

Do High-Skilled Immigrants Find Jobs Faster than Low-Skilled Immigrants?

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Abstract

This paper investigates the role that pre-immigration skills play in immigrants job-finding processes in Germany. We first show theoretically that the job-finding rate for the high-skilled depends on which jobs they are prepared to take up: if they are only willing to take up skilled jobs (ex post segmented matching), they might actually need longer than the low-skilled to find a job. If they are prepared to accept both unskilled as well as skilled jobs (cross-skill matching), then their expected time to find a job is lower compared to that of the low-skilled. Allowing for on-the-job search can lead to high-skilled finding skilled jobs even faster. We then provide empirical evidence by studying the labour-market integration process of Ethnic Germans, one of the largest immigration groups in Germany, using novel German administrative data. Applying proportional hazard models, our estimates generally support the theoretical predictions: if the high-skilled only search for skilled jobs, the likelihood of finding a job is about 50% lower compared to the low-skilled. In case of cross-skill matching, the job finding rate of the high- and low-skilled does not differ significantly. Furthermore, using a timing-of-events model, we find evidence that low-skilled jobs serve as a stepping stone for high-skilled to find skilled employment.

Keywords: Job-Search; Migration; Integration; Survival Analysis; Timing-of-Events

JEL-Classification: J61; J64; J15

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Introduction

Many industrialised countries are facing large demographic changes leading *c.p.* to a decline in the size of their labour-force population. At the same time, the demand for skilled workers is increasing. Policy-makers are afraid that, in combination, this will lead to a shortage of skilled labour in the future (see, for example Rutkowski, 2007). One of the political strategies often applied to counteract this development is to try and increase immigration of skilled immigrants. We observe, however, that particular (highly-)skilled immigrants face difficulties in transferring their pre-immigration skills to the host country. Studies show that they are affected by occupational downgrading, taking up jobs below their actual skill level (Konietzka and Kreyenfeld, 2002; Weiss *et al.*, 2003). An explanation for this might be that the occupational requirements differ between the country of origin and the host country. To make immigration more attractive, for instance, in Germany a new law came into effect on 1st April 2012 (“Federal Recognition Act”) which aims to increase the transferability of degrees obtained outside of Germany to the German labour market. Hence, the aim is that particularly (high-)skilled immigrants will find jobs more easily and therefore quickly.

To analyse the potential gains from this new legislation we first compare job transition times of (high-)qualified immigrants to immigrants of lower skill levels, and second, transition times into different types of jobs within the group of (high-)skilled immigrants. We do this by focussing on the labour-market integration of Ethnic Germans (*(Spät-)Aussiedler*). This has two main advantages: they are one of the largest immigration groups in Germany and, have always had the rights introduced to all immigrants with the new Act in 2012. This way we can not only learn how immigrants of different skill-levels perform on the German labour market. Furthermore, this allows us to draw first conclusions on how the new act might affect the transferability of pre-migration skills in the job-finding process for immigrants in general.¹

We use a new high-quality administrative dataset based on the German pension and unemployment insurances that holds information both on, for example, the skill-level of every job Ethnic Germans worked in prior to immigrating to Germany, as well as the skill-level of the job when starting their employment career in Germany. Hence, we are able to analyse not only how long Ethnic Germans need to find a job but also whether they can (at least to some degree) transfer their skills from abroad to the German labour market. Focusing on Germany may also be of wider interest as Germany has the third highest stock of migrants in the world after the U.S. and Russia (see United Nations, 2011, p. 21).

There is a huge literature on the labour-market integration process of immigrants starting with, for example, Chiswick (1978); Borjas (1985) and more recently Chiswick and Miller (2009a,b); Hirsch *et al.* (2013); Friedberg (2000); Damm (2009). These studies mostly focus on how immigrants pre-migration skills influence assimilation and wage growth rates. We depart from this strand of literature by analysing the role pre-migration skills play in the job-search process of immigrants. Perhaps the paper that comes closest to ours in the way it compares immigrants in both their source and destination country is that by Konietzka and Kreyenfeld (2002) who

¹ As this act is relatively new, it is too early to fully analyse its influence on the integration process. First purely descriptive results can be found in Brussig *et al.* (2013).

also focus on Ethnic Germans. However, their study is based on a very small sample of Ethnic Germans and they only investigate discrete transitions. With the novel data we use, we are able to identify day-by-day transitions, thereby allowing us to study the immigration process using continuous duration models. Other related studies that focus on the labour-market performance of Ethnic Germans but not specifically on their job-search process are by Schmidt (1994); Bauer and Zimmermann (1997) and more recently Glitz (2012).

Our paper complements the existing literature in two ways: First we show theoretically how different job search strategies influence job search durations of the high-skilled and further that outcomes differ because of the heterogeneity of productivity signals between groups. Second, our administrative data allows us to provide empirical evidence to test the theoretical projections by studying job transitions of Ethnic Germans after immigrating to Germany, accounting for differences of Ethnic Germans coming from Poland, Rumania, and the Former Soviet Union (FSU).

The setup of the paper is as follows: In the next section we provide more details about Ethnic Germans and their accreditation rights. We then present a formal model showing both the influence of the uncertainty associated with a degree obtained in a foreign country as well as how this uncertainty varies between different skill levels. We theoretically show that the duration of the job-search process for the high-skilled varies greatly depending on which jobs the high-skilled are prepared to accept. If the high-skilled are only prepared to look for and take up skilled jobs (called *ex post* segmented matching), then they might actually need longer to find a job. However, if the high-skilled are prepared to look for both unskilled as well as skilled jobs (which – as in Albrecht and Vroman (2002) – we call cross-skill matching), then the expected time they need to find a job is lower than that of the low-skilled. In addition, as in Dolado *et al.* (2009), we include on-the-job search to theoretically show that job-finding rates for the high-skilled to skilled jobs can increase further when they first take up unskilled jobs. We empirically test which effect dominates using Cox survival-analysis and timing of events models.

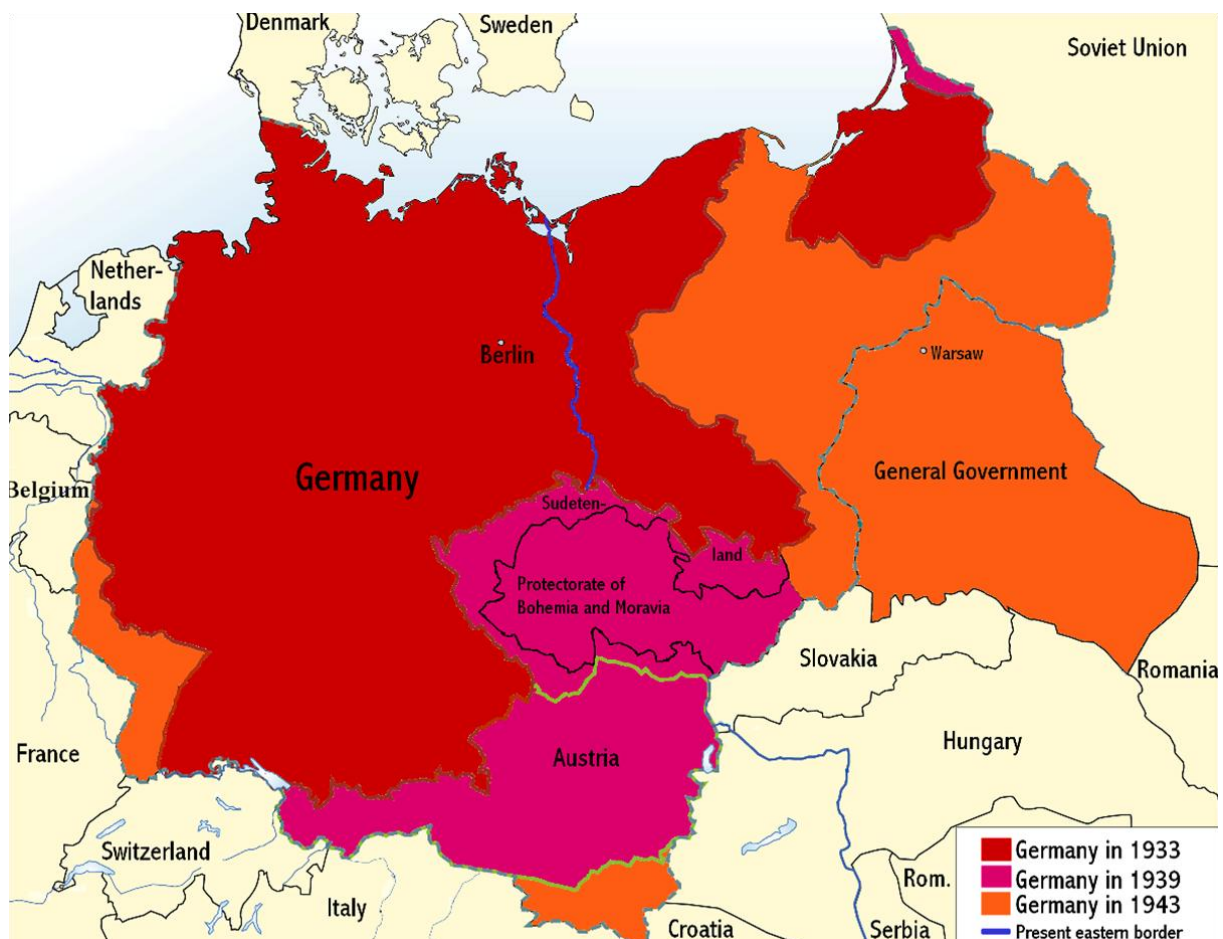
Our empirical results show that first – when we do not account for the type of job high-skilled take up – the time needed to find a job is not significantly different between the low- and high-skilled. However, this result is reversed when we change the “quality” of a job match, i.e. assume it must last at least 180 days. Second, if high-skilled only search for high-skilled jobs, we confirm our theoretical findings and find significantly longer job-search times of a very large magnitude (50% lower hazard rate). In addition, we show that job-search times for high-skilled taking up skilled jobs are shorter when they first accept an unskilled job. In addition, we also show that there are large differences depending on where an Ethnic German emigrated from. Hence, even though all Ethnic Germans have the same legal rights and especially the same accreditation rights, this does not translate into similar labour-market integration success.

Historical Background

Ethnic Germans are a particular immigration group with special privileges because of their German background. The territory of the German Reich until 1933 was larger than Germany is now. It comprised regions which are nowadays part of mostly Eastern European countries.

