Going Back Home? Analyzing The Role of Overqualification in Shaping Immigrant Mobility

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Abstract

The mismatch between skills and the job requirements, a phenomenon known as *overqualification*, has been extensively studied for the migrant population, but less is known about its effect on emigration decisions, either to a third country or back to the country origin. This paper fills this gap in the literature by using Swedish register data from 2001-2016, which allows us to identify different types of emigration, as well as information on occcupation. The results, obtained using logistic and multinomial logistic models, suggest that individuals who are overqualified do not show higher propensities to emigrate, compared to those in a well-matched job. On the contrary, unemployment seems to be the main driver of emigration, fostering return migration for those who do not acquire Swedish citizenship. The study tentatively shows that, for overqualified individuals, the cost of emigrating may be higher than to stay in a mismatched job.

Keywords: emigration, overqualification, onward migration, return migration

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1 Introduction

The diversification of international mobility from the 1970s has significantly altered previous assumptions on migration. While the traditional literature framed migratory movements as the result of a decision based on income differences, the increasing heterogeneity in sending countries, migration motives and the improvement in international transport have transformed migration into a more dynamic and less straightforward process (Schapendonk & Steel, 2014; Van Liempt, 2011). Presumably, the factors influencing emigration decisions have also been altered due to the mentioned changes in migration dynamics. Regardless of the type of migration flow, the phenomenon of emigration proves to be considerable: according to recent estimates, between 26.75 and 75% of immigrants arriving in OECD countries have left their initial destination within 5 years during the last decade (OECD, 2024b). The estimates, therefore, imply that emigration is not a marginal process, but a part of the migratory process for at least one fourth of the migrant population.

When discussing emigration dynamics, an increasing number of empirical studies highlight the importance of not only examining whether migrants decide to emigrate, but also their destination of choice, given the fact that this decision may be determined by different factors. For instance, the presence of conflicts in the country of origin that could prevent the migrants from going back, or the presence of job opportunities or family links in a different country (DaVanzo, 1976). Additionally, in the European context, citizenship acquisition could open new possibilities that were not available prior to migration, as individuals with a European passport have no visa requirements to move and work in other countries (Ortensi & Barbiano di Belgiojoso, 2018). Taking into account this multiplicity of factors, a distinction is made between individuals who *return migrate*, i.e. decide to go back to their country of origin, and individuals who *onward migrate*, by moving to a third country.

Regardless of the type of emigration, the study of migration outflows represents a relevant topic because of the impact that it can have on the study of cohort-based studies on earnings and employment assimilation. When analyzing these phenomena, the stock of migrants who initially arrived in the country and their characteristics can differ substantially from those who stay after a certain period. Omitting out-migration dynamics, therefore, can lead to biased results on integration trajectories (Borjas, 1985; Dustmann, 1993; Edin et al., 2000).

Among the main determinants of emigration as a whole, labor market trajectory has been named as a decisive factor in the emigration decision. Most papers that cover emigration propensities have focused on the effect of unemployement (Bijwaard et al., 2014; Constant & Massey, 2002; Jensen & Pedersen, 2007; Nekby, 2006; Rydgren, 2004); or income levels (Bijwaard & Wahba, 2023; Constant & Massey, 2002; Nekby, 2006). However, less is known about the effect on emigration intentions on the type of job that an individual is working on.

For the immigrant population, especially among the higher educated, it is common to find a mismatch between their education skills and the job requirements, a phenomenon known as *overqualification* (Joona et al., 2014; J. Lindley, 2009; Schultz-Nielsen, 2024). Overqualification is not only more prevalent among the foreign-born population (Dell'Aringa & Pagani, 2011; Green et al., 2007; J. Lindley, 2009; Nielsen, 2011), but also their negative effects seem to be more acute for this share of the population, such as lower income levels or worse mental health than natives in the same situation (Wassermann & Hoppe, 2019; Wen & Maani, 2018). Given the incidence of overqualification and the potential negative effects that it causes, it could be potentially seen as a driver of emigration, in search for a better match to their skills. However, given the lack of detailed data on both emigration and labor market occupation, the evidence on the interplay between these two elements is very scarce (Wanner et al., 2021).

This paper will expand the scarce evidence on the interplay between overqualification and emigration, distinguishing between onward and return migration. By exploring this relationship, the contribution to the literature is threefold: first, the paper contributes to developing new evidence on the incidence of outmigration in the Swedish case; second, we gain a deeper understanding of the dynamics of overqualification in Sweden; third, we generate more empirical evidence to the understudied topic of the effect of overqualification on outmigration. For this, comprehensive register data for Sweden will be exploited, with a wide range of socioeconomic and individual information that will help analyze this phenomenon in depth.

The analysis of this country results optimal in this context due to several reasons: first, Sweden has a long history of immigration, with its population being comprised of one of the highest shares of foreign-born in Europe (OECD, 2023), and a share of individuals with upper secondary and tertiary education at arrival that surpasses the native-born population (Dalmonte et al., 2024). Additionally, their inclusion and integration in the labor market has had limited success: the gap in unemployment rate for migrants with respect to natives is one of the highest of the OECD, well above the European and OECD average, and particularly high for highly-educated individuals (OECD, 2024a). The differences in employment are also relevant, as migrants show substantial higher levels of overqualification than for the Swedish-born population (Broschinski & Heidenreich, 2025). For these reasons, and the availability of rich individual annual data to analyze both emigration and overqualification, the case of Sweden results optimal to analyze whether overqualified individuals emigrate more than those who are correctly matched.

2 Theoretical framework and previous research on overqualification and out-migration

Overqualification, also defined as *overeducation* (Joona et al., 2014) or *educational mismatch* (Wanner et al., 2021), has been found to be more prevalent among the foreign-born than native population (Dell'Aringa & Pagani, 2011; Green et al., 2007; J. Lindley, 2009; Nielsen, 2011). The studies on the field have tried to find explanations to this gap, claiming that there are several factors that affect immigrants to a greater extent. One of these factors is the limited transferability of human capital (Chiswick & Miller, 2010a), given that some of this acquired capital is country-specific. Moreover, labor markets in advanced economies, including Sweden, have increasingly prioritized country-specific forms of human capital, such as language proficiency (Budría et al., 2019; Chiswick & Miller, 2010b). Immigrants are particularly likely to be affected by these changes, as they are likely to lack language skills and face weaker social networks at arrival, which can decrease their employment opportunities on an initial stage (Damm, 2014; Kalfa & Piracha, 2018). Another potential explanation concerns employers' uncertainty about the quality of education received abroad (Bratsberg & Terrell, 2002; Li & Sweetman, 2014) and discrimination in the labor market of the destination country (Carlsson & Rooth, 2007; Nielsen, 2011).

While the theories point towards a higher prevalence of overqualification among immigrants, it is worth noting existing differences by country of origin and visa category. The possible explanations behind this gap may be caused by differences in the language of origin or an easier process in the recognition of foreign qualifications in some countries (Piracha & Vadean, 2013). In some cases, however, there are significant gaps between countries of origin that do not converge across time, despite having the same education level (Simón et al., 2008; Visintin et al., 2015).

Given the documented overqualification gap between native and foreign-born population, some studies have explored the consequences of overqualification for the migrant group, finding several negative outcomes. Namely, the empirical evidence finds that, in general, overqualified workers earn more than their well-matched peers in the same type of job. However, mismatched migrants have lower returns to overqualification than mismatched natives, confirming that there are migrant-specific elements that hinder the use of skills (Schultz-Nielsen, 2024; Wen & Maani, 2018). From the non-economic perspective, studies find negative effects on health, such as poorer mental health (Bracke et al., 2013; Brendler-Lindqvist et al., 2022; Wassermann & Hoppe, 2019), and higher rates of long-term sickness leave (Madsen & Kittelsen Røberg, 2021). From the perspective of highly educated individuals, the presence of a mismatch between the education qualifications and the job performed can lead to dissatisfaction and a motivation to secure a job that more adequately matches their expectations (Kelly & Hedman, 2016; Vanthomme & Vandenheede, 2021). Overqualification, therefore, could be interpreted as a sign of a non-desirable labor market outcomes that can entail negative consequences for the individual.

Based on the presented empirical evidence on the adverse consequences of overqualification—particularly among the migrant population— it is reasonable to expect a potential correlation between overqualification and a higher propensity to emigrate (Piracha & Vadean, 2013). From a theoretical perspective, emigration could be seen as a way of finding other opportunities abroad that better match their skills, after an unsatisfactory migration experience in the host country, especially among highly educated migrants, who may have higher expectations on their careers (Kelly & Hedman, 2016).

When discussing the effect of overqualification on emigration, two competing theories emerge. On the one hand, individuals with high levels of (observable) skills, if working on a mismatched job, may feel frustrated and would be willing to look for alternatives that could help them achieve a better match to their skills, such as changing jobs or even emigrating. On the other hand, the decision to emigrate may be conditioned by the welfare level of the host country. In the case of countries like Sweden, the standard of living and the provision of public services are high, even for residents who are at the lower end of the earnings distribution. Hence, individuals, even if overqualified, will have little incentive to emigrate without the certainty of higher incomes or better employment opportunities abroad, given the cost of losing access to these services (Nekby, 2006). Similarly, if individuals are sending remittances to their family members, and the income differences with the origin country are substantial, the individual may choose to stay, despite the occupation mismatch (Piracha & Vadean, 2013).

Apart from the negative feelings associated with being overqualified and the provision of public services in the host country, the timing of overqualification may also play a significant role in the migration decision. As previously mentioned, a mismatch between employment and skills may be particularly common in early stages, when the pool of country-specific skills is scarce. In this regard, the *occupational mobility theory* (Galor & Stark, 1990) claims that overqualification can serve as a tool to gain job-specific skills and knowledge, further leading to a higher probability of obtaining higher economic rewards and greater occupational prestige, thanks to the skills acquired in the previous job. Under this setting, individuals may be willing to accept a job for which they are overqualified at initial stages of their migration trajectory, with the expectation of finding a better job in the future, once they have acquired better country-specific skills or the recognition of their foreign qualifications, a necessary step in several education fields, such as medicine or law (Pecoraro & Wanner, 2019). Equally, even if the presence of overqualification persists across time, the creation of social networks or the investment in country-specific skills, such as language, could weigh more than the mismatch in their occupation in the decision to stay rather than to emigrate.

When looking at the empirical evidence on the effect of overqualification on emigration, the scarce existing empirical evidence yields inconclusive results. On the one hand, the qualitative evidence suggests that emigration and overqualification are interconnected: Kelly and Hedman (2016), using a mixed methods analysis of logit models and interviews on highly educated Iranian migrants in Sweden, describes the frustration over the underuse of their skills as a motivation to

move to a third country. Another qualitative report on Sweden describes the hardships of not finding a job matching their qualifications, especially upon arrival, due to the lack of country-specific skills (language). The same concerns are raised by immigrants to Sweden interviewed in a qualitative report (UHR, 2023). Regarding the quantitative evidence, there is only one quantitative study analysing outmigration and occupational mismatch for immigrants in Switzerland Wanner et al. (2021). The findings point out that undereducated individuals (those with lower education skills than the required for the job) have higher propensities to return to their country of origin, but overqualified individuals have lower propensities to emigrate, especially if they come from a Non-European country, arguing that the employment probabilities in other countries may be more scarce than the cost of staying in Switzerland in a mismatched job. On other papers, occupation has been added as a control variable. De Haas et al. (2015), using survey data on emigration intentions of Moroccan migrants in the Netherlands, although not measuring overqualification, finds that the occupational status of the job is not significantly related to return intentions, measured in terms of the skills required for it. Finally, using a scale to measure occupational prestige, Constant and Massey (2002) do not find a significant effect in the case of guestworkers in Germany.

From a broader perspective, some papers have tried to assess whether emigration stems from success or failure in the labor market, finding a positive relationship between unemployment and emigration propensities. Bijwaard et al. (2014) analyse the labor market situation of migrants in the Netherlands using administrative data, finding that unemployment spells increase return probabilities for all immigrant groups. Similarly, Constant and Massey (2002) examine the case of guest workers in Germany, finding that those who are unemployed have a higher propensity to leave compared to those who have been employed full-time. In the case of Sweden, Monti (2020), using register data for Sweden, finds that being employed decreases emigration substantially. Similarly, Edin et al. (2000) analyses the case of immigrants in Sweden between 1970 and 1990. Distinguishing between economic and political migrants, but not controlling for educational attainment, they find that, in both categories, the least economically successful have a higher propensity to leave, measured in terms of earnings and attachment to the labor force during the first year of stay.

Despite the presented findings, other papers point out a different conclusion regarding the effect of unemployment: in the case of Denmark, Jensen and Pedersen (2007), using administrative data, find that unemployment has a positive effect on the first year, but being unemployed for several years lowers the probability to leave the country, tentaively suggesting that the level of unemployment insurance is high and this may be a reason to deter emigration. The effect is, however, higher for immigrants from high-income countries. In the case of Moroccan migrants across Europe, De Haas et al. (2015), using survey data on emigration intentions, finds that unemployment is not significantly related to increasing emigration intentions. Using similar survey data on emigration intentions for migrants in Italy, Bonifazi and Paparusso (2019) fail to find a strong relationship between being unemployed and having higher propensities to emigrate, suggesting that immigrants

wait to return to their country until they have completed their targets and goals.

While the presented evidence does not make a distinction on the emigration destination, the increasing heterogeneity in migration inflows has increased the academic interest into differentiating between onward and return migration (Constant, 2020), suggesting that onward migration is an increasingly common phenomenon. From a theoretical perspective, worker migrants may seek new opportunities in a third country if their economic situation in the host country fail to meet their expectations, rather than coming back to an origin labor market with already known opportunities. However, other migrant categories with ties to the host country, such as family reunification migrants, may weight different elements rather than pure economic factors when considering emigration. Likewise, refugee migrants' difficulty or unwillingness to return due to political uncertainty and economic instability may significantly impact this mechanism (Ortensi & Barbiano di Belgiojoso, 2018). In addition, the presence of stronger social networks in other countries may also trigger the decision to move to a this country (Mas Giralt, 2017).

The rising interest in onward migration is closely linked to the acquisition of citizenship among third country nationals in the European context (Van Mol & De Valk, 2016), for which the acquisition of citizenship opens new migration possibilities that may have not been considered previously (A. Lindley & Van Hear, 2007). Traditionally, the role of citizenship has often been viewed as being a sign of having achieved a high degree of social integration and the intention to remain in the country of destination. As suggested by some, in a European context it can however also be used as a tool to find better labor market opportunities (Ahrens et al., 2016; Kelly & Hedman, 2016), or transition to a new country after an economic change in the host country (Mas Giralt, 2017; Ortensi & Barbiano di Belgiojoso, 2018; Sredanovic, 2021).

When looking at the available empirical evidence of these theories, the results confirm relevant differences between individuals opt to onward or return migrate. Firstly, refugees are characterized by substantially lower emigration rates (Eastmond, 2006; Klinthäll, 2007), and, in the case of a migratory movement happening, they show higher rates of onward migration than return migration (Monti et al., 2020). The differences are also present in their labor market situation: di Belgiojoso and Ortensi (2013), analyzing survey data on immigrants in Italy, finds that onward migration is more prevalent among male migrants and unemployed individuals than return migration, as well as for graduated migrants. Similar results are found in Nekby (2006) for the case of Sweden, in which highly educated migrants show higher propensities to onward migrate and lower earnings than those who go back to their origin country. On the contrary, Bijwaard and Wahba (2023) look at the experience of immigrants in the Netherlands using administrative data, finding that unemployment increases the probabilities of return migrating more than onward.

Regarding the potential role of citizenship acquisition in fostering onward migration, the study by Monti (2020) finds a positive relationship between onward migration and acquisition of citizenship

for determined countries (Somalia, Ethiopia). The rest of the empirical evidence on this issue relies on qualitative methods: for Somali migrants in Europe, Ahrens et al. (2016) draws on interviews in which migrants describe citizenship as an opportunity to improve their labor market opportunities. These expectations are also shared in the case of Latin American migrants in Spain (Mas Giralt, 2017), in which they name citizenship as an opportunity to choose a wider set of destinations after the financial crisis of 2008.

3 Data and method

In order to analyze the effect of overqualification on emigration, register data will be deployed, accessed through the Swedish Interdisciplinary Panel (SIP-INTEGRATE), administered at the Centre for Economic Demography at Lund University. It contains detailed socio-demographic and economic data for every individual with a valid residence permit from the moment of arrival until emigration or death. However, those who stay for less than a year do not receive a personal identification number (*personnummer*), and therefore are not included in the sample. At the same time, it is reported that the Swedish register data tend to over-cover foreign-born persons, with an estimation of ca. 2-8% of the total foreign-born population (Careja & Bevelander, 2018; Monti et al., 2020). The over-coverage is corrected post-hoc when the administrative bodies track and identify individuals that have emigrated, by tracking the new residence of the individuals or identifying emigration once they have re-migrated (Careja & Bevelander, 2018).

The study sample has been designed to capture the interplay between overqualification and out-migration. For this purpose, the sample contains individuals with ages ranging between 25 and 40 at arrival. This age restriction tries to include individuals who, across the whole study period, have an active participation in the labor market. The year of arrival is restricted between 2001 and 2007 due to two reasons: first, 2001 is the first year for which occupation information is available in the data; second, Sweden pursed a reform in 2008 to liberalize the hiring process of migrants (Emilsson et al., 2014). The reform is said to have changed the migration composition after that year, so the sample will be restricted to 2007 (Irastorza & Emilsson, 2020). The individuals arriving between those years will be then tracked for 9 years, the last year included in the sample being 2016. In this way, individuals are followed for a sufficient period of time so that labor market integration is captured, but not long enough so that the oldest cohorts reach retirement age, as this change in the labor career is known to foster emigration (Klinthäll, 2006).

One important factor determining emigration is the country of origin and the visa category individuals belong to (Monti, 2020). For that, the sample includes country of birth of all individuals who immigrate to Sweden, excluding those with unknown information on country of birth, stateless or whose country of birth is Sweden. Country of birth is further grouped into 7 regions of origin: European Union/Nordics, Eastern Europe, Western countries, Middle Eastern and North African

region (MENA), rest of Africa, Asia and Latin America [1]. Concerning visa categories, the variable used is the first residence permit obtained when entering the country, which can be divided into 4 categories: work, family reunification, refugees and missing/no permit needed. In the latter category, 87% of the individuals come from the European Union or the Nordics, who do not need a visa permit to stay in Sweden (Wilson, 2024). The share of individuals with missing information on their visa category for other countries of origin (3% of the total sample) are excluded from the sample.

The migratory movements are then closely analysed to divide the sample into immigrants who stay (Stayers) and individuals who decide to emigrate (Emigrants). A *stayer* is defined as an individual who arrived in the country and does not have any emigration registered during the period of analysis (2001-2016). An *emigrant* is defined as an individual who has an emigration movement recorded after immigration and does not come back to the destination country in 5 years. Those individuals who leave the sample due to other circumstances are censored (i.e, individuals who pass away and those who emigrate and come back in less than 5 years). Furthermore, the category of *emigrants* is divided into *return migrants*, those whose emigration country is the same as their country of birth, and *onward migrants*, whose country of emigration is different from the country they were born in. The flow chart of the population of study is available in figure A1 of the Annex, where the sample is left with 62,374 individuals.

Given that the main objective of the analysis is to analyze overqualification on emigration, there needs to be information available on employment to know the potential pool of individuals exposed to the phenomenon. For that, the sample is classified into employed and non-employed/out of the labor force. The criteria for employment is based on their income (either from self-employment or wage, and including parental and sick leave tight to employment): an individual is considered to be employed if they have a positive labor income which is higher than unemployment income, study income, and if this income is higher than 2 base amounts [2]. By using this variable, individuals with a weak attachment to the labor market are excluded. The coverage of occupation on employed individuals according to the definition is 84%.

In order to construct the variable of interest, overqualification, two variables are needed: educational attainment and occupation. For the former, annually recorded information on the highest completed educational degree is retrieved from the Educational Register (*utbildningsregistret*, UREG). Namely, the register contains the highest educational degree registered at the end of the Spring semester of each year (Sweden, 2019). The data on education includes information on the education level and the number of years studied.[3] The variable is based on the International Standard

[1]The detailed list of countries can be found in Table A1 of the Annex
[2]The price base amount is constructed by Sweden Statitics Centralbyrå (SCB), following changes over time in the cost of living. Additional income thresholds have been analysed, fidning no change in the main result.
[3]For instance, the dataset makes a distinction between individuals who studied a 3-year university degree and a

Classification of Education (ISCED 97), and has 13 potential values, that are further grouped into 5. The sample includes individuals with more than upper secondary education (*gymnasiet*). This restriction is motivated by two reasons: on the one hand, individuals with primary education cannot be, per definition, overqualified; on the other hand, upper secondary is the most frequent level of education in the immense majority of occupation, given the low percentage of primary educated individuals in Sweden. Regarding occupation, the Swedish Occupational Register (*yrkesregistret*) provides the main annual occupation of individuals, either employed or self-employed. Namely, the study uses the 4-digit Swedish Standard Classification of ocupations (SSYK), which is based on the International Standard Classification of Occupations (ISCO) 88 for the period 2001-2013 and ISCO-08 for the period 2014-2016. Given the change in the classification in 2014, the values after that year have been transformed to be the same as in the initial classification, using a conversion table provided by SCB. The total number of occupations is 355, for which a measure of overqualification will be calculated.

In order to calculate overqualification, the most common method with register data is the Realised Matches approach (RM), which explores the qualifications of an individual with the qualifications of their peers in the same occupation [4]. The first step to calculate this indicator is to find the mean or mode education in each occupation. I choose to calculate the modal years of education within each occupation for 20% of the Swedish-born population, as the mean may be biased to outliers (Joona et al., 2014). The Swedish-born population has the same year of birth as the immigrant cohorts analyzed, are employed in the same time period (2001-2016), and each modal education is also calculated by age group (25-29, 30-39, 40-49, >50), in order to account for possible differences in educational attainment by age. Foreign-born individuals are excluded from the calculation of the model years of schooling, as their inclusion could distort the modal years of education in certain occupations in which native-immigration is significant. Once the mode years of education is obtained, overqualification is calculated for the immigrant group, taking value 1 if the individual has a higher education level than the mode for the occupation they are performing in a particular year. However, year differences within the same education level are not counted as overqualification. Namely, if an individual has a 3-year upper-secondary program and the mode education of the occupation is a 2-year upper-secondary program, this will not be counted as being overqualified, given that the perceived difference in educational attainment will not be significant.

The analysis will also take into account potential differences in the *intensity* of overqualification. Namely, it is not the same to have one more year of education within the same occupation than having an occupation in which the education levels differ significantly in terms of years of educa-

5-year university degree, but it is not clear the total years of education.

[4] Alternative methods are the Job Analysis (JA) and Workers' Self Assesment (WA), with different methodological strengths. In general, they are more require more time to be produced and are more prone to biases than the RM (Capsada-Munsech, 2019; Clogg & Shockey, 1984; Verdugo & Verdugo, 1989)

tion and specialization. Hence, overqualification will also be divided in two intensities: intensity 1 will account for those individuals who have an *adjacent* level of education to that required for the job (University degree vs. post-secondary non-tertiary or post-secondary non-tertiary vs. upper secondary education). Finally, intensity 2 will encompass the traditional description of overqualification, a substantial difference in the education level (university degree vs. secondary education). A graphical representation of the different levels of overqualification is available on the Table **??** of the Annex.

In a first step, the empirical specification measures the probability of outmigration according to the variable of interest and several control variables, without distinguishing between onward and return migration:

$$Ln\left(P/1-P\right) = \beta_{i,t}X_i + \beta_2 C_i + \beta_3 Z_{i,t} + \epsilon_{i,t}$$

Where P represents the probability that emigration takes place. The variable of interest is employment situation at t-1, with values 0 if unemployed/out of the labor force, 1 if employed, 2 if employed and overqualified or 9 if employed but no information on occupation. Observations with the latter value are excluded.

C_i accounts for a set of time-invariant control variables: prior immigration, age at migration, sex and maximum educational attainment. Additionally, region of origin and visa category are included. Z represents time-variant control variables: Civil status, years since migration, citizenship and number of children are treated as time-variant controls. A second model is run in which employment situation is disaggregated by the *intensity* of overqualification.

Further expansions of the model try to capture potential differences of being overqualified conditioned on the years spent in the country. he decision to emigrate. For this, an interaction between years since migration and employment situation is included. Similarly, to analyse whether there is a cumulative effect of being overqualified, the independent variable turns into 4 variables- unemployed, employed well-matched, overqualified, and employed but missing information on occupation- that capture the share of time that an individual has been overqualified, taking values 0 to 100%. For instance, an individual that has been employed well-matched and has spent three years in the country will have a value of 100% in the cumulative time employed, and 0 in the other three variables. An interaction of these variables with years since migration will also be explored in an additional model.

The emigration decision is further analyzed in a competing-risks framework, using a multinomial logit model in order to capture possible differences in the effect of overqualification on onward and return migration. Namely, the probability of experiencing return or onward migration rather than

the base category (staying permanently) are modeled by:

$$log\left(\frac{Pr(Y_i = m)}{Pr(Y_i = M)}\right) = \alpha + \beta_{m1} Empl\_sit_{m(t-1)} + \beta_{m2} C_{mit} + \beta_{m3} Z_{mi} + \epsilon_i$$

Where T=1,...,9. There are m equations, one for onward and one for return migration, and M represents staying in the country. $empl\_sit_{m(t-1)}$ represents the employment situation at t-1. X_{mi} and Z_{mit} are the set of time-invariant and time-variant control variables, respectively.

4 Results

The empirical analysis begins with the descriptive analysis of the prevalence of overqualification in the migrant population, compared to Swedish-born individuals with the same education level (more than upper secondary). The results show a stark difference between these two groups in terms of labor market attachment: in the period of analysis (2001-2016), 90% of the Swedish-born population is employed, whereas this number decreases to 54.6% for the immigrant population. Out of those who are employed, 54.58% of the foreign-born experience overqualification, this number being 14% for Swedish-born [5]. Regarding the intensity of overqualification, the majority of immigrants who are employed have a higher chance of being "highly" overqualified, with 54.58% of them working in an occupation for which the majority of peers have two education levels less. On the contrary, the number of "highly" overqualified among the Swedish-born individuals who are working is 7%.

When looking at the long-term trajectory of immigrants in the labor market, Figure 1 shows the employment rate across time, disaggregated by type of employment. The figure shhows a positive trend in the immigrant employment rate across time, but the levels of well-matched individuals are constant. Namely, employment rates are below 50% for the first 5 years, and overqualified individuals represent more than one third of the employed individuals. Over time, employment rates reach 70%, but overqualification remains the most common employment type for the majority of migrants, suggesting that overqualification is not only the most common type of employment for immigrants, but that this phenomenon persists across time. However, this figure does not show the dynamics of those who leave the country.

In order to explore the magnitude and characteristics of emigrants, Table 1 shows the descriptive statistics during the last year of *stayers*, those who have never emigrated during the period of analysis, and *emigrants*. After 9 years, 26.2% of those who migrated to Sweden between 2001 and 2007 have left the country. The table shows substantial differences in the origin of immigrants

[5]The share of missing occupation on information is also higher for immigrants (15.9 % vs. 7.6 %)

compared to emigrants: for instance, whereas individuals from MENA regions are the second biggest immigration inflow, they account for the 4th country group in terms of emigration. On the contrary, individuals from the European/Nordic countries represent the biggest inflow and also the biggest migration outflow, doubling its weight in the emigration group. This difference is also present in the distribution of grounds for settlement: whereas family reunification represents more than half of the migration inflow, this group only accounts for 37.6% of the emigration outflow.

When looking at the different socioeconomic characteristics of this group, there are some worth noting differences. First, individuals who emigrate tend to have less family attachments, as they show a smaller rate of marriage and a lower number of kids. Second, the rate of emigrants with citizenship is significantly lower than those who stay (62.5 % vs. 7.4%). With respect to their educational level, emigrants have higher rates of tertiary education than stayers. Finally, the employment situation at the year before emigration shows that most of the emigrants were unemployed right before leaving the country, whereas the levels of well-matched employment and overqualification were substantially smaller but similar (13.84 and 12.95%, respectively). In the case of the cumulative employment trajectory, emigrants spent 64% of their time in the country unemployed, and similar rates of total time overqualified and well-matched.

Turning to the mean differences between return and onward migration, the former seems to be the preferred option for the majority of emigrants. Again, there are substantial differences within country region and visa categories: whereas the majority of migrants from the EU/Nordics, Eastern Europe and Western countries decide to return migrate, onward migration is more common among those countries which are sources of family reunification and refugee migration, such as the MENA region or other African countries. Looking at visa categories also confirms this picture: whereas labor migrants and missing permit individuals show higher rates of return migration, refugees show higher rates of onward migration. With respect to other characteristics, onward migrants seem to be more often married and have more kids, they tend to emigrate later than return migrants and have previously migrated to a much higher extent than return migrants. Regarding citizenship, onward migrants have a substantial higher rate of citizenship acquisition, but the education levels are similar between different types of emigrants. Finally, both onward and return migrants show a very similar pattern in terms of their employment situation at t-1.

Table 5, Column (1), shows the odds ratios of the baseline model. Before analysing the results of the variable of interest, *employment sit*, it is worth noting to briefly examine the results of the control variables. As observed in the previous analysis of the descriptive statistics, the differences in emigration propensities between countries of origin are significant, with Europe/Nordics and Western countries being the most like to emigrate, as well as per visa categories, in which family reunification and, especially refugees, have a lower probability to leave the country. When controlling for all potential observable characteristics, those with tertiary education seem to emigrate more than those with a bachelor's or master's degree, with a higher odds ratio in the case of those who

have obtained a PhD. Being a woman does not significantly decrease the probability to emigrate, whereas having family links, such as being married or having a kid, decreases the odds to emigrate. Prior immigration has a positive significant effects on the propensity to emigrate, whereas age at migration does not have a significant effect and, over time, the propensity to emigrate decreases.

Turning to the main variable of interest, employment situation on the previous year, Figure 2a shows the marginal effects and the contrast of predictive margins for this variable. The results show that being unemployed/out of the labor force increases the probability to emigrate compared to being in a well-matched job. However, the differences in the probability to emigrate between overqualified and well-matched individuals seem to be very similar, suggesting that unemployment is the main driver of emigration, rather than overqualification.

The second outcome of interest was whether the intensity of overqualification influenced the probability of emigrating. The results are shown in Column 2 of Figure 5 and a graphical representation of the marginal effects in Figure 2b. The conclusion is similar to the previous model: unemployed individuals are the ones with the highest propensities, whereas individuals who are overqualified with intensity 1 seem to have a very similar propensity to emigrate as those with a well-matched employment. In the case of individuals with a high level of overqualification (intensity 2), the propensity to emigrate is 1 percentage point lower than those with a well-matched employment. Both models conclude that overqualification does not seem to lead to higher emigration rates.

The presented models exploit information about the employment situation in the previous year, but the time at which individuals experience overqualification, as mentioned in the theoretical framework, could have a different impact on emigration intentions. The timing component is included in Column 1 of Table A4, interacting years since migration with employment situation at t-1. The marginal effects of the variables of interest are graphically represented in Figure 4. The marginal effects show that, at early stages, differences in the employment situation do not play a big role; however, in later years, those who are unemployed have a much higher propensity to emigrate than if they are unemployed at arrival. Individuals with employment, irrespective of being overqualified, show a lower tendency to emigrate than if they were employed in previous years. The findings seem to indicate that, upon arrival, the employment situation does not seem to be determinant in emigration decisions, given that individuals may expect a change in their employment; however, across time, the employment situation gains a greater role in the decision.

Another determining factor could be not only the type of employment the previous year, but also the cumulative employment trajectory that the individual has experienced during their time in Sweden. To capture that, the model in Column (2) of Table A4 includes three variables capturing the cumulative percentage of time employed, unemployed, overqualified and with missing information on occupation (omitted to avoid multicollinearity). Namely, if an individual has been in the country for 4 years, out of which 2 unemployed and 2 in a correctly matched job, the value of the variables

would be 50% for the cumulative unemployed experience and 50% for the employed variable and 0 in the other. Figure 5 shows the graphical representation of individuals who have been employed well-matched, unemployed or overqualified during all their years in the country. The results show a similar pattern to the analysis of the employment situation in the previous year. Namely, at early stages, differences in the cumulative effect of employment are smaller than at later stages, when the effect of being permanently unemployed diverges significantly from the effect of being permanently employed or overqualified. Regarding the effect of being overqualified, the propensity to emigrate becomes smaller at later years, compared to being well-matched. A lower propensity to emigrate among this group could be due to the "cost" of emigrating: namely, employed individuals could decide to emigrate with the expectation of finding an equally well-matched job. However, for individuals who have been permanently overqualified, their "migration costs" may be higher, as the expectations of finding a better-matched job may not be high, after not finding a correctly-matched job in Sweden.

Turning to the analysis of overqualification on return and onward migration, results are shown in Columns 1 and 2 of Table A6. Given that the main objective of this model is to determine whether citizenship modifies the effect on overqualification for return/onward migration, the sample on this model is restricted to individuals staying up to 3 years, as they cannot obtain citizenship before that time, and excluding those from the European Union or Western countries, as and the mentioned group, due to differences in their countries of origin, are less exposed to a potential citizenship effect.

When looking at the control variables, individuals from Latin America seem to have a higher propensity to return migrate than Eastern Europeans (ref. category), whereas individuals from the region "Rest of Africa" have higher propensities to onward migrate. Regarding grounds for settlements, labor migrants have a much higher propensity to return migrate than onward migrate than family reunification. In the case of refugees, emigration propensities are much lower than for labor migrants, and the propensity to onward migrate is higher than to return migrate. Regarding education levels, individuals with tertiary education seem to emigrate at higher rates than those with non-tertiary education, and onward migration is more common in the case of individuals that have obtained a PhD. In the case of family links, married individuals seem to return migrate more than onward migrate, but the effect of children is similar in both emigration types. Having a prior immigration experience increases significantly the probabilities of onward migrate compared to staying, whereas it has no effect on return migration propensities. Finally, age at migration seems to be negatively correlated to onward migration, whereas the effect is not significant for return migration, and years since migration show a concave effect for onward migration, but not for return migration.

Figure 6 shows the marginal effects of employment situation at t-1, divided by emigration type. The results do not show significant differences between onward and return migration for employed

individuals, irrespective of their occupation, whereas individuals who are unemployed seem to return migrate more than onward migrate, although the difference is small. The similarity between the coefficients could be due to other factors that play a role in the decision, such as the potential acquisition of citizenship. To examine the effect of citizenship acquisition, columns (3) and (4) of Table 6 include an interaction of employment situation with citizenship, and the marginal effects of this interaction are plotted in Figure 7. Looking at the first graph, that shows the effect of citizenship and employment situation on onward migration, the effect of citizenship does not seem to influence emigration decisions for unemployed individuals. For well-matched and overqualified individuals, the chances of onward migrating decrease if they acquire citizenship, but the differences and magnitude are very small. On the return migration side, citizenship decreases return migration for all employment types, specially in the case of unemployed individuals. As a tentative hypothesis of why unemployed individuals return migrate more than onward migrate, the costs of migrating and starting again may be too high to onward migrate and, if the individual is thinking of going back to their country of origin, citizenship acquisition may be delayed or permanently postponed.

5 Conclusions

The aim of this paper has been to examine the prevalence of overqualification in Sweden and its impact on the probability to emigrate, focusing on different aspects of the phenomenon, such as the intensity, timing and joint effect with citizenship acquisition. The study of overqualification on emigration is motivated by the high prevalence of this phenomenon among the migrant population, with documented negative and persistent effects (Nielsen, 2011; Wassermann & Hoppe, 2019) on this particular group. The existence of these negative effects, together with the non-fulfilled expectations of highly educated individuals that matches their aspirations could theoretically lead to higher emigration propensities than individuals who are well-matched. This hypothesis, although discussed in the literature, has not empirically been tested, with the exception of Wanner et al. (2021).

Using register data for migrants coming to Sweden, and following individuals of working age for 9 years, this papers sheds light on the scarce empirical evidence on overqualification and emigration propensities. The descriptive analysis reveals an important migrant-native gap on the persistence of overqualification, that persists across time. The empirical results are in line with those of Wanner et al. (2021): overqualified individuals seem to have very similar and small probabilities of emigrating, compared to well-matched individuals. In contrast, unemployed individuals seem to have the highest propensities to emigrate. Irrespective of the intensity, timing or cumulative presence of overqualification, this phenomenon does not increase the propensity to either return or onward migrate, even if the individual acquires Swedish citