skills in the labor market. The nexus between vocation-specific skills and labor market positions is particularly strong in the medium-skilled vocational segments, where Germany's dual system provides highly specific training for different occupations. In these occupations, immigrants have better prospects of being hired if they come from training systems of similar configurations (Damelang et al., 2019).

I expect that the highly vocation-specific configuration of the training system for these skilled segments in Germany imposes institutional constraints upon the transferability of immigrants' human capital. My hypothesis is that immigrants from countries where occupational profiles are similarly vocation-specific will better meet the skills that German employers demand and, thus, have lower limitations in transferring them to the German labor market.

My empirical strategy is to study immigrants' productive capacity from the perspective of employers. Employers act as gatekeepers to skilled positions in the labor market (Bills et al., 2017). Thus, how employers assess immigrants' productive capacity in hiring decisions will provide immediate insights into the extent to which immigrants succeed with importing their foreign human capital. If immigrants from countries with more vocation-specific institutional configurations of training are better able to transfer their human capital to Germany as hypothesized, German employers should estimate the amount of on-the-job-training that these immigrants will require upon hiring to be lower than that of immigrants from countries with less vocation-oriented configurations.

In factorial survey experiments among German employers, I simulate hiring processes for skilled positions. Using vignettes, I present fictitious applicants that recently immigrated to Germany to managers that have a say in hiring decisions. Across the applicant descriptions, I experimentally vary the institutional configuration of the training systems in the applicants' sending countries and other relevant characteristics. Based on this information, I ask the managers to rate the amount of on-the-job- training that they deem necessary if they were to hire the applicants in a skilled position at their organization.

The factorial survey methodology is state-of-the-art when it comes to studying employers' behavior in hiring contexts (see, for example, Damelang and Abraham, 2016; Damelang et al., 2019, 2020; De Wolf and van der Velden, 2001; Di Stasio, 2014; Di Stasio and Gërxhani, 2015; Di Stasio and van de Werfhorst, 2016; Protsch and Solga, 2017), because its experimental logic has several advantages over analyzing data from traditional surveys (Wallander, 2009). In factorial survey experiments, one can conveniently vary the experimental stimuli of interest while holding constant potential confounders by design. Thus, one can clearly determine the causal effects of applicant characteristics on employers' evaluations.

I exploit these methodological advantages and carefully develop a vignette design that enables me to isolate the effects of the institutional configuration of the training system in sending countries on employers' ratings of immigrants who apply for skilled positions. My vignettes resemble

anonymous applications that do not disclose the sending countries, which precludes that the response to the experimental stimuli is biased by discrimination against workers of foreign nationality. Moreover, my vignette design effectively prevents bias from unobserved heterogeneity and social desirability.

With this study, I provide new insights into the transferability of foreign human capital to vocation-oriented labor markets. Taking on the perspective of employers, I directly test how institutional configurations of training in sending countries enable or constrain the transferability of immigrants' human capital. Studying the transferability of foreign human capital to the German labor market is all the more important because Germany has attracted increasing numbers of immigrants in recent years and currently ranks as the top destination country within Europe (BAMF/BMI, 2020). Approximately two-thirds of the immigrants that Germany receives come from European countries, and with 64 percent of the recent labor immigrants being skilled or high-skilled, they tend to be more highly qualified than earlier immigrant cohorts (BAMF/BMI, 2020). By analyzing across three medium-skilled occupations how German employers rate immigrants from countries with different institutional configurations of training systems, I consider the high degree of segmentation that characterizes vocation-oriented labor markets.

The remainder of the paper is structured as follows. In the next section, I discuss in greater detail how national institutions affect skill formation and the transferability of human capital across countries, and advance my research hypothesis. In the subsequent sections, I elaborate on my empirical strategy, survey design, and the results that emerge from my empirical analyses. In the final section, I discuss the implications of the study and its limitations, and close with some concluding remarks.

2.2 Institutions of skill formation and the transferability of human capital across countries

A common framework for analyzing immigrants' economic performance in receiving countries is human capital theory (Becker, 1964). The theory's central assumption is that through investments in their human capital, individuals can improve their skills and productive capacity, which employers will value in the labor market. Education and training are the most important providers of human capital that equip individuals with productivity-enhancing skills (Becker, 1964).

While the theory predicts that investments in human capital will increase individual productivity, some of the skills that immigrants accumulate in the sending country may not enhance their productivity in the receiving country. As human capital typically has some country-specific component, immigrants may bring skills that are incompatible with those demanded in the receiving country. As a result, they may underutilize their skills in the receiving labor market (Reitz, 2001). Besides, immigrants from less-developed countries that provide relatively poor education and training will acquire human capital of relatively low quality, which may prove less useful in the labor market of more prosperous and technologically advanced economies. Several studies have found that immigrants with foreign education reach lower skill levels than natives (Bratsberg and Terrell, 2002; Ferrer, Green, and Riddell, 2006; Kahn, 2004; Weins, 2010). For these reasons, immigrants' human capital is normally not fully transferable across borders but depreciates upon immigration (Chiswick and Miller, 2008, 2009; Friedberg, 2000).

This paper builds on the assumption that national institutions will play a significant role in the transferability of human capital across countries. Countries have pursued divergent trajectories in terms of the training and skill regimes that they institutionalized (Thelen, 2004). As I will elaborate in the following sections, these country-specific institutional configurations will determine the type of skills that immigrants from different countries supply and the type of skills that employers demand in the receiving labor market. Thus, I expect that the extent to which immigrants' human capital is compatible and can be transferred across countries will depend on differences and similarities between the institutional configurations in sending and receiving countries.

2.2.1 National configurations of training and skill regimes

Institutional configurations of training systems constitute a key element in the formation of skills in different countries. In the political economy literature, a broad distinction has been drawn between the institutional configurations that have emerged in coordinated (or non-liberal) market economies on the one hand and non-coordinated (or liberal) market economies on the other (Hall and Soskice, 2001).

In countries with high levels of coordination, institutions are in place that ensure that training promotes vocation-specific skills that are closely coordinated with firms' skill demand for different occupations in the labor market (Ryan, 2001). In such highly vocation-oriented frameworks, skilled workers in an occupation are equipped with the range of vocation-specific skills required by firms in the production process. These vocation-specific skills are portable across firms within

the occupational labor market and minimize the on-the-job-training that is necessary upon hiring in the occupation. Thus, employers in these countries screen for vocation-specific skills that signal high productivity upon hiring (Damelang et al., 2019). Most countries, however, have less coordinated systems with less vocation-specific links between training and occupational positions in the labor market. Due to their less vocation-specific configuration, such systems tend to promote rather general skills, such as literacy, arithmetic, communication and other general cognitive or cultural skills (DiPrete et al., 2017). In these countries, employers provide on-the-job-training after the onset of workers' careers to provide them with the necessary vocation-specific skills (Maurice et al., 1986).

Within the spectrum of training and skill regimes, Germany is a prime example of a country with a highly vocation-specific institutional configuration. In international comparison, Germany's training system very strongly structures the linkage of graduates into the labor market (DiPrete et al., 2017). This is particularly evident in the medium-skilled segment, where Germany's dual system of vocational education and training provides vocation-specific apprenticeships for 325 occupations across various sectors (BIBB, 2019: p. 79). The apprenticeships are dual in that they combine vocation-specific training in vocational schools and firms. Approximately 53 percent of a given cohort in the German population opt for this track of training (BIBB, 2019), which makes the dual system the main route into skilled work in the German labor market.

The dual system in Germany is embedded in a broader institutional configuration that ensures that the skills promoted through training closely correspond with the skills that employers demand in different occupations and provides incentives for employers to engage in non-firm-specific training. The content and quality of training is standardized at the national level and, thus, employers share a common understanding of what to expect of apprentices in an occupation (Damelang et al. 2018). Besides collective regulation, social partnership enhances coordination across all employers that rely on the same pool of occupational skills (Marsden, 2000; Thelen and Busemeyer, 2012).

Following this institutional configuration, German employers have shared training processes and skill norms and design jobs according to the supply of skills as laid out in the training system (Marsden, 2000). Consequently, they are not used to provide extensive on-the-job-training upon hiring, but normally rely on vocation-specific qualifications acquired in the German system that signal relevant occupational skills and promise high productivity with little additional training on site (Blossfeld, 1992).

2.2.2 Research hypothesis

I argue that Germany's highly vocation-oriented configuration of training and coordination in the skilled labor market segments imposes institutional constraints on the transferability of immigrants' human capital. German employers emphasize vocation-specific skills in hiring processes that promise high productivity in an occupation upon hiring. Immigrants from countries where occupational profiles are similarly vocation-specific will better meet the skills that German employers demand and, thus, have lower limitations in transferring them to the German labor market than immigrants from countries where systems with less vocation-specific configurations are in place. In summary, I hypothesize that

Immigrants from countries with highly vocation-specific configurations of the training system will face lower institutional constraints for transferring their human capital to the German labor market.

2.3 Empirical strategy and survey design

My empirical strategy is to study the productive capacity that German employers expect of immigrants in skilled positions upon hiring. Employers' assessment of immigrants' productive capacity upon hiring is highly informative because it directly reflects the extent to which immigrants succeed with importing their foreign human capital. My research hypothesis proposes that immigrants from sending countries with highly vocation-oriented training systems face lower institutional constraints for transferring their human capital to Germany. If this hypothesis holds true, they will require less training upon hiring in the eyes of German employers than immigrants from countries with less vocation-oriented configurations.

Methodologically, I rely on factorial survey experiments that I designed with a specific focus on the institutional configurations of training systems in sending countries. In factorial survey experiments, participants respond to descriptions of hypothetical situations (vignettes) that vary experimentally in several dimensions on a defined number of levels (stimuli) (Auspurg and Hinz, 2015). Tailored to my research interest, I designed vignettes that describe applicants who vary with respect to the institutional configuration of training in the country that they immigrated from, and further characteristics that I expect will determine their productivity in the eyes of employers. In online surveys, I presented the applicant descriptions to managers who have a say in hiring decisions in the occupation concerned, and inquired the amount of on-the-job-training that they deem necessary if they were to hire the applicants at their organization.

Compared to data from traditional surveys, the experimental data from factorial surveys have manifold advantages (Wallander, 2009). The experimental logic inherent in factorial survey designs provides an ideal basis for analyzing the causal relationship between the characteristics of interest and employers' ratings. I took a series of measures in designing the vignettes so that they allow me to isolate the effects of the institutional configurations of training systems in immigrants' sending countries on managers' ratings. First, my vignettes resemble anonymous applications in that they introduce the applicants as foreigners but do not disclose the applicants' countries of origin. Through this vignette design, I can effectively preclude that the response to the experimental stimuli suffers from bias due to employers discriminating against workers of particular foreign nationalities, which is likely to occur in the presence of workers' countries of origin (Zschirnt and Ruedin, 2016). Second, while I manipulate the dimensions of interest in the vignettes, I hold constant other relevant variables at the same time. Thus, the estimations of the relationship between the applicants' characteristics and the managers' decisions based on my experimental data are not susceptible to unobserved heterogeneity bias. This is a major advantage over analyses with traditional survey data that often lack relevant variables or do not cover them in sufficient detail. For example, immigrants' proficiency in the German language at the time of hiring typically remains unobserved in these data. Third, as I vary several vignette dimensions simultaneously, it is very unlikely that the ratings of the managers will suffer from social desirability bias. Previous studies with comparable experimental settings have even found that respondents discriminate against foreigners (see, for example, Blommaert et al., 2014; Damelang and Abraham, 2016).

2.3.1 Vignette design

Table 2.1 gives an overview of the experimental variation across the vignettes in my study. To scrutinize the effects of different institutional configurations of training systems in sending countries, I vary four institutional dimensions, namely the degree of vocational specificity, standardization, regulation of access, and quality of training. In the vignette descriptions, I concisely conceptualize each of these dimensions and thereby ensure that the respondents have a common understanding of them. The level of vocational specificity, which is of prime interest in this study, refers to training in the system being either highly vocation-specific, which means it is closely linked to the job in question, or more general, which means it is only weakly linked to the job in question. Regarding the level of standardization, the training system is either standardized nationwide, which means that uniform training regulations apply, or not standardized nationwide.

The regulation of access concerns whether selection interviews must be passed for admission to training programs. The overall quality of training that the system provides is approximated by the public expenditure on education and training, which may take on a higher, about the same, or lower level than in Germany. Note that the stratification of the system, which refers to the extent to which the system sorts students of different ability levels into separate tracks, does not vary in the vignettes. Rather, all applicants share the same level of general schooling from which they strive towards the position in question.

Further characteristics in the vignettes include whether the applicants have completed the corresponding training, their sex, age and work experience, and testimonial from other German employers. The applicants have either acquired a vocational qualification through formal training in their country of origin, or do not hold a vocational qualification. They are 21 years old and yet to accumulate work experience, 23 years old with two years' experience, or 30 years old with nine years' experience. Regarding other employers' testimonial, the description indicates whether other German employers have already reported positive experience with professionals from the applicant's country of origin or not.

Table 2.1 Vignette dimensions and levels

Dimensions	**Levels**
Vocational specificity of training	Highly vocation-specific Rather general
Standardization of training	Standardized nationwide Not standardized nationwide
Quality of training	Public expenditure on education higher than in Germany Public expenditure on education the same as in Germany Public expenditure on education lower than in Germany
Regulation of access to training	Selection interviews No selection interviews
Sex	Male Female
Age, work experience	21 years old, no work experience 23 years old, 2 years of work experience 30 years old, 9 years of work experience
Vocational qualification	Completed training Did not undergo formal training
Other employers' testimonial	Positive testimonial from other German employers No testimonial from other German employers

In addition to the variant characteristics in the vignettes, I inform the respondents about some invariant characteristics that pertain to all the presented applicants in order to rule out unobserved heterogeneity in other relevant dimensions. In the preface to the vignettes, I fix the applicants' level of general schooling by stipulating that they all completed secondary school with a certificate comparable to the degree typically required to access training for their occupation in Germany, and that they graduated with a good grade point average. Because immigrants' productive capacity will largely depend on their proficiency in the host language, I stipulate that all the applicants are business fluent in both written and oral German. Moreover, to hold constant their time since arrival in Germany and preclude that the respondents presume initial culture shocks that may reduce productivity, I stipulate that all the applicants immigrated about six months ago. Finally, I reassure the respondents of the applicants' legal status by stating in advance that they all have a valid German residence and work permit for an indefinite period.

The universe of possible applicant profiles that results from the factorial product of the vignette levels (2×3×2×2×2×3×2×2) is 576. Consider that in most of these profiles, the applicants have relevant foreign human capital for the concerned occupation, except for the rare combination when they are yet to accumulate experience and do not hold a vocational qualification.

Figure 2.1 gives two vignette examples that illustrate how the various applicant profiles were shown to the responsible managers. In random sequence, six profiles were shown to the managers one by one, so that the managers assessed only one applicant at a time. For each of the six applicants, they rated the amount of on-the-job training that they deemed necessary upon hiring the applicant them at their organization. Typically, foreign human capital depreciates upon immigration and immigrants will therefore require more training than natives. Thus, the answering scale ranged from 1 "Usual amount" to 7 "Very large amount". In the preface to the vignettes, it was further specified that the scale refers to the entire induction and training phase that will be necessary before the new hire can be put to work productively as a skilled worker at the respondent's organization.

Figure 2.1 Vignette examples of immigrants who apply for a position as a logistics manager

Among the applicants, there is a 21-year-old female foreigner.

In her country of origin, the education and training system is not standardized nationwide, that is, there are no uniform training regulations. Training there is rather general, which means it is only weakly linked to the logistics sector. To access training, there are no selection interviews. The training duration is three years.

In total, this country invests less in education than Germany.

In her home country, the applicant did not undergo formal training and has no further work experience yet.

Other employers in Germany have not yet reported any experience with logistics managers from the applicant's country of origin.

How much initial on-the-job-training do you think this applicant would need at your organization?

Usual amount	← Please tick a number →					Very large amount
1	2	3	4	5	6	7
☐	☐	☐	☐	☐	☐	☐

Among the applicants, there is a 30-year-old male foreigner.

In his country of origin, the education and training system is standardized nationwide, that is, there are uniform training regulations. Training there is highly vocation-specific, which means it is closely linked to the logistics sector. To access training, there are selection interviews. The training duration is three years.

In total, this country invests more in education than Germany.

In his home country, the applicant completed corresponding training with good grades and has already worked there for nine years in this occupation.

Other employers in Germany have already reported positive experience with logistics managers from the applicant's country of origin.

How much initial on-the-job-training do you think this applicant would need at your organization?

Usual amount	← Please tick a number →					Very large amount
1	2	3	4	5	6	7
☐	☐	☐	☐	☐	☐	☐

N.B. Varying dimensions are underlined.

2.3.2 Harmonized survey experiments across different vocational segments

Considering that the vocational segmentation is strong in the German labor market under study, I carried out the survey experiment across three vocational segments. Using a harmonized survey and vignette design, I surveyed employers of logistics managers, employers of precision machinists and employers of hotel operations specialists. Logistics managers represent white-collar jobs in the industry and trade sector, precision machinists represent blue-collar jobs in the manufacturing and craft sector, and hotel operations specialists represent jobs in the catering and service sector. Harmonized survey experiments across these three occupations allow me to study the transferability of foreign human capital to different segments of vocation-oriented labor markets.

The survey data are unique in that they are based on comprehensive samples of employers in Germany for each of the occupations under study. By applying occupation-specific strategies for sampling and data collection, I was able to cover the employers for each occupation very thoroughly.

Firms that employ logistics managers and precision machinists proved difficult to sample, because they involve a wide variety of products and services across different sectors. Thus, one cannot thoroughly cover them in the convenient way of sampling employers from a certain sector. Instead, representative samples of employers for the occupations were drawn across all industries based on official employment history data. These data stem from filed social security notifications that provide a complete list of firms employing workers subject to social security contributions at the time of reporting. Accordingly, the samples at hand were drawn from all firms in Germany that employ at least one logistics manager or precision machinist. Taking into consideration that firms' size and degree of professionalization in recruitment activities may affect their inclination to hire immigrants, a stratified sampling design was applied for firms with 1–9, 10–49, and 50–249 employees. The sample for each occupation consists of 2,700 firms. Within these firms, I targeted managers who are professional experts for the requirements of skilled jobs in the concerned occupation and have a say in hiring decisions. To reach this target group, computer-assisted telephone interviews were conducted with the firms that employ logistics managers and precision machinists to screen for suitable managers. Following the interview, interested participants were invited to the online survey by email.

Employers of hotel operations specialists, on the other hand, are relatively easy to identify because the occupation is common in the hotel sector. I therefore followed a more convenient sampling approach and drew a correspondingly stratified random sample of 2,000 hotels from the firm

database of a major provider for Germany (Schober Information Group). All the hotels in the sample were invited to the online survey by email, kindly asking the recipient to forward the invitation to a responsible manager.

The survey concerning logistics managers was carried out in January to March 2016, the survey concerning precision machinists was carried out in September to November 2016, and the data on hotel operations specialists were collected in October 2016. For the logistics manager profiles, I utilized the full vignette universe and randomly compiled 96 decks á six vignettes. For the precision machinist and hotel operations specialist profiles, I drew a random sample of 120 vignettes and randomly assigned these to 20 decks á six vignettes. The order of the vignettes within the decks was randomized and the decks were distributed at random to the responsible managers.

Even though the high level of responsibility and workload of the targeted respondents made it particularly challenging to interview them at work, the response rates were within the bounds that one would expect in surveys among employers (see Baruch and Holtom, 2008). Based on the number of contacted target persons, the response rate was 13.6 percent in the logistics manager survey and 14.5 percent in the precision machinist survey. In the hotel operations specialist survey, it was 10.0 percent based on the number of contacted hotels. As shown in table A2.1 in the appendix, the participation in the surveys is not biased by firm size. Within a given firm size category, the share of contacted target persons and participants is comparable throughout the three occupations, with one minor deviation in the hotel operations specialist survey: Hotels with 10–49 employees are slightly overrepresented in the data.

In the following, I study a total sample of 2,262 vignette ratings by 377 respondents (139 respondents from the logistics manager survey, 108 from the precision machinist survey, and 130 from the hotel operations specialist survey). Approximately two-thirds of the respondents were male (64 percent) and held a degree from a university or technical college (63 percent). Most of them were born in Germany (92 percent). Their mean age was 49 years and the firms in which they worked had a median size of 20 employees. 58 percent of the respondents worked as employees or in similar types of employment and 42 percent were self-employed. With very few exceptions, the respondents had responsibility in personnel decisions (93 percent), and at the time of the interview, approximately one-third had already gathered experience with foreign qualifications (35 percent).

2.4 Results

In this section, I study in multivariate regression analyses how the vignette dimensions affect the amount of on-the-job-training that the respondents deemed necessary if they were to hire the applicants at their organization. These ratings will directly reflect the extent to which the applicants succeed with transferring their foreign human capital to Germany. Given that every respondent rated a series of six applicants, the data under study are nested within the respondents. For appropriate statistical modelling in the empirical analyses, I apply multilevel regression models that consider the particular structure of error terms in nested data (Auspurg and Hinz, 2015).

In addition to the vignette dimensions, the regression models include an identifier for the occupations and some respondent-level variables that control for relevant individual and firm characteristics. The latter include the number of employees at the firm, the amount of on-the-job-training that the average native-educated applicant would typically require at the firm, and two dummy variables that indicate whether the respondent was born in Germany and has experience with foreign qualifications.

The regression coefficients in table 2.2 show how the individual characteristics of the applicants and the institutional configuration of the training system in their sending countries affect the required amount of on-the-job-training.[1] The estimates for the institutional dimensions indicate that the required amount of training depends on the configuration of training in the countries that the applicants immigrated from.

Regarding my hypothesis, the effect of the vocational specificity dimension is of prime interest. In accordance with my theoretical expectations, immigrants from countries with highly vocation-specific configurations of the training system will require significantly less training upon hiring in the eyes of German employers. On the 7-point scale, they require 0.391 points less training due to their better endowments with vocation-specific skills than workers from countries where training conveys more general skills, ceteris paribus.

This significant difference in employers' ratings reflects that whether configurations of the training system in sending countries are more or less vocation-specific plays a pivotal role in the transferability of foreign human capital to the German labor market. German employers demand vocation-specific skills, and immigrants from countries where workers specialize in occupations

[1] Tables A2.2 and A2.3 in the appendix display the distribution of the applicant characteristics in the vignettes and their pair-wise correlations. The variables in the data are nearly orthogonal and balanced in each occupation, which means that the estimated coefficients for the vignette dimensions will be unbiased.

in a similar fashion as workers in Germany supply skills that are highly compatible with this demand. Accordingly, German employers expect these immigrants to be more productive from the outset. I therefore conclude that immigrants from sending countries with more vocation-specific configurations of the training system are better able to transfer their foreign human capital to Germany. By contrast, immigrants who come from countries with less vocation-specific configurations supply less compatible skills and, thus, German employers consider them to require more on-the-job-training upon hiring. As a result, these immigrants are more constrained in transferring their foreign human capital to the German labor market.

In relation to the effect of vocational specificity, the remaining institutional dimensions of training systems in the vignettes appear to play a minor role. Coming from a lower-quality training system leads to more training being required upon hiring in Germany, whereas coming from a higher-quality system hardly makes any difference. Moreover, standardized regulations of training that more closely correspond to the institutional configuration in Germany appear to be more favorable than non-standardized training frameworks. The regulation of access in terms of selection interviews for admission to training programs does not have any significant effect on the immediate productivity that the respondents expect of a worker.

Not surprisingly, relevant work experience and vocational qualifications signal higher productivity in the concerned occupation and therefore considerably reduce the amount of training that employers expect will be required. On the 7-point scale, the amount of training that is required for applicants with nine years' foreign professional experience is one point smaller than the amount of training required for an inexperienced applicant, and applicants who have undergone formal training abroad require 0.605 points less training upon hiring than applicants who lack formal training in the occupation. Likewise, employers use testimonial from other German employers for coping with uncertainty about immigrants' productive capacity. When other German employers have reported positive experience with professionals from the applicant's country of origin, the amount of training that the respondents deem necessary diminishes by a significant 0.306 points.

Table 2.2 Effects of applicant characteristics on the required amount of on-the-job-training upon hiring (Random-Intercept Model)

Vocational specificity of training (Ref.: More general)	-0.391	(0.049) ***
Standardization of training (Ref.: Non-standardized)	-0.184	(0.050) ***
Quality of training (Ref.: Same as in Germany)	--	
Higher than in Germany	-0.023	(0.062)
Lower than in Germany	0.294	(0.061) ***
Regulation of access to training (Ref.: No selection interviews)	-0.093	(0.049)
Male (Ref.: Female)	0.001	(0.049)
Age, work experience (Ref.: 21 years old, no work experience)	--	
23 years old, 2 years of experience	-0.596	(0.060) ***
30 years old, 9 years of experience	-1.059	(0.058) ***
Vocational qualification (Ref.: No formal training)	-0.605	(0.048) ***
Other employers' testimonial (Ref.: No testimonial)	-0.306	(0.051) ***
Occupation (Ref.: Logistics manager)	--	
Hotel operations specialist	-0.348	(0.153) *
Precision machinist	-0.111	(0.146)
Respondent-level controls	yes	
Constant	3.560	(0.731) ***
Var (cons)	1.056	(0.091)
Var (residual)	1.172	(0.038)
Log likelihood	-3,739.076	
N vignettes	6	
N respondents	377	
N vignettes × respondents	2,262	

Coefficients obtained from hierarchical linear regression model; cluster-robust s.e. in parentheses
Respondent-level controls: Number of employees, Required amount of on-the-job-training for average native-educated applicant, Experience with foreign qualifications, Born in Germany
DV: Required amount of on-site training upon hiring (7-point scale)
*** p<0.001, ** p<0.01, * p<0.05

Finally, the identifiers for the occupations in table 2.2 indicate that across the vocational segments, there are some differences in the amount of on-site-training that employers assume will be required on average. Separate regression models for the three occupations not shown here yield highly comparable results for the effects of the institutional dimensions in the three occupations. In all three vocational segments, more vocation-specific configurations of the training system in sending countries significantly reduce the amount of on-the-job training that immigrants will require upon hiring. These findings corroborate that in Germany, vocation-specific skills play a pivotal role throughout the medium-skilled segment. Thus, compatible institutional configurations of training systems in sending countries are key for transferring foreign human capital to this segment.

2.5 Discussion and conclusion

This study provides new insights into the transferability of foreign human capital to vocation-oriented labor markets. Taking on the perspective of employers, I directly test how institutional configurations of training in sending countries enable or constrain the transferability of immigrants' human capital to skilled positions in the German labor market. German employers demand vocation-specific skills, whereas many immigrants come from countries with less vocation-specific configurations of training systems. Using a state-of-the-art experimental methodology, I simulate hiring processes across three vocational segments and isolate the causal effects of more and less vocation-specific configurations of training systems in sending countries on the productive capacity that German employers expect of immigrants upon hiring.

My empirical results are in line with the theoretical assumptions: Throughout the vocational segments under study, immigrants from countries with more vocation-specific institutional configurations of training are better able to transfer their human capital to the German labor market. German employers rate the amount of on-the-job-training that these immigrants will require upon hiring significantly lower than that of immigrants from countries with less vocation-oriented configurations.

Whereas the experimental methodology inherent in factorial surveys is ideal for isolating the causal effects of national institutions and ensures high internal validity of my empirical findings, it also calls for further discussion. One obvious concern is whether one can infer from simulated hiring processes in surveys how employers will assess skilled immigrants in reality. Studies on the adequacy of survey experiments have found that the determinants of hypothetical choices by respondents in surveys square remarkably well with the determinants of similar choices in the real

world (Hainmueller et al., 2015). To maximize external validity, it is encouraged to choose survey samples that match the target population and to design experimental surveys carefully so that respondents seriously engage with the hypothetical choices (Hainmueller et al., 2015: p. 2400). I am confident that my survey design meets these criteria, as my multilayered sampling procedure specifically targeted managers that have a say in hiring decisions and were motivated enough to complete the simulated hiring process.

Another aspect worth discussing is that my vignette design resembles an anonymous application procedure that does not disclose the names of the sending countries but provides the respondents with information about the countries' institutional configuration of training systems. It is obviously debatable whether these informational conditions correspond with application processes in the real world. Yet, as I have emphasized, withholding the country information is a crucial design feature in order to avoid discrimination bias. Only in this way am I able to isolate the institutional effects of interest. Moreover, in times of severe shortages of skilled labor, it is reasonable to expect that seeking information about foreign training systems is a viable strategy for employers to secure the supply with skilled labor. Supranational initiatives and meta frameworks for qualifications, such as the European Qualifications Framework, aid employers in identifying immigrants with suitable training profiles by making qualifications and training schemes more comprehensible across countries and systems. More importantly, with the increasing influx of skilled immigrants, employers gain more first-hand experience with qualifications acquired in training systems of different configurations, as well as testimonial of other employers.

To conclude, this study contributes to the growing body of literature in migration research that considers how linkages between institutional configurations in sending and receiving countries affect labor market prospects (Damelang et al., 2019; Diehl et al., 2016; Lancee, 2016). The findings highlight that institutional configurations of training systems play a significant role in the transferability of immigrants' human capital across countries and help with understanding why immigrants' labor market chances vary even when they formally have the same level of qualification (Damelang et al., 2019).

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Appendix

Table A2.1 Survey participation by firm size

Firm size	Contacted target persons / Contacted firms	Participated in survey
Logistics managers	%	%
from 1 to 9	27.3	29.9
from 10 to 49	37.6	36.2
more than 49	35.1	33.9
Precision machinists	%	%
from 1 to 9	34.9	36.0
from 10 to 49	35.3	37.5
more than 49	29.9	26.5
Hotel operations specialists	%	%
from 1 to 9	42.3	37.7
from 10 to 49	43.7	50.9
more than 49	14.0	11.4

Table A2.2 Distribution of applicant characteristics in the vignettes

Vignette dimensions and levels	Occupations pooled	Logistics managers	Precision machinists	Hotel operations specialists
	%	%	%	%
Vocational specificity of training				
Highly vocation-specific	49.9	48.0	50.0	51.9
Rather general	50.1	52.0	50.0	48.1
Standardization of training				
Standardized nationwide	46.6	50.4	44.8	44.0
Not standardized nationwide	53.5	49.6	55.3	56.0
Quality of training				
Public expenditure on education higher than in Germany	33.1	29.9	35.2	34.7
Public expenditure on education the same as in Germany	30.6	35.7	26.7	28.3
Public expenditure on education lower than in Germany	36.3	34.4	38.1	36.9
Regulation of access to training				
Selection interviews	54.1	51.1	55.7	56.0
No selection interviews	45.9	48.9	44.3	44.0
Sex				
Male	48.5	47.6	48.5	49.5
Female	51.5	52.4	51.5	50.5
Age, work experience				
21 years old, no work experience	36.6	31.3	40.6	39.0
23 years old, 2 years of work experience	30.3	32.6	27.6	30.1
30 years old, 9 years of work experience	33.1	36.1	31.8	30.9
Vocational qualification				
Completed training	48.1	49.8	46.6	47.4
Did not undergo formal training	52.0	50.2	53.4	52.6
Other employers' testimonial				
Positive testimonial from other German employers	44.7	49.0	43.4	41.0
No testimonial from other German employers	55.4	51.0	56.6	59.0

Table A2.3 Pair-wise correlations between applicant characteristics in the vignettes (Cramer's V)

	Occupations pooled							
	1	2	3	4	5	6	7	8
1 Vocational qualification	1.000							
2 Age, work experience	0.009	1.000						
3 Vocational specificity of training	0.054	0.059	1.000					
4 Standardization of training	0.011	0.094	0.088	1.000				
5 Quality of training	0.092	0.029	0.039	0.017	1.000			
6 Regulation of access to training	0.010	0.082	0.044	0.013	0.122	1.000		
7 Sex	0.014	0.079	0.019	0.011	0.012	0.015	1.000	
8 Other employers' testimonial	0.040	0.067	0.098	0.000	0.085	0.049	0.053	1.000
	Logistics managers							
	1	2	3	4	5	6	7	8
1 Vocational qualification	1.000							
2 Age, work experience	0.061	1.000						
3 Vocational specificity of training	0.019	0.055	1.000					
4 Standardization of training	0.024	0.034	0.017	1.000				
5 Quality of training	0.058	0.043	0.058	0.015	1.000			
6 Regulation of access to training	0.053	0.064	0.054	0.017	0.032	1.000		
7 Sex	0.021	0.022	0.013	0.009	0.028	0.037	1.000	
8 Other employers' testimonial	0.041	0.031	0.018	0.053	0.037	0.067	0.003	1.000
	Precision machinists							
	1	2	3	4	5	6	7	8
1 Vocational qualification	1.000							
2 Age, work experience	0.032	1.000						
3 Vocational specificity of training	0.080	0.072	1.000					
4 Standardization of training	0.061	0.166	0.112	1.000				
5 Quality of training	0.134	0.075	0.100	0.061	1.000			
6 Regulation of access to training	0.061	0.126	0.047	0.034	0.139	1.000		
7 Sex	0.029	0.123	0.049	0.003	0.024	0.006	1.000	
8 Other employers' testimonial	0.081	0.109	0.146	0.020	0.104	0.103	0.045	1.000
	Hotel operations specialists							
	1	2	3	4	5	6	7	8
1 Vocational qualification	1.000							
2 Age, work experience	0.099	1.000						
3 Vocational specificity of training	0.109	0.169	1.000					
4 Standardization of training	0.002	0.099	0.140	1.000				
5 Quality of training	0.100	0.052	0.072	0.024	1.000			
6 Regulation of access to training	0.040	0.182	0.036	0.036	0.203	1.000		
7 Sex	0.006	0.122	0.028	0.043	0.032	0.001	1.000	
8 Other employers' testimonial	0.098	0.116	0.151	0.028	0.142	0.140	0.111	1.000

3 The hiring prospects of foreign-educated immigrants: A factorial survey among German employers

This chapter is joint work with Martin Abraham, Andreas Damelang and Sabine Ebensperger and was published in *Work, Employment and Society* (SAGE Publications):

Damelang, A., Abraham, M., Ebensperger, S., & Stumpf, F. (2019). The hiring prospects of foreign-educated immigrants: A factorial survey among German employers. *Work, Employment and Society* 33(5): 739–758. DOI: 10.1177/0950017018809897.

4 How national institutions shape skilled immigrants' chances of getting hired – Evidence from harmonized factorial surveys with employers in Germany and England

This chapter is joint work with Martin Abraham, Andreas Damelang and Sabine Ebensperger and was published in *Kölner Zeitschrift für Soziologie und Sozialpsychologie* (Springer VS):

Stumpf, F., Damelang, A., Abraham, M., & Ebensperger, S. (2020). How national institutions shape skilled immigrants' chances of getting hired – Evidence from harmonized factorial surveys with employers in Germany and England. *Kölner Zeitschrift für Soziologie und Sozialpsychologie*, Sonderheft Berufe und soziale Ungleichheit. DOI: 10.1007/s11577-020-00682-3.

5 Foreign credential recognition and immigrants' chances of being hired for skilled jobs – Evidence from a survey experiment among employers

This chapter is joint work with Andreas Damelang and Sabine Ebensperger and was published in *Social Forces* (Oxford University Press):

Damelang, A., Ebensperger, S., & Stumpf, F. (2020). Foreign credential recognition and immigrants' chances of being hired for skilled jobs – Evidence from a survey experiment among employers. *Social Forces* soz154: 1–24 (online first). DOI: 10.1093/sf/soz154.

6 Conclusion and outlook

In this thesis, I set out to provide a better understanding of immigrants' integration processes by studying how the structural conditions under which immigration takes place affect immigrants' economic incorporation. Immigrants' successful economic incorporation is key to their successful integration in the receiving society overall; yet, it is often hindered because immigrants' foreign qualifications prove less valuable in the receiving labor market.

The central argument that I put forward in this thesis is that immigrants' opportunities of utilizing their foreign education in the receiving labor market will depend on the interplay between educational institutions in immigrants' sending and receiving countries. Institutional configurations of education and training systems establish certain rules for the matching of individuals to labor market positions. Depending on the institutional configuration in their sending country, immigrants will bring a certain type of education, and depending on the institutional configuration in the receiving country, employers will prefer a certain type of education that can prove more or less compatible with that supplied by immigrants.

In factorial surveys, I simulate hiring processes among employers across a variety of occupations and study how they respond to applicants that recently immigrated. Using vignettes, I experimentally vary the applicant profiles in relevant individual and institutional dimensions, among others, and ask the employers to rate how likely they would invite the applicants to interview for medium-skilled positions and how much on-the-job-training the applicants would require upon hiring. By exploring how employers in different institutional contexts of reception respond to foreign-educated applicants from systems of various institutional configurations, I can clarify how the interplay between educational institutions in sending and receiving countries affects immigrants' prospects in the labor market.

The empirical results highlight that the configurations of education systems in sending and receiving countries play a considerable part in the extent to which immigrants can utilize their foreign education and succeed in the labor market. As one would intuitively assume, the analyses in Chapters 2 and 3 underpin that in receiving countries where the education and training system is highly vocation-oriented and employers emphasize vocation-specific skills and credentials, such as in Germany, immigrants will be better able to import their human capital if it has been acquired in countries with compatible education and training systems – in other words, if it stems from countries where workers specialize in different occupations to a similar extent. Correspondingly, immigrants from these countries will be better off in the hiring process because employers in receiving countries with highly vocation-oriented and standardized education systems prefer

applicants from similar systems. Immigrants from countries where other types of systems are in place, on the other hand, will be more constrained in importing their foreign human capital and degrees, leaving them worse off in the hiring competition.

Remarkably, similar patterns may emerge in receiving countries with a much looser institutional linkage between education and training and occupational positions in the labor market, such as in England. In fact, the cross-country comparison based on harmonized factorial surveys in Chapter 4 shows that English employers even reward vocation-specific qualifications to a greater extent than German employers do. This may come as a surprise at first glance, but is nevertheless plausible because more vocation-oriented education not only assures employers in vocation-oriented markets that immigrants bring the relevant occupational skills to the job, but also assures employers in less vocation-oriented settings that immigrants can easily be trained on the job.

Summarizing the results thus far, the institutional context in which immigrants have acquired their foreign education clearly matters to employers; and it appears to matter not only to employers in labor markets where vocational pathways strongly regulate the allocation of workers to jobs, such as in Germany, but also in more flexible markets, such as in England. Immigrants from countries where highly standardized and vocation-oriented education and training systems are in place have better chances of getting hired, irrespective of the education system in the receiving country.

Nevertheless, there remains some hope for immigrants that do not have the right type of educational background: The results from more in-depth interaction analyses in Chapter 3 show that under certain circumstances, immigrants will be able to overcome the institutional shortcomings of their education – for example, when they have gathered extensive occupational experience in their sending country, when their fellow countrymen have gained a good reputation among employers in the receiving country, or when they target occupations in which employers must provide new hires with considerable amounts of firm-specific training anyway.

In addition, the analyses in this thesis imply that policy makers can enact policies that effectively help with the integration of foreign-educated immigrants in the labor market. The findings presented in Chapter 5 show that the official recognition of foreign credentials has considerable potential to foster immigrants' labor market integration. Although foreign credential recognition does not lift applicants' hiring chances to the level of native-educated applicants, immigrants with recognized foreign credentials have better prospects of accessing jobs commensurate with their education.

Methodologically, the experimental simulation of hiring processes in factorial surveys is ideal for isolating the effects of immigrants' individual characteristics and the distinctive institutional features that characterize their foreign education. Having thorough control over the experimental stimuli as well as further contextual information upon which employers may base their decisions provides excellent analytical leverage for disentangling effects that are often confounded in reality. As I have discussed throughout this thesis, this analytical leverage comes with the limitation that in simulated hiring processes, one can merely analyze employers' intention to hire in a hypothetical scenario and, thus, the external validity of the findings remains subject to some speculation.

Further research could begin here and attempt to systematically validate the insights from the simulated hiring processes with field data. One possible strategy would be so-called correspondence testing, wherein researchers send fictitious applications to employers who have advertised jobs in the real world and compare the rates of successful call-backs for different groups of applicants. This is commonly done in studies that investigate discriminatory behavior by employers (for a study in the German labor market, see Kaas and Manger, 2011; for a meta-study, see Zschirnt and Ruedin, 2016). This methodology has certain advantages and disadvantages that researchers must balance against each other. Correspondence testing has attracted some criticism for being ethically questionable because the experimenters deceive the participants and interfere with the factual outcomes of application and hiring processes (Riach and Rich, 2004). For studying the effects of distinctive institutional characteristics of education, such field experiments will be less feasible, given that they only provide information about the fictitious applicants but not the other applicants that are competing for the vacant position. Moreover, the institutional dimensions of interest are often confounded in reality and will likely prove difficult to integrate in applications in a realistic fashion. For studying the effects of foreign credential recognition, however, correspondence tests would appear worthwhile because one could directly compare the call-back rates for applicants with foreign credentials, recognized foreign credentials, and native credentials. From a methodological point of view, juxtaposing the results from factorial surveys and correspondence tests could help further establish whether the way that employers 'respond to' foreign education in hypothetical hiring scenarios corresponds with the way that employers 'act on' foreign education in real-world hiring processes.

In addition, it must be pointed out that in the simulated hiring processes, several relevant characteristics that may play a role in employers' evaluations of immigrants' productivity have been held constant throughout. Clearly, immigrants' integration is a multidimensional process and often further obstacles may be in the way of their economic integration, such as a lack of host

language skills, cultural or social capital. In fact, the findings from Chapter 5 suggest that compared to having native education, having foreign education might always signal some lack of acculturation and social integration to employers. A related issue that could be considered in future research is to what extent employers deem immigrants to be a particularly mobile group of workers, especially in view of their potential return migration to their home country (Bonacich, 1972). Anticipating that immigrant employees will not stay permanently but are likely to return to their home country later in their career, employers may be reluctant to hire immigrants and abstain from making risky investments into on-site training that could be lost once immigrants return home (Offe and Hinrichs, 1977). Such mechanisms might strongly affect the extent to which immigrants can utilize their foreign education in the labor market and offer an interesting field of empirical research in the future.

Future studies could also extend the analyses to an even wider variety of occupations to draw broader conclusions regarding the extent to which foreign education can be utilized in different vocational segments of the labor market. The findings from Chapter 2 suggest that the extent to which occupations require firm-specific human capital may play an important role, which could be studied in greater detail. Moreover, research designs could consider further types of foreign vocational qualifications, such as bachelor's degrees, to study how they compare to vocational education and training degrees in the eyes of employers and allow for immigrants to access skilled positions.

To conclude, the results presented in this thesis emphasize the institutional embeddedness of stratification processes and immigrants' integration in internationalizing labor markets. As vocation-oriented education and training systems are rare, most immigrants arrive with less vocation-oriented educational backgrounds. My analyses show that this puts them at a disadvantage when competing for skilled jobs in the occupation that they were trained for. The initial disadvantages in the competition for skilled jobs put them at high risk of incurring persistent scars in their economic and social integration.

Meanwhile, countries are testing a variety of policies to get immigrants into middle-skilled work more effectively (Benton et al., 2014). For immigrants who arrive in the early stage of their career, policies like foreign credential recognition are adequate to mitigate their disadvantages early on and improve their chances of entering jobs in the skilled segment. For immigrants who have failed with positioning in the skilled segment in the receiving country long ago and try to work their way back up the occupational hierarchy, other policies will be adequate for improving their career progression. To further develop adequate policies and promote equal opportunity, gaining an even

better understanding of the conditions under which foreign-educated immigrants can become upward mobile or remain confined to the lower strata of the labor market in the longer run will be essential. Adequate policies will not only help unfold immigrants' economic potential and avoid 'brain waste' in times of intensifying domestic skill shortages, but also improve immigrants' integration in their receiving countries overall. After all, therein lies considerable potential for improving social cohesion and preventing ethnic conflict in internationalizing societies.

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