After World War II, the former German territory was not included within the German borders anymore. About 15 million people who were born in the German territory before the end of World War II (see Figure 1) no longer lived in Germany after the reallocation of the territories. The vast majority of them were subsequently resettled further East (for example to the Former Soviet Union or Rumania) and lived as stigmatised Germans in another country. Often, their German identity was denied and they were not allowed to live their German culture and habits (Baaden, 1997). A high percentage were expelled or escaped and moved back to Germany immediately after the end of World War II. These immigrants are called Ethnic Germans by law (*Bundesvertriebenengesetz*), as well as all refugees or expellees from Poland, the Former Soviet Union, Hungary and Rumania who moved back to Germany after 1950. Thus, Ethnic Germans – German diaspora and their descendants – are treated as immigrants with German origin because they were affected by the aftermath of the Third Reich. This in turn grants Ethnic Germans full social security entitlements upon entry to Germany that other immigrants are not able to claim.

Figure 1: German Territory 1933 – 1943



Source: http://commons.wikimedia.org/wiki/File:Nazi_Germany.svg

The three most important countries from where Ethnic Germans emigrated were Poland, Rumania, and the FSU (see Figure 2). However, until the fall of the “iron curtain”, it was very difficult for both the Ethnic Germans and their relatives to leave their home countries. Until

1987, about 1.6 million moved back to Germany in two huge waves. This can be explained with changing legal conditions regarding emigration in the different countries of origin. Different emigration agreements between Germany and the East European countries enabled different Ethnic-German populations better or worse access to Germany (Baaden, 1997). With the end of the cold war in 1998, the emigration agreements became more flexible and since then about 3 million Ethnic Germans re-settled to Germany. Until the early 1990s, the number of immigrating Ethnic Germans increased which led to a legal limitation of their immigration (see Glitz, 2012, for more details). Legal changes and the introduction of certain immigration rules (e.g. the immigration application has to be submitted and granted before entry to Germany) made it much more difficult to immigrate since then. By now, immigration of Ethnic Germans can be considered as completed. In 2006, less than 8,000 Ethnic Germans immigrated to Germany.² In addition, return migration is not widespread among Ethnic Germans as they would lose their German pension entitlements.

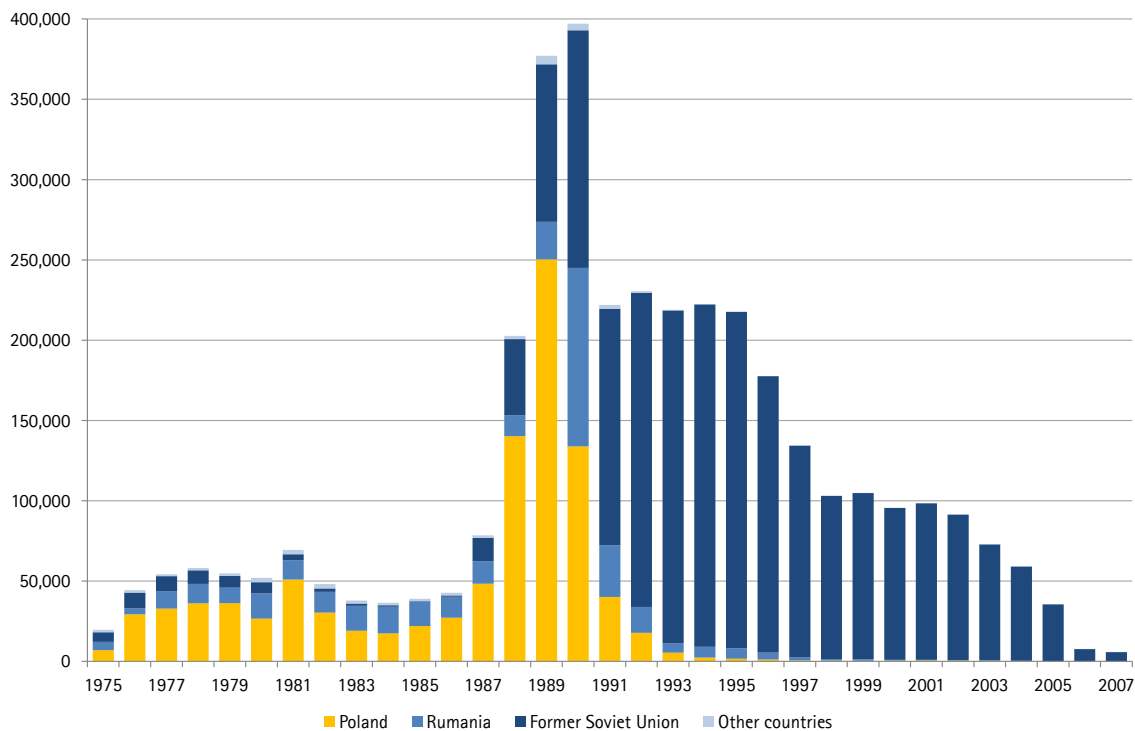
As can be clearly seen from Figure 2, Ethnic Germans came to Germany at different times depending on their country of origin. However, this is not the only important difference between them. Whereas Ethnic Germans that immigrated in the eighties could speak German quite well upon entry as German can be considered as their first language (see Mika and Tucci, 2006 or Meng, Katharina, 2001, p. 462), Ethnic Germans immigrating in the early 1990s, on average, could speak only little German, or no German at all (see Klekowski von Koppenfels, 2003).

Ethnic Germans and their direct relatives are allowed to immigrate to Germany and receive German citizenship automatically after arrival in Germany. More distant family members are allowed to immigrate with them but keep their original citizenship and can only apply for a German citizenship after a minimum duration of eight years. Besides eligibility for German citizenship and therefore unrestricted access to the German labour market, they are entitled to claim all kinds of welfare benefits, such as unemployment, health, and pension benefits (Konietzka and Kreyenfeld, 2002; Mika and Tucci, 2006). To facilitate their integration, Ethnic Germans are additionally granted financial moving subsidies, e.g. low-interest loans, a lump-sum payment, language courses and educational or occupational further training. Ethnic Germans participating in these measures receive a monthly integration subsidy payment which is equivalent to the amount of regular unemployment benefits (Klekowski von Koppenfels, 2003). However, the most important fact for our study is their legal right to a formal accreditation procedure of their educational certificates (see Englmann and Müller, 2007, for more details). The accreditation procedure for Ethnic Germans constitutes an exception in the past until the introduction of the Recognition Act in 2012. Until then, Ethnic Germans were the only immigrant group entitled to an accreditation procedure for all professional or vocational qualifications (“de-facto” recognition). Numerous accreditation offices only conducted procedures for Ethnic Germans, as other immigrants were not entitled to de facto recognition. In the context of the debate on potential labour shortages, this privilege was extended to all other immigrants to Germany in 2012.

Despite these labour-market privileges, studies have shown that Ethnic Germans still face numerous problems on the labour market. They often face high unemployment rates and long durations in unemployment (Hochfellner and Wapler, 2010) and have difficulties finding a job

² See <http://www.bpb.de/gesellschaft/migration/dossier-migration/56395/aussiedlermigration>.

Figure 2: Immigration of Ethnic Germans to Germany, 1975 – 2007



Source: <http://www.bund-der-vertriebenen.de/infopool/spaetauss1.php3>

in their occupations (Konietzka and Kreyenfeld, 2002). In addition, these poor starting conditions have long-term consequences (Mika and Tucci, 2006). This could be an indication that the accreditation of foreign degrees does not perform well when looking at labour-market entries, which might also apply to the new accreditation law introduced in 2012.

Model

Our theoretical model is based on matching theory as described in Pissarides (2000). Hence, we are assuming that there are labour-market frictions leading to the simultaneous existence of people looking for jobs and firms looking for workers. In the baseline version of the theory, both firms and workers are homogeneous. As we are first interested in comparing job-finding rates of the low-skilled relative to the high-skilled, and, in a second step, comparing these rates within the group of the high-skilled, we depart from this assumption and base our analysis on Dolado *et al.* (2009) where both firms and workers are heterogeneous. Their work builds on Albrecht and Vroman (2002) but additionally allows for on-the-job search. This addition is important when studying the group of the high-skilled in order to be able to analyse whether the high-skilled are better off if they first accept an unskilled job but then continue to search for a skilled job. We assume that workers can be either low- or high-skilled (ignoring the fact whether these skills were obtained at home or abroad for the moment) and that an (exogenously given) fraction μ of the population is low-skilled. Firms are also assumed to be heterogeneous and offer two types of jobs which are either unskilled or skilled. The unskilled jobs can be performed by both the high- and low-skilled whereas the skilled jobs can only be performed by high-skilled workers. This means that the high-skilled may find it optimal to first accept an unskilled job and then search for a

skilled position rather than remaining unemployed and only searching for skilled jobs. We label these “mismatched workers”, i.e. high-skilled working in unskilled jobs, as $e_{h,n}$ and assume as in Dolado *et al.* (2009) that their search intensity $\lambda \in [0, 1]$ is lower than that of the unemployed. When $\lambda = 0$ the setup is identical to that of Albrecht and Vroman (2002).

The rate at which job-seekers and firms come together is given by the matching technology which we specify as:

$$m = m(u_l + u_h + \lambda e_{h,n}, v_n + v_s) \quad (1)$$

where u_j is the mass of unemployed workers and $j \in \{l, h\}$ is the index noting the individual skill level which is either low- (l) or high-skilled (h), v_i the mass of vacancies and $i \in \{n, s\}$ is the job index which is either unskilled (n) or skilled (s). Labour-market tightness θ is defined as the ratio of vacancies to job-seekers:

$$\theta = \frac{v_n + v_s}{u_l + u_h + \lambda e_{h,n}}$$

Hence, the contact rate of a firm is given by:

$$p(\theta) = \frac{m}{v_n + v_s} = m(1/\theta, 1) \quad (2)$$

Similarly, the contact rate for job-seekers is:

$$f(\theta) = \frac{m}{u_l + u_h + \lambda e_{h,n}} = \theta p(\theta) \quad (3)$$

whilst unemployed and $\lambda f(\theta) \leq f(\theta)$ whilst employed where $p'(\theta) < 0$ and $f'(\theta) > 0$.

We define the share of the unskilled in the pool of the unemployed as $\phi = u_l/(u_l + u_h)$. This implies that the number of low-skilled unemployed is given by $u_l = \phi u$ and analogously, the number of high-skilled unemployed is $u_h = (1 - \phi)u$. Defining the share of unskilled vacancies as $\xi = v_n/(v_n + v_s)$ and because low-skilled workers can only take up unskilled jobs implies that their job-finding rate is $\xi f(\theta)$. The unemployed high-skilled find unskilled and skilled vacancies at the same rate. Hence, their job-finding rate is $f(\theta)$.

Turning to firms, the rate at which unskilled vacancies are matched with low-skilled workers is given by $\phi p(\theta)$. If the benefits for a high-skilled individual of taking up an unskilled job are higher than remaining unemployed and waiting for a match with a skilled job, then they too will accept unskilled job offers. Albrecht and Vroman (2002) call this *cross-skill matching* and show that it occurs if the productivity differences between the two types of jobs as well as the share of the high-skilled population are not too large. Hence, in a cross-skill matching equilibrium, high-skilled workers match with unskilled jobs at the rate $(1 - \phi)p(\theta)$. As shown in Dolado *et al.* (2009) in the same model but including on-the-job search, if the arrival rates of job-offers to the unemployed do not differ greatly from those to the employed, then an equilibrium with cross-skill matching and on-the-job search is the most likely.

Flow Equilibrium

Assuming time-constant arrival rates (Poisson-distributed arrivals) in a small time interval dt , a mass of $\xi f(\theta)\phi u dt$ low-skilled individuals leave unemployment and find jobs. Jobs are assumed to be destroyed at the exogenous rate δ . Hence, the number of low-skilled who lose their jobs in any period is $\delta(\mu - \phi u)dt$. Therefore, the steady-state flow equilibrium for the low-skilled is:

$$\xi f(\theta)\phi u = \delta(\mu - \phi u) \quad (4)$$

Turning first to the case in which there is a segmented equilibrium, i.e. the high-skilled only search for skilled jobs, then the flow equilibrium for unemployed high-skilled workers is:

$$(1 - \xi)f(\theta)(1 - \phi)u = \delta((1 - \mu) - (1 - \phi)u) \quad (5)$$

Combining these two equations leads to an unemployment rate for the low-skilled of:

$$\tilde{u}_l = \frac{\phi u}{\mu} = \frac{\delta}{\delta + \xi f(\theta)} \quad (6)$$

and for the high-skilled:

$$\tilde{u}_h = \frac{(1 - \phi)u}{1 - \mu} = \frac{(1 - \phi)\delta}{(1 - \mu)(\delta + f(\theta)(1 - \phi - \xi(1 - 2\phi)))} \quad (7)$$

From equations (6) and (7) it is not entirely clear which unemployment rate is higher. However, for plausible numerical values (we used those stated in Dolado *et al.*, 2009, p. 217pp.) the high-skilled unemployment rate is actually higher because they are likely to have far fewer job opportunities (there are less skilled than unskilled vacancies).

In a cross-skill flow equilibrium the low-skilled flow-condition (4) remains unchanged. However, the corresponding equation for unemployed high-skilled workers is now:

$$f(\theta)(1 - \phi)u = \delta((1 - \mu) - (1 - \phi)u) \quad (8)$$

Combining these two equations leads to an unchanged unemployment rate for the low-skilled of:

$$\tilde{u}_l = \frac{\phi u}{\mu} = \frac{\delta}{\delta + \xi f(\theta)} \quad (9)$$

and for the high-skilled:

$$\tilde{u}_h = \frac{(1 - \phi)u}{1 - \mu} = \frac{\delta}{\delta + f(\theta)} \quad (10)$$

From equations (9) and (10) it can be seen that the low-skilled have a higher unemployment rate than the high-skilled.

Equations (9) and (10) hold if there is a cross-skill matching equilibrium (but no on-the-job search). It is shown in Albrecht and Vroman (2002) that this equilibrium is more likely to be the case (i) the smaller the spread between the productivities on unskilled and skilled jobs and/or

(ii) the greater the fraction of the workforce that is low-skilled (the larger μ is).

Allowing for on-the-job search means that mismatched high-skilled workers, i.e. those working in unskilled jobs have an equilibrium job-flow rate given by:

$$\xi f(\theta)(1 - \phi)u = (\delta + f(\theta)\lambda(1 - \xi))e_{h,n} \quad (11)$$

Combining this with equation (4) leads to a high-skilled unemployment rate of:

$$\tilde{u}_h = \frac{(1 - \phi)u}{1 - \mu} = \frac{(\delta + f(\theta)\lambda(1 - \xi))e_{h,n}}{(1 - \mu)\xi f(\theta)} \quad (12)$$

For plausible values (again those stated in Dolado *et al.*, 2009, p. 217pp) of the model parameters, the unemployment rate of the high-skilled with on-the-job search is both lower than that of the low-skilled as given by (9) as well as that of the high-skilled without on-the-job search (see equation (10)). Hence, taking up unskilled jobs can serve as stepping stone for high-skilled workers to then later take up a job requiring a higher skill level. However, it is not ruled out that the high-skilled have a higher unemployment rate. The reason for this is that on the one hand with on-the-job search it becomes more profitable to create skilled vacancies (as the pool of job-seekers for these now not only includes high-skilled unemployed but also high-skilled mismatched workers). On the other hand, the creation of unskilled jobs becomes less attractive because the quits of mismatched high-skilled reduces the average duration and hence profitability of such matches.

Exit Rates for Different Countries of Origin

Regardless of whether a vacancy is for a skilled or an unskilled position, both jobs and workers have many unobservable characteristics (see Pissarides, 2000, chap. 6). Hence, in the following, we assume that when a firm and worker of type $j \in \{l, h\}$ meet, the firm receives a noisy signal $\hat{y}_j = y_j + \epsilon_j$ about the worker's productivity, where ϵ_j is normally distributed with mean 0 and variance $\sigma_{j,k}^2$, $k \in \{Poland, Rumania, FSU\}$. As discussed in Baaden (1997) or Blaschke (1989), the Ethnic Germans living in the FSU had the most obstacles to showing their German roots whereas, for example, those living in Poland had far less problems in this respect. We label this "cultural distance" and assume that this has as a consequence that there are also less economic interactions between people living in Germany and Ethnic Germans in countries where they have to hide their German roots. This then translates into a higher variance with respect to the productivity signal.³

Due to the uncertainty about a worker's productivity on a job, when firms and workers meet, they do not automatically form a match. Instead, matches are only formed when the expected productivity is at least as high as a certain reservation productivity $y_{j,k}^R$. Therefore, the fraction

³ See Dustmann *et al.* (2011) for a similar model where the productivity signal differs between referred and external job-applicants and Brück-Klingberg *et al.* (2011) where the signal differs between natives and immigrants.

of acceptable job contacts is:

$$\int_{y_{j,k}^R}^{Y_i} dF_{j,M}(y_{j,k}|\sigma_{j,k}^2) = 1 - F_{j,M}(y_{j,k}|\sigma_{j,k}^2) \quad (13)$$

where $F_{j,M}(y_{j,k}|\sigma_{j,k}^2)$ is the distribution function of the worker's true productivity and Y_i is the maximum productivity level associated with jobs of type i , $i \in \{n, s\}$.

From (13) and (3), workers find jobs at the rate:

$$f_{j,k}k(\theta) = (1 - F_{j,M}(y_{j,k}|\sigma_{j,k}^2)) \theta p_{j,k}(\theta) \quad (14)$$

Thus, a higher variance $\sigma_{j,k}^2$ translates into a lower job-finding rate. Hence, if potential employers have the least information about degrees (and hence productivity) of people coming from the FSU, then we expect that these migrants also have the longest job-search times. If it is further assumed that the (absolute) variance is higher for high-skilled workers as the differences between, for example, university degrees obtained at home and abroad are bigger, then the negative effect on the job-finding rate is higher for high-skilled relative to low-skilled within each migrant group.

Summing up, it becomes clear from the theoretical model that the high-skilled may need longer to find jobs than the low-skilled. This holds in general if there is an ex post separation equilibrium, i.e. the high-skilled only search for skilled jobs. The second reason why they may be at a disadvantage is that there may be larger productivity differences within the group of high-skilled than the low-skilled. This larger variance has a negative effect on the job-finding rate.

Thus, the theoretical model shows that it is by no means clear whether the low- or high-skilled find jobs more quickly. Before testing which effect dominates empirically, we first describe the data and then provide some descriptive findings.

Data

Since Ethnic Germans receive the German citizenship immediately upon arrival, they are not identifiable in many of the widely used datasets. As a consequence, previous analyses of this group of immigrants have typically relied on surveys and suffered from small samples.⁴ Brück-Klingberg *et al.* (2011) also use an administrative dataset that is similar to the one used here. In fact, the labour-market information in our dataset is identical to theirs. However, in contrast to the data used in this paper, Brück-Klingberg *et al.* (2011) neither have any information about the country of origin of an Ethnic German nor on their labour-market biography in that country.

For this reason, our empirical analysis is based on BASiD⁵, a new administrative dataset provided by the Institute for Employment Research (IAB) of the German Federal Employment Agency.⁶ BASiD combines information from the German pension system with administrative data from the IAB. The dataset is a 1% disproportional stratified sample of all individuals between 15 and

⁴ For example, Konietzka and Kreyenfeld (2002) base their analysis on 117 Ethnic Germans.

⁵ Version 1 (BASiD 5109 v1)

⁶ See Hochfellner *et al.* (2011) for a detailed description (in German).

67 years of age who contributed to the pension insurance in 2007. As the pension insurance is mandatory for most workers (exceptions are self-employed and civil servants), approximately 90% of the German population are registered within the public pension system (Himmelreicher and Stegmann, 2008). BASiD contains all activities of a person, including schooling, employment and job characteristics, benefit receipt, and sickness that are relevant to calculate pension entitlements. Additionally, socio-economic information for every person is available as well as numerous workplace characteristics such as plant size and workforce composition. The data is arranged in a daily longitudinal episode format, covering the period 1975 – 2009.

We identify Ethnic Germans via their entitlements to the Act on Foreign Pensions (*Fremdrentengesetz (FRG)*). This is an existing pension agreement that grants Ethnic Germans pension claims financed by the public German pension insurance for employment periods in their country of origin. More precisely, the German pension system treats this foreign schooling and professional experience in exactly the same way as if Ethnic Germans had been in the German education system or worked in Germany at that time. The German pension insurance records the complete employment history before entry to Germany and assigns earning points to each job proportional to the qualification of the occupational activity. As a rule, high skilled people receive higher monetary entitlements (Mika *et al.*, 2010). To claim these entitlements Ethnic Germans have to proof their foreign education and employment career which means that the data holds highly reliable information on pre-migration employment (see Hirsch *et al.*, 2013). This enables us not only to calculate the date when Ethnic Germans entered Germany, but also to generate a indicator measuring the qualification-level of their job before entry to Germany to see if skills obtained abroad are transferable to the German labour market.

The German pension insurance rates every foreign job according to the respective legislation of the FRG, the industry worked in, the type of insurance provider (e.g. blue collar vs. white collar worker), and the qualification obtained and required for the jobs. By combining this information, the German pension insurance constructs a variable containing 585 categories which describe the occupation in the county of origin (see Mika *et al.*, 2010). For instance, category 422 defines that the person in the data is eligible to claim entitlements according to the FRG for an employment period in which she had a job in the energy and fuel industry on a higher qualificatory level (master craftsman). These categories are then aggregated to reflect the “Blossfeld” scheme (see Blossfeld, 1987; Schimpl-Neimanns, 2003). This occupational classification system assigns each job to one of 12 (not including missings) categories ranging from simple manual occupations to highly complex specialised occupations. The “Blossfeld” category „simple manual occupations“, for instance, contains occupations such as brewer, cellarman, glassblower, electrician, or typographer (see Mika *et al.*, 2010). We obtain our pre-migration job skill-level measure by first sorting the twelve “Blossfeld” tasks into high-skilled, skilled, and low-skilled occupations. We then use these three condensed categories to classify the skill-level of the last job prior to entry to Germany.⁷ The following table gives an overview of important variables in the dataset regarding the socio-economic characteristics of the Ethnic Germans in the data.⁸

⁷ Appendix A.1 provides more details.

⁸ The original dataset contains information on 8,455 Ethnic Germans. We restrict our sample to the three largest immigration groups, namely Ethnic Germans from Poland, Rumania and the Former Soviet Union. This reduces the size of the analyses sample to 8,140. For 248 people we have no labour-market information.

Table 1: Socio-Economic Characteristics of Ethnic Germans Upon Arrival in Germany

Men	2,825
Women	4,057
Country of origin	
Poland	2,420
Rumania	741
Former Soviet Union	3,721
Mean age at entry	
Total	33.8
Poland	30.9
Rumania	33.2
FSU	35.8
Skill level in last job in country of origin	
Low-Skilled	53.7
Skilled	25.4
High-Skilled	13.2
Unknown/Never employed	7.7

As can be seen from Table 1, there are more women (roughly 60% of the sample) than men in the dataset. This is because the data represents a disproportional stratified 1% sample of all people who contributed to the German pension insurance in 2007. When applying sample weights women and men are represented in a ratio of 1:1. The dominance of Poland and the FSU which could already clearly be seen in Figure 2 is also visible in Table 1. Table 1 also shows the qualificatory status of the Ethnic Germans based on our simplified “Blossfeld scheme”. We present these findings in more detail in the next section.

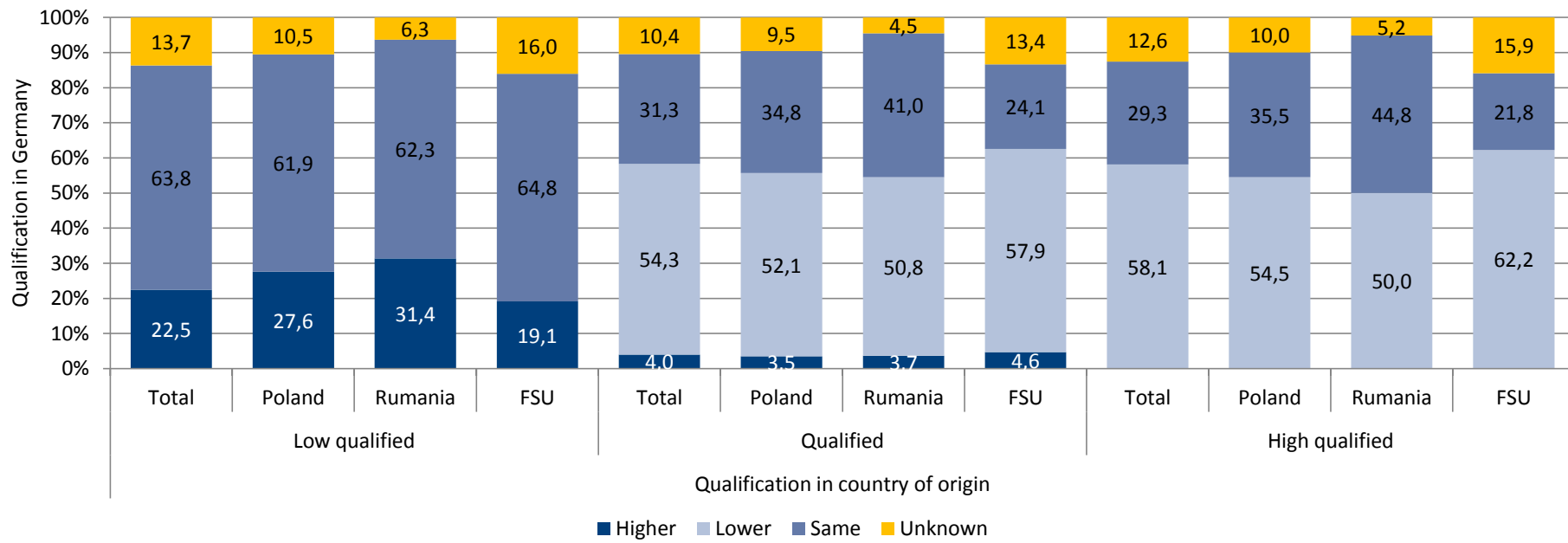
Descriptive Findings

Ethnic Germans differ both as to when they immigrated to Germany and with regard to their qualificatory structure in their country of origin. As we are interested not only in the qualification in the country of origin, but moreover in how Ethnic Germans can translate these skills into the German labour market, Figure 3 compares the qualificatory status of the last job in the country of origin with the first job in Germany.

Amongst the low-skilled in their country of origin, over 60% are also employed as low-skilled in Germany. Perhaps somewhat surprisingly, roughly a fifth manage to find employment with a higher qualificatory status. With regard to the people employed as medium-skilled in their last job before emigration, on average only about 4% are then employed with a higher qualificatory status. This result is not surprising as there is no reason to expect why the skills obtained abroad should transfer into a higher qualificatory status in the destination country. Far more likely – and this happens to more than 50% of the medium- and high-skilled immigrants – is that the

Further, as we can only determine the qualification for spells in 1975 or later, we drop all immigrants who migrated before 1975. Further data restrictions to exclude accounts with missing information reduce the final sample to 6,882.

Figure 3: Qualification of Last Employment in Country of Origin and First Employment in Germany

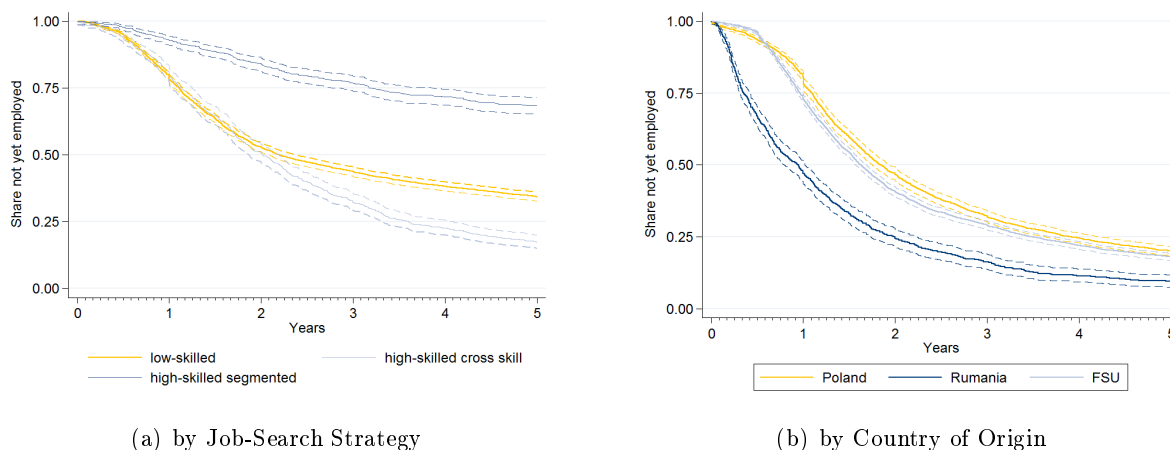


Source: BASiD; own calculations

skills are “downgraded”, i.e. their first job in Germany requires a lower skill level than their last one in their country of origin. Obviously, there are a number of reasons for this. For example, it could be that they had difficulties in the accreditation procedure or it could be that they first took up a low-skilled job in the hope of finding a higher skilled job later.

Of primary interest here is not only whether individuals are employed at the same, a higher or lower skill level than before, but also what role the skill level (in both countries) has on the amount of time an immigrant needs to find his or her first job in the country of destination. Before providing detailed multivariate regression results on the factors which influence the job-search process, we first provide two Kaplan-Meier graphs showing the share of job-seekers up to five years after immigration. The graphs show the duration from the end of the last job in the country of origin until the start of the first job in Germany (and the respective 95% confidence intervals). Panel (a) of Figure 4 differentiates between the search strategies used as described in the theoretical model. In this case, the definition of the first job differs between the displayed sub-groups. For Ethnic Germans who last worked as low-skilled before immigrating, the time analysed is the time until they find their first low-skilled job in Germany. For the high-skilled in the presence of cross-skill matching, it shows the time until the start of a job at any skill level in Germany, whereas in case of ex post segmented matching, the time until the beginning of the first high-skilled job in Germany is shown. In contrast, panel (b) of Figure 4 displays differences in job-start durations between the country of origins as it was shown in the theoretical model that these will differ if the signals associated with degrees from these countries will differ if the signal variance differs. For reasons of clarity, we only plot the time until the start of the first job in Germany of any skill level, i.e. irrespective of the job-search strategy in this graph.

Figure 4: Kaplan-Meier Estimates



Source: BASiD; own calculations

As shown in the theoretical model above, whether the high-skilled have the shortest job-search durations decisively depends on their job-search strategy. If only high-skilled jobs come into consideration, then it is possible that they need longer to find a job than someone who is (also) looking for or willing to accept a low-skilled job. The descriptive results clearly support the theoretical model as can be seen from panel (a) of Figure 4. High-skilled Ethnic Germans only

searching for high-skilled jobs show the longest transition times. After three years only 25% are successful in finding a high-skilled job, whereas high-skilled that also take up low-skilled jobs find jobs more easily, at about the same rate that low-skilled people find low-skilled jobs. However, after roughly two years, the high-skilled taking up lower qualification jobs find jobs more quickly than the low-skilled which may be a sign that the high-skilled change their search strategy after a certain amount of time.

In panel (b) of Figure 4 we have plotted the Kaplan-Meier estimates (and again the respective 95% confidence intervals) differentiated by the different countries of origin from which Ethnic Germans mainly immigrate. In line with the theoretical model from which follows that higher uncertainty about the signal values of a degree leads to longer job-finding rates, it can be seen that Ethnic Germans from the FSU (which have the largest “cultural distance”) show the longest job-search times after immigrating to Germany. Ethnic Germans from Poland perform slightly better at the beginning. However, this changes after six months. From there on, the Ethnic Germans immigrating from Poland require the longest time to find a job, followed closely by the one coming from the FSU. Even after five years, still roughly 20% have not yet found a job. People emigrating from Rumania perform best. These observed heterogenous transition times are in line with the prediction of our formal model that productivity signals differ between the outlined groups. Another explanation could be, for example, different labour-market conditions holding at the time people from different countries mainly immigrated. On the other hand, then we would also expect Ethnic Germans from Rumania to have similar job-search durations as those coming from Poland which clearly is not the case. This clearly highlights the importance of the regression analysis below to see if these differences persist even after controlling for other factors.

It becomes clear from Figure 4 that the time needed to find a job in Germany is fairly long. As shown in Table 2 (column [3]), men need on average 1.5 and women 3.6 years before they find their first regular employment (i.e. a job subject to social security contributions lasting at least seven days).⁹

The last four columns in Table 2 show the proportion of time the immigrants spend in different labour market states during their job-search. Amongst all groups – especially amongst the male immigrants – times in registered unemployment or registered job-search represent the largest shares. The only exception are the high-skilled who spend a slightly larger amount of time in low-skilled employment. This could both be a sign that they cannot find high-skilled jobs or that this time may be useful (and more useful than unemployment) in obtaining skills which then subsequently help them to find higher skilled jobs.

⁹ This table does not include Ethnic Germans that never find a job in Germany until 2009.

Table 2: Transition times – Average elapsed time until first regular employment in Germany

	Since entry		States during job search			
	Days	Years	Proportion of time in ... a)			
			Employment ^{b)}	Unemployment	Not in l. force	Education
	[2]	[3]	[4]	[5]	[6]	[7]
Men	532	1.5	0.1	63.8	9.6	17.3
Women	1,290	3.5	0.0	46.1	24.6	15.9
Total	960	2.6	0.1	53.3	18.4	16.5
Country of origin						
Poland	1,148	3.1	0.2	49.7	22.9	11.4
Rumania	630	1.7	0.1	50.1	32.4	9.0
FSU	902	2.5	0.0	56.3	12.8	21.3
Skill level of last job in country of origin						
Unknown	840	2.3	0.5	66.0	17.6	5.6
Low-skilled (in low-skilled empl.)	1,147	3.1	13.2	45.5	16.5	12.5
High-skilled cross-skill-matching	1,040	2.8	0.0	48.6	16.0	21.6
ex post segmentation	1,666	4.9	38.7	28.3	10.9	11.2

a) The displayed proportions do not add up to 100 percent due to gaps in the data for which it is not possible to determine the individuals' labour market state.

b) Under 7 days or in employment of a different skill-level

The higher proportion of time women are not in the labour force indicates that – as is common for all migration groups – women come together with their spouses (who are actively looking for a job) but then spend much more time in the household and look after children.

The shares in the respective states are fairly similar for Ethnic Germans originating from Poland or Rumania. However, with respect to those immigrating from the Former Soviet Union there are large differences. The latter group spends far more time in the education and training schemes and also more time in unemployment. This could reflect both the fact that this group came at different times as well as there being (large) differences between the groups. Again, this highlights the importance of potential heterogeneity in productivity signals as suggested in the theoretical model.

Looking at the different skill levels of the last jobs the immigrants had in their country of origins it can be seen that especially the high-skilled – if they do not immediately find an equivalent job in Germany – spend a large share of their time in education. Whilst in education or training, it is likely that they are not actively looking for a job (or have a lower search intensity) but are upgrading their skills to subsequently have better chances on the labour market. Hence, there are two counteracting effects. The time spent in education is likely to increase the amount of time a person needs to find a job. However, if a person subsequently has skills which better match the requirements of the German labour market, this should reduce the time they need to find a job.

In the next section we perform a more in-depth analysis of the factors influencing the transition rates to employment to provide empirical evidence if the predictions of the theoretical model hold.

Regression Analysis

As shown above, survival rates differ between the search strategy used as well as with regard to the countries from which Ethnic Germans emigrate from. In this section, we therefore perform multivariate survival analysis regressions to gain more insight into the causes for these differences and to test if the results of the theoretical model hold when studying job-search processes of Ethnic Germans upon entry to Germany. Thus, we start observing Ethnic Germans from the end of their last job in their country of origin and follow them until they take up their first job. Both inflows (i.e. immigration times) and outflows (i.e. transitions into employment) span the time period from 1976 until 2009. We define a job-transition as *the start of an unsubsidised job, liable to social security that lasts at least seven days*.¹⁰ This can include full-time or part-time jobs.

As outlined in the theoretical model, our first interest is to compare job-finding rates of high- and low-skilled in the presence of ex post segmented or cross-skill matching. We do this by estimating two proportional hazard models, defined as:

$$h(t|x_i) = h_0(t)exp(\mathbf{x}_i\boldsymbol{\beta}_x) \cdot \nu$$

where $h_0(t)$ is the (unspecified) baseline hazard, $\boldsymbol{\beta}_x$ the scaling coefficients and ν is unobserved heterogeneity.

In case of cross skill matching, the event we are interested in is the start date of the first job after entry. Thus, for low-skilled Ethnic Germans we count the days to their first low-skilled job, for high-skilled we are interested in their first job, no matter what qualification is needed for that job (model 1). In case the high-skilled are only searching for high-skilled employment (ex post segmented matching), the same specification applies to low-skilled workers, but we are only interested in the start date of the first high-skilled job after entry high-skilled employment as transitions (model 2). In both models, the covariate of interest is the dummy that controls for the qualificatory status of the last job in the country of origin. This tells us if Ethnic Germans who were last working in a high-skilled job perform better relative to their peers working in low-skilled jobs or not.

To account for on-the-job search and thus find empirical evidence if taking up unskilled jobs serves as a stepping stone to find high-skilled employment, we estimate a timing of events model for the high-skilled as in van den Berg (2001); Abbring and van den Berg (2003), defined as:

$$\begin{aligned}\lambda_1(t_1|x_1, \nu_1) &= \lambda_{0,1}(t)\psi(x_1, \nu_1) \\ \lambda_2(t_2|x_2, t_1, \nu_2) &= \lambda_{0,2}(t)\psi(x_2, I(t)_{(t_1 < t_2)}, \nu_2)\end{aligned}$$

¹⁰ To see whether our results are robust to the quality of a job, we also perform all models with the restriction that jobs have to be at least 30, 90 or 180 days.

where t_1 is the duration in unemployment until take up of a low-skilled job, and t_2 the duration in unemployment until take up of high-skilled job (including the duration in low-skilled job). $\lambda(0)$, the baseline hazard, is normalised to one and ψ is specified as a piecewise constant function. The error terms ν_1 and ν_2 are characterised by their joint distribution $G(\nu_1, \nu_2)$. $I(t)_{(t_1 < t_2)}$, is our coefficient of interest because it denotes the causal effect of working in a low-skilled employment on taking up a high-skilled job.

We use a multivariate mixed proportional hazard model in a continuous time framework to estimate two mass points for each transition t_1 and t_2 :

$$f(t_1, t_2 | x_1, x_2) = \sum_{k=1}^K \sum_{j=1}^J p_{kj} (f_1(t_1 | x_1, \nu_{1k}) f_2(t_2 | x_2, \nu_{2j}))$$

Finally, the estimated individual contribution to maximum likelihood, accounting for right censoring, can be written as

$$\begin{aligned} l_i &= \sum_{k=1}^K \sum_{j=1}^J p_{kj} (\lambda_1(t_1 | x_1, \nu_{1k})^{(1-c_1)} S(t_1 | x_1, \nu_{1k}) \lambda_2(t_2 | x_2, \nu_{2k})^{(1-c_2)} S(t_2 | x_2, \nu_{2k})) \\ &= \sum_{k=1}^K \sum_{j=1}^J p_{kj} (f_1(t_1 | x_1, \nu_{1k}) f_2(t_2 | x_2, \nu_{2j})) \end{aligned}$$

Our dataset includes detailed labour-market information on both the destination country and the country of origin which we use to generate controls. To account for the different labour-market and socialisation conditions depending on where an Ethnic German migrates from, we clustered our regressions for these three migration groups to allow for intragroup correlation. In addition, as an indicator both of their labour-status and potential reservation wage in Germany, we include the wage in their last job before they emigrated. We further include labour-market experience in the country of origin, i.e. the time (in days) spent in employment abroad. Especially information on this last variable is very rare in most datasets but is likely to play an important role on the labour-market outcome in Germany. In addition, we can observe when a person migrated to Germany. Thus, we include age at entry and years since migration (as time-varying variables). Even amongst Native Germans, age (at least above a certain age) plays a decisive role in the job-finding chances. We expect the time spent in Germany to have a positive impact on the transition rates as with time, immigrants will have an increasing knowledge about the German labour market. In addition, in order to account for different labour-market and business cycle conditions, we also include dummies for the year of entry.

With regard to the labour-market information in Germany, we include the qualificatory status as noted by the Federal Employment Office and the information coming from social security notifications of employers.¹¹ As it has been shown that this recorded information is not always accurate we also impose the imputation corrections as suggested by Fitzenberger *et al.* (2006).¹²

¹¹ The placement officers at the Federal Employment Office only record accredited educational degrees.

¹² We use their 2b imputation rule as this leads to a distribution of educational degree which is closest to results obtained using the German microcensus – a 1% yearly household survey. With this imputation rule, a person's educational degree can change over time but is only allowed to move to higher degrees. Further, it is checked

The educational degree serves as an important signal to potential employers. Further, as shown above in the theoretical model, a higher skill level may or may not reduce the time needed to find a job (relative to the low-skilled) depending on which search strategy the high-skilled adopt. We expect that the job-search intensity depends on the current labour-force status, i.e. someone registered as unemployed is likely to be looking more intensely for a job than someone not in the labour force. Hence, we include the relative amount of time in other employment, i.e. short-term or employment of a different skill level, unemployment, in the education system or not in the labour force (as in Table 2). Similarly, job-search intensity may also depend on the current unemployment benefits a person receives. Hence, we include dummies if a person receives unemployment benefits or social assistance.¹³

To further account for local labour-market conditions, we also include the lagged unemployment rate. Seeing as (at least until 1985) we can only calculate average yearly unemployment rates, we use the one year lag of the unemployment rate at the time the individual starts searching for a job. We allow this variable to vary over time to correctly measure the labour-market conditions during job search. In addition, as ethnic networks might help in finding a job, we include the local (at the federal state level) share of employed foreigners who have either Polish, Rumanian or FSU nationalities.¹⁴ Similarly, we also account for the qualificatory structure of the local (at the federal state level) labour force since it might be easier to find, for example, a high-skilled job in regions with higher share of high-skilled. Again, we only have yearly information so that we use the one-year lagged values.

We now present our estimation results, focusing mainly on our covariates of interest, but also addressing other important covariates included in the models.¹⁵ Model 1 in Table 3 shows the results for the case that the high-skilled are prepared to take up any job in Germany. In this case, there are no significant differences between the transition times of low- and high-skilled. However, we also performed separate regressions where we increase the length of time a job needs to last before we count it as a successful transition. As can be seen from Table 4, once only jobs lasting at least 180 days are counted as transitions, then the high-skilled have hazard rates which are more than 34% higher than those of the low-skilled.

Model 2 in Table 3 contains the results of the model representing the ex post segmented matching. Now the hazard ratio for the high-skilled is 50% lower than for the low-skilled. Hence, if we analyse how long the high-skilled need to find jobs of the same qualification level as their last jobs in their countries of origin, we find that they need much longer than those that are low-skilled. Further, as seen from Table 4, this result is very robust with respect to the durations of the jobs taken up.

Model 3 in Table 3 contains the results of the timing of events approach reflecting that high-

whether a degree a person obtains is consistent with the age of the person.

¹³ Until 2005, people becoming unemployed generally first received unemployment benefits and after roughly two years (this duration was changed several times) received slightly lower social benefits (*“Arbeitslosenhilfe”*) which was still based on the last income a person had. With the labour-market reforms in Germany in 2005, the social benefits were abolished and a means-based social assistance was introduced. We set the dummy for social assistance to one if a person either received social benefits or social assistance.

¹⁴ As this data stems from the Establishment History Panel and employers only record nationality of their employees, we cannot uniquely identify Ethnic Germans in this part of the data.

¹⁵ Tables A.2 – A.5 show the mean values of our regression covariates.

skilled might be better off in finding high-skilled employment if they first take up an unskilled job. In this case, their hazard ratio is 15% higher compared to those who were not first employed in an unskilled job.

Table 3: Regression Results

	Model 1		Model 2		Model 3	
	<i>ls in ls empl. hs in any empl.</i>		<i>ls in ls empl. hs in hs empl.</i>		<i>hs in ls empl. and hs empl.</i>	
	Haz. Ratio	std. error	Haz. Ratio	std. error	Haz. Ratio	std. error
Home country (ref. FSU)						
Poland	1.064***	0.015	1.080***	0.005	1.125	0.219
Rumania	1.819***	0.195	1.944***	0.157	1.019	0.192
Employment in home country						
High-Skilled/dummy ls->hs	0.824	0.145	0.508**	0.156	1.147***	0.186
ln(last wage)	1.210	0.158	1.135*	0.079	0.817	0.198
Experience (years)	1.020**	0.009	1.012	0.008	0.987	0.024
Age at entry	0.992	0.005	0.998	0.011	0.986	0.041
State before job take up in Germany						
Years since migration	1.050	0.391	1.251***	0.073	0.738***	0.000
Share time unemployed	1.006	0.006	1.006	0.006	-	
Share time in education	1.015*	0.008	1.017**	0.007	-	
Share time in empl. < 7 days	0.970***	0.005	0.968***	0.005	-	
Benefits						
Unemployment insurance	1.684***	0.120	1.716***	0.101	1.100	0.133
Social assistance	1.495***	0.139	1.316***	0.155	0.731	0.238
Demographics						
Male	2.195***	0.292	2.305***	0.344	1.086	0.147
w/o vocational degree	1.088	0.211	0.898	0.237	0.868	0.199
with vocational degree	0.981	0.139	0.845	0.168	1.046	0.156
education unknown	0.638***	0.070	0.482***	0.086	1.297	0.252
below 20	0.600***	0.088	0.572***	0.052		
20 - 24	0.984	0.067	0.997	0.030	0.970	0.292
30 - 34	1.111***	0.042	1.186***	0.059	1.022	0.255
35 - 39	1.192*	0.111	1.209*	0.133	1.254	0.499
40 - 44	1.171	0.160	1.232	0.215	1.658	0.924
45 - 49	1.039	0.186	1.043	0.317	1.746	1.249
50 - 54	1.647*	0.146	0.675	0.242	1.713	1.533
55 - 59	0.321***	0.071	0.269***	0.132	1.018	1.163
60 - 64	0.124***	0.061	0.155**	0.127	0.344	0.531
65 and above	0.000	0.000	0.000***	0.000	0.012	0.138
Regional						
Share of low-skilled in federal state	0.149**	0.054	0.207	0.220	1.814	10.558
Share of skilled in federal state	0.406	0.463	0.971	2.029	47.875	386.6
Regional unemployment rate	0.947***	0.008	0.944***	0.005	1.025	0.025
<hr/>						
Nr. of obs.		72,205		90,808		902
Nr. of subjects		4,602		4,602		902
AIC		13,626,845		11,602,151		
BIC		13,626,864		11,602,180		
Linktest						
xb = 1 (95 % KI)		✓		✓		
xb2 insign. (5% sig.niveau)		✓		✓		

continued on next page ...

... Table 3 continued

Model 1		Model 2		Model 3	
<i>ls in ls empl.</i>		<i>ls in ls empl.</i>		<i>hs in ls empl.</i>	
<i>hs in any empl.</i>		<i>hs in hs empl.</i>		<i>and hs empl.</i>	
Haz.	std.	Haz.	std.	Haz.	std.
Ratio	error	Ratio	error	Ratio	error

Abbreviations used: *ls in ls empl.*: low-skilled in country of origin taking up low-skilled jobs in Germany; *hs in any empl.*: high-skilled in country of origin taking up any job in Germany; *hs in hs empl.*: high-skilled in country of origin taking up high-skilled jobs in Germany; *hs in ls and hs empl.*: high-skilled in country of origin taking up first low-skilled, than high-skilled jobs in Germany

Notes: ***/**/* denotes statistical significance at the 1/5/10 percent level. All models include further controls describing regional labour market structures upon entry to Germany. Regional covariates, age and years since migration are included as time varying covariates.

As shown in the theoretical model, not only does the job-search strategy play an important role in the time needed to find a job. The “quality of the educational signal” is also of crucial importance. If (potential) employers only have little information about the productivity a certain educational degree signals, then this higher uncertainty translates into lower job-finding rates. As shown above, both the time when the different migrant groups came to Germany as well as their “cultural distance” to Germany differed substantially. Especially those coming from the FSU had the most difficulties in living according to their German roots in their countries of origin (see Baaden, 1997; Blaschke, 1989). Hence, it is this group where we expect the labour-market difficulties to be the largest. That this is indeed the case can be seen both in Table 3 and 4. However, this only holds for model 1 and 2. In the first table – in both models – the hazard ratios are significantly higher for the Ethnic Germans migrating from either Poland or Rumania. To further test this hypothesis, we ran the models separately for our three immigrant groups.¹⁶ As can be seen from Table 4, the above result that we find no significant differences between the low- and high-skilled (when the latter take up both low- and high-skilled jobs) only holds for Ethnic Germans stemming from Poland or Rumania. The high-skilled emigrating from the FSU actually need longer than the low-skilled from these countries even if they look for both kinds of jobs. This clearly illustrates a mismatch between formal qualifications in the country of origin and their value on the German labour market. Hence, even if all Ethnic Germans have the same accreditation rights and legal possibilities to work in Germany, there seems to be a – just as or perhaps even more important – barrier depending on the signal value associated with such foreign degrees.

The fact that the high-skilled need longer than the low-skilled to find jobs if they concentrate on high-skilled jobs (model 2) is also reinforced in Table 4. This result holds independently of which country an Ethnic German emigrated from. However, the hazard ratio is by far the lowest for the people coming from the FSU, highlighting the special situation this migrant group faces.

It is a well-known fact that labour-market experience has an important positive influence on finding a job. With the dataset we use here, we also have very precise information about the amount of this experience in the home country. As can be seen from Table 3, we find that this foreign experience also has a significant positive influence on finding a job in Germany. However,

¹⁶ See Tables A.6 – A.8 in the Appendix for the full results.

Table 4: Difference in Job-Finding Rates of High- and Low-Skilled Ethnic Germans

	Model 1		Model 2	
	<i>ls in ls empl.</i> <i>hs in any empl.</i>		<i>ls in ls empl.</i> <i>hs in hs empl.</i>	
	Haz. Ratio	std. error	Haz. Ratio	std. error
Home country				
Poland	1.191	0.129	0.831	0.112
Rumania	1.003	0.168	0.768	0.160
FSU	0.687***	0.051	0.352***	0.039
Employment in Germany				
≥30 days	0.864	0.146	0.525**	0.170
≥90 days	0.992	0.183	0.587*	0.166
≥180 days	1.345**	0.169	0.603	0.191

Abbreviations used: *ls in ls empl.*: low-skilled in country of origin taking up low-skilled jobs in Germany; *hs in any empl.*: high-skilled in country of origin taking up any job in Germany; *hs in hs empl.*: high-skilled in country of origin taking up high-skilled jobs in Germany

Notes: This table only includes the coefficient indicating if a person worked in a high-skilled job prior to entry to Germany (ref. low-skilled job) estimated in separate models for the country of origins and the quality of a job match. ***/**/* denotes statistical significance at the 1/5/10 percent level. All models include further controls describing regional labour market structures upon entry to Germany. Regional covariates, age and years since migration are included as time varying covariates.

it needs to be noted that this is only the case if the high-skilled accept jobs below the skill-level they had abroad. Foreign labour-market experience becomes insignificant if the high-skilled concentrate their search on high-skilled jobs in Germany. This again is a sign that experience in high-skilled jobs abroad is not directly transferable to the German labour market even if these skills are documented.

Of more importance seems to be the time spent in Germany, i.e. the years since migration. Although these are by definition times in which a person is not (regularly) employed or, if they are employed, then we additionally control for this fact (see below), it seems to be a time which is very valuable in finding a job. However, this estimate is only significant in presence of ex post segmented matching. Each additional year in Germany increases the hazard rate of finding a job by 25%. This fact holds controlling for labour-market experience in Germany. If they spend time in “short jobs”, i.e. those lasting less than 7 days or in jobs below their skill level, they actually need longer to find a regular job (see the hazard ratio for “share time in empl. <7 days”). If they spend the time in Germany in education then this has a significantly positive influence on their chances of finding a job. In this case it is very likely that employers have more information about the nature and contents of such educational signals. However, turning to model 3, we see that the longer the high-skilled are in Germany, the less likely it is for them to find a high-skilled job. Obviously the time in Germany could be used to build social networks. However, we include the share of employees from Poland, Rumania or the FSU in the regressions but find no significant influence.

As expected, males find jobs significantly faster than females. This supports the hypothesis, that the males are the people driving the decision to migrate to Germany and hence are under more pressure to find a job, or that the gender roles might be more traditional in some countries of

origins. Finally, the older a person is, the lower are their chances of finding a job.

Conclusion

We focus on Ethnic Germans as one of the largest immigration groups in Germany to find evidence how in general high-skilled immigrants perform in their job-search process when immigrating to Germany. We do this using a novel administrative dataset which includes detailed labour-market information about both times abroad as well as in Germany. Hence, we are able to classify the skill level a person was employed at in her or his last job before emigrating and then subsequently, how long it takes to find a (equivalent) job in Germany. In addition, we are able to precisely differentiate between which country an Ethnic German emigrated from. This information is important as Ethnic Germans are a very large but hence also heterogeneous group of immigrants.

We first show theoretically that – especially for the high-skilled immigrants – the time they need to find a job depends firstly on their search strategy, i.e. are they also willing to accept jobs below their original skill level or not, and secondly, on the signal contents of the foreign degrees. In addition, we theoretically show that the high-skilled might perform better when accepting an unskilled job prior to a skilled job. If a (potential) employer has only imprecise information about the productivity level associated with a certain foreign degree, then this uncertainty leads to lower job-finding rates. Especially Ethnic Germans emigrating from the Former Soviet Union had difficulties living their German roots in their countries of origin. If such a “cultural distance” leads to less economic interaction with Germany and hence to less information about the degrees that they bring with them, then we also expect them to have the most difficulties when it comes to finding a job in Germany.

The accreditation procedure is of particular importance to the high-skilled immigrants as in Germany a person’s formal degree is a very important signal to potential employers. In general, the higher the vocational degree, the better are the prospects on the German labour market. Therefore, we focus on how quickly high-skilled immigrants find jobs relative to the low-skilled labour. Our results show that – if the high-skilled also accept jobs of lower skill levels (cross-skill matching) – then there are no significant differences between the transition times between them and the low-skilled. However, if the “quality” of a job match is also considered and job matches must last at least 180, then the high-skilled have hazard rates which are more than 34% higher than those of the low-skilled. However, high-skilled can use unskilled jobs as a stepping stone. The hazard rate of taking up high-skilled employment when first working in an unskilled job is about 15% higher relative to those who did not first have an unskilled job.

Although the high-skilled in Germany have by far the lowest unemployment rates and very high employment rates, we find that if a high-skilled immigrant concentrates her or his search on high-skilled jobs (ex post segmented matching), then they have much longer job-search times than the low-skilled. On average, their hazard rate is 50% lower. Particularly the Ethnic Germans emigrating from the Former Soviet Union face tremendous difficulties in this case. This confirms our theoretical result that – even if all Ethnic Germans have the same legal rights for example with regard to the accreditation of their degrees – that these rights do not guarantee equal

labour-market chances. Obviously, the “signal” quality of such degrees still varies greatly even after accreditation.

Turning to how we can transfer these results to the immigrants entering Germany under the new Recognition Act introduced in Germany in 2012, we consider this undoubtedly an important signal to people living abroad that Germany’s labour market is being made more attractive for them. However, the right to have degrees accredited is only one part of the labour-market integration process. The fact that we observe very different transition rates for Ethnic Germans emigrating from different countries highlights the fact that the accreditation process on its own does not always lead to fast labour-market integration.

Appendix

Table A.1: Condensed and Original Blossfeld Classification Scheme

Condensed Blossfeld	Original Blossfeld
Low-skilled	Agricultural jobs Simple manual jobs Simple services Simple sales jobs
Medium-skilled	Medium-skilled manual jobs Medium-Skilled services Technicians Medium-skilled sales jobs
High-skilled	Engineers Semi professionals Professionals Managers
Unknown	Others or missing

Table A.2: Sample Means of Main Covariates

	Total		High-skilled		Low-skilled	
	Mean	std. error	Mean	std. error	Mean	std. error
Poland	0.40	0.007	0.39	0.021	0.29	0.010
Rumania	0.13	0.005	0.15	0.015	0.11	0.007
FSU	0.48	0.007	0.47	0.020	0.59	0.010
ln(last wage)	4.36	0.005	4.47	0.012	4.24	0.006
Experience (years)	11.45	0.110	10.28	0.279	12.10	0.150
Age at entry	32.36	0.114	33.25	0.280	32.93	0.157
Year of entry	1988.91	0.081	1988.81	0.214	1989.81	0.109
Years since migration	8.90	0.042	8.80	0.112	8.49	0.056
Share time unemployed	55.22	0.539	30.16	1.187	47.01	0.728
Share time in education	17.32	0.386	11.17	0.749	12.67	0.431
Share time in empl. < 7 days	0.09	0.040	37.66	1.458	15.65	0.612
Share not in the labour force	18.42	0.449	12.07	0.888	15.72	0.528
Receipt of unemployment insurance	0.13	0.002	0.13	0.005	0.13	0.002
Receipt of social assistance	0.02	0.001	0.02	0.002	0.02	0.001
Male	0.48	0.007	0.28	0.017	0.47	0.010
w/o vocational degree	0.28	0.005	0.12	0.011	0.38	0.008
with vocational degree	0.57	0.006	0.53	0.018	0.50	0.008
university degree	0.06	0.003	0.26	0.016	0.01	0.002
education unknown	0.10	0.002	0.10	0.006	0.11	0.004
below 20	0.00	0.000	0.00	0.000	0.00	0.000
20 – 24	0.04	0.001	0.02	0.002	0.04	0.002
25 – 29	0.08	0.002	0.07	0.004	0.08	0.002
30 – 34	0.13	0.002	0.14	0.005	0.13	0.002
35 – 39	0.17	0.002	0.17	0.004	0.17	0.002
40 – 44	0.19	0.001	0.20	0.004	0.19	0.002
45 – 49	0.17	0.002	0.17	0.004	0.17	0.002
50 – 54	0.12	0.002	0.13	0.004	0.13	0.002
55 – 59	0.07	0.001	0.07	0.004	0.07	0.002
60 – 64	0.02	0.001	0.02	0.002	0.02	0.001
65 and above	0.00	0.000	0.00	0.001	0.00	0.000

Weighted means displayed.

Table A.3: Sample Means of Main Covariates (only Ethnic Germans from Poland)

	Total		High-skilled		Low-skilled	
	Mean	std. error	Mean	std. error	Mean	std. error
ln(last wage)	4.38	0.009	4.47	0.018	4.21	0.015
Experience (years)	8.71	0.159	7.01	0.383	8.88	0.251
Age at entry	29.87	0.171	30.46	0.398	30.65	0.2839
Year of entry	1985.50	0.111	1985.23	0.287	1985.49	0.177
Years since migration	10.48	0.061	10.41	0.169	10.44	0.100
Share time unemployed	51.96	0.937	28.81	2.118	43.08	1.425
Share time in education	13.91	0.622	10.24	1.149	8.39	0.738
Share time in empl. < 7 days	0.18	0.101	35.74	2.544	17.02	1.186
Share not in the labour force	21.47	0.788	16.01	1.694	20.80	1.126
Receipt of unemployment insurance	0.13	0.003	0.12	0.009	0.13	0.005
Receipt of social assistance	0.02	0.001	0.02	0.004	0.03	0.003
Male	0.48	0.013	0.27	0.029	0.40	0.020
w/o vocational degree	0.22	0.009	0.06	0.014	0.32	0.016
with vocational degree	0.62	0.010	0.56	0.031	0.55	0.017
university degree	0.06	0.006	0.27	0.028	0.02	0.007
education unknown	0.10	0.004	0.10	0.010	0.11	0.007
below 20	0.00	0.000	0.00	0.000	0.00	0.001
20 – 24	0.04	0.002	0.02	0.004	0.04	0.003
25 – 29	0.10	0.003	0.10	0.007	0.09	0.004
30 – 34	0.15	0.003	0.16	0.007	0.14	0.004
35 – 39	0.18	0.002	0.18	0.005	0.17	0.003
40 – 44	0.18	0.002	0.18	0.004	0.18	0.003
45 – 49	0.16	0.002	0.16	0.005	0.16	0.004
50 – 54	0.11	0.002	0.11	0.006	0.12	0.004
55 – 59	0.06	0.002	0.06	0.006	0.07	0.004
60 – 64	0.02	0.001	0.02	0.003	0.02	0.002
65 and above	0.00	0.000	0.00	0.001	0.00	0.000

Weighted means displayed.

Table A.4: Sample Means of Main Covariates (only Ethnic Germans from Rumania)

	Total		High-skilled		Low-skilled	
	Mean	std. error	Mean	std. error	Mean	std. error
ln(last wage)	4.24	0.016	4.30	0.026	4.10	0.024
Experience (years)	10.85	0.316	10.15	0.678	11.22	0.440
Age at entry	31.96	0.335	34.11	0.677	32.16	0.482
Year of entry	1986.46	0.205	1986.16	0.472	1986.96	0.281
Years since migration	9.94	0.111	9.78	0.266	9.75	0.149
Share time unemployed	50.79	1.719	38.34	3.894	34.86	2.347
Share time in education	9.31	0.964	5.10	1.379	4.12	0.796
Share time in empl. < 7 days	0.08	0.046	35.50	4.035	26.55	2.384
Share not in the labour force	32.18	1.657	13.54	2.444	28.04	2.271
Receipt of unemployment insurance	0.09	0.004	0.10	0.012	0.10	0.006
Receipt of social assistance	0.01	0.001	0.01	0.003	0.01	0.002
Male	0.49	0.022	0.40	0.052	0.39	0.031
w/o vocational degree	0.20	0.014	0.02	0.011	0.33	0.023
with vocational degree	0.59	0.018	0.33	0.044	0.58	0.025
university degree	0.12	0.014	0.55	0.044	0.02	0.007
education unknown	0.08	0.005	0.09	0.014	0.08	0.007
below 20	0.00	0.001	0.00	-	0.00	0.001
20 – 24	0.04	0.003	0.01	0.004	0.04	0.005
25 – 29	0.09	0.005	0.06	0.010	0.08	0.007
30 – 34	0.13	0.005	0.12	0.013	0.13	0.007
35 – 39	0.16	0.004	0.16	0.010	0.17	0.006

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	Total		High-skilled		Low-skilled	
	Mean	std. error	Mean	std. error	Mean	std. error
40 – 44	0.17	0.003	0.19	0.009	0.17	0.005
45 – 49	0.16	0.004	0.18	0.009	0.16	0.006
50 – 54	0.13	0.004	0.15	0.009	0.13	0.007
55 – 59	0.08	0.004	0.10	0.010	0.08	0.006
60 – 64	0.03	0.003	0.04	0.008	0.03	0.004
65 and above	0.01	0.001	0.01	0.002	0.01	0.001

Weighted means displayed.

Table A.5: Sample Means of Main Covariates (only Ethnic Germans from the FSU)

	Total		High-skilled		Low-skilled	
	Mean	std. error	Mean	std. error	Mean	std. error
ln(last wage)	4.37	0.006	4.52	0.017	4.28	0.006
Experience (years)	13.84	0.149	13.04	0.384	13.87	0.188
Age at entry	34.53	0.153	35.31	0.398	34.21	0.196
Year of entry	1992.40	0.083	1992.61	0.183	1992.49	0.109
Years since migration	7.31	0.043	7.15	0.103	7.28	0.056
Share time unemployed	59.11	0.665	28.74	1.360	51.26	0.872
Share time in education	22.28	0.553	13.85	1.187	16.42	0.595
Share time in empl. < 7 days	0.02	0.003	39.94	1.920	12.91	0.698
Share not in the labour force	12.24	0.466	8.32	0.974	10.86	0.506
Receipt of unemployment insurance	0.14	0.002	0.14	0.007	0.14	0.003
Receipt of social assistance	0.03	0.001	0.02	0.003	0.03	0.002
Male	0.48	0.010	0.25	0.023	0.52	0.012
w/o vocational degree	0.35	0.008	0.19	0.019	0.41	0.010
with vocational degree	0.52	0.008	0.56	0.023	0.47	0.010
university degree	0.04	0.003	0.15	0.017	0.01	0.002
education unknown	0.10	0.004	0.09	0.009	0.11	0.005
below 20	0.00	0.000	0.00	0.000	0.01	0.001
20 – 24	0.03	0.002	0.02	0.003	0.04	0.002
25 – 29	0.07	0.002	0.06	0.006	0.07	0.003
30 – 34	0.12	0.003	0.13	0.008	0.12	0.003
35 – 39	0.17	0.003	0.17	0.007	0.17	0.003
40 – 44	0.20	0.002	0.21	0.007	0.19	0.003
45 – 49	0.18	0.002	0.18	0.007	0.18	0.003
50 – 54	0.13	0.003	0.13	0.007	0.13	0.003
55 – 59	0.07	0.002	0.08	0.006	0.07	0.003
60 – 64	0.02	0.001	0.02	0.003	0.02	0.001
65 and above	0.00	0.000	0.00	0.001	0.00	0.000

Weighted means displayed.

Table A.6: Regression Results for Ethnic Germans Emigrating from Poland

	Model 1		Model 2	
	<i>ls in ls empl.</i> <i>hs in any empl.</i>		<i>ls in ls empl.</i> <i>hs in hs empl.</i>	
	Haz. Ratio	std. error	Haz. Ratio	std. error
Employment in home country				
High-Skilled	1.191	0.129	0.831	0.112
ln(last wage)	0.896	0.110	0.917	0.118
Experience (years)	1.006	0.012	0.997	0.012
Age at entry	0.989	0.020	0.991	0.021
State before job take up in Germany				
Years since migration	1.013	1.002	0.911	0.910
Share time unemployed	0.997	0.002	1.000	0.002
Share time in education	1.007***	0.002	1.013***	0.003
Share time in empl. < 7 days	0.966***	0.003	0.966***	0.002
Benefits				
Unemployment insurance	1.613***	0.151	1.660***	0.154
Social assistance	1.466*	0.323	1.221	0.298
Demographics				
Male	2.894***	0.272	3.042***	0.300
w/o vocational degree	1.790***	0.399	1.483*	0.313
with vocational degree	1.507*	0.323	1.222	0.243
education unknown	0.791	0.178	0.577**	0.128
below 20	0.553	0.436	0.581	0.469
20 - 24	0.956	0.169	1.017	0.196
30 - 34	1.114	0.169	1.271	0.203
35 - 39	1.468*	0.332	1.517*	0.364
40 - 44	1.730*	0.543	1.838*	0.605
45 - 49	1.754	0.749	2.028	0.920
50 - 54	1.225	0.684	1.402	0.816
55 - 59	0.838	0.668	1.216	0.926
60 - 64	0.696	0.766	1.149	1.158
65 and above	0.000***	0.000	0.000	0.000
Regional				
Share of low-skilled in federal state	0.528	0.970	7.560	23.150
Share of skilled in federal state	0.056	0.123	3.073	13.094
Regional unemployment rate	0.934***	0.015	0.935***	0.017
Nr. of obs.		22,030		28,893
Nr. of subjects		1,235		1,235
AIC		3,255,638		2,790,217
BIC		3,256,038		2,790,622
Linktest				
xb = 1 (95 % KI)		X		✓
xb2 insign. (5% sig.niveau)		X		X

Abbreviations used: *ls in ls empl.*: low-skilled in country of origin taking up low-skilled jobs in Germany; *hs in any empl.*: high-skilled in country of origin taking up any job in Germany; *hs in hs empl.*: high-skilled in country of origin taking up high-skilled jobs in Germany

Notes: ***/**/* denotes statistical significance at the 1/5/10 percent level. All models include further controls describing regional labour market structures upon entry to Germany. Regional covariates, age and years since migration are included as time varying covariates.

Table A.7: Regression Results for Ethnic Germans Emigrating from Rumania

	Model 1		Model 2	
	<i>ls in ls empl. hs in any empl.</i>		<i>ls in ls empl. hs in hs empl.</i>	
	Haz. Ratio	std. error	Haz. Ratio	std. error
Employment in home country				
High-Skilled	1.003	0.168	0.768	0.160
ln(last wage)	1.230	0.221	1.204	0.230
Experience (years)	1.064***	0.020	1.052**	0.021
Age at entry	1.001	0.035	0.979	0.036
State before job take up in Germany				
Years since migration	1.804	.	1.525	.
Share time unemployed	0.994**	0.002	0.993***	0.003
Share time in education	0.991**	0.004	0.991**	0.004
Share time in empl. < 7 days	0.957***	0.003	0.955***	0.003
Benefits				
Unemployment insurance	1.641***	0.289	1.749***	0.342
Social assistance	3.673***	1.467	2.353	1.315
socio-economics				
Male	2.269***	0.308	2.746***	0.422
w/o vocational degree	1.487*	0.348	1.380	0.417
with vocational degree	1.153	0.253	1.168	0.340
education unknown	0.736	0.178	0.632	0.197
below 20	1.839	1.359	1.325	0.977
20 - 24	1.548*	0.382	1.242	0.324
30 - 34	0.796	0.202	1.020	0.277
35 - 39	0.604	0.244	0.883	0.386
40 - 44	0.462	0.256	0.845	0.506
45 - 49	0.416	0.298	0.788	0.605
50 - 54	0.241	0.223	0.616	0.598
55 - 59	0.081*	0.106	0.242	0.314
60 - 64	0.029**	0.047	0.140	0.233
65 and above	0.000***	0.000	0.000***	0.000
Regional				
Share of low-skilled in federal state	0.001	0.006	9.556	109.478
Share of skilled in federal state	55.450	785.474	109031.7	1677821.2
Regional unemployment rate	0.979	0.031	0.974	0.034
Nr. of obs.		6,884		8,804
Nr. of subjects		479		479
AIC		1,217,521		1,030,878
BIC		1,217,863		1,031,232
Linktest				
xb = 1 (95 % KI)		✓		✓
xb2 insign. (5% sig.niveau)		✗		✓

Abbreviations used: *ls in ls empl.*: low-skilled in country of origin taking up low-skilled jobs in Germany; *hs in any empl.*: high-skilled in country of origin taking up any job in Germany; *hs in hs empl.*: high-skilled in country of origin taking up high-skilled jobs in Germany

Notes: ***/**/* denotes statistical significance at the 1/5/10 percent level. All models include further controls describing regional labour market structures upon entry to Germany. Regional covariates, age and years since migration are included as time varying covariates.

Table A.8: Regression Results for Ethnic Germans Emigrating from the FSU

	Model 1		Model 2	
	<i>ls in ls empl.</i> <i>hs in any empl.</i>		<i>ls in ls empl.</i> <i>hs in hs empl.</i>	
	Haz. Ratio	std. error	Haz. Ratio	std. error
Employment in home country				
High-Skilled	0.687***	0.051	0.352***	0.039
ln(last wage)	1.332***	0.135	1.080	0.117
Experience (years)	1.010	0.010	1.005	0.011
Age at entry	0.995	0.017	1.010	0.019
State before job take up in Germany				
Years since migration	1.163	0.000	1.165**	0.128
Share time unemployed	1.014***	0.001	1.013***	0.001
Share time in education	1.025***	0.001	1.027***	0.002
Share time in empl. < 7 days	0.976***	0.002	0.974***	0.002
Benefits				
Unemployment insurance	1.880***	0.132	1.857***	0.136
Social assistance	1.521**	0.308	1.534**	0.321
socio-economics				
Male	1.923***	0.114	1.968***	0.127
w/o vocational degree	0.903	0.138	0.680*	0.135
with vocational degree	0.866	0.129	0.680**	0.132
education unknown	0.538***	0.088	0.379***	0.080
below 20	0.520***	0.127	0.520**	0.132
20 - 24	0.865	0.127	0.923	0.147
30 - 34	1.149	0.135	1.136	0.142
35 - 39	1.258	0.223	1.179	0.216
40 - 44	1.287	0.310	1.139	0.288
45 - 49	1.076	0.333	0.859	0.279
50 - 54	0.673	0.262	0.540	0.222
55 - 59	0.365**	0.178	0.202***	0.104
60 - 64	0.109***	0.085	0.080***	0.064
65 and above	0.000***	0.000	0.003***	0.002
Regional				
Share of low-skilled in federal state	0.115*	0.133	0.063*	0.065
Share of skilled in federal state	0.084**	0.105	0.061	0.099
Regional unemployment rate	0.952***	0.013	0.943***	0.014
Nr. of obs.		43,291		53,111
Nr. of subjects		2,888		2,888
AIC		8,117,853		6,898,943
BIC		8,118,356		6,899,467
Linktest				
xb = 1 (95 % KI)		X		X
xb2 insign. (5% sig.niveau)		X		X

Abbreviations used: *ls in ls empl.*: low-skilled in country of origin taking up low-skilled jobs in Germany; *hs in any empl.*: high-skilled in country of origin taking up any job in Germany; *hs in hs empl.*: high-skilled in country of origin taking up high-skilled jobs in Germany

Notes: ***/**/* denotes statistical significance at the 1/5/10 percent level. All models include further controls describing regional labour market structures upon entry to Germany. Regional covariates, age and years since migration are included as time varying covariates.

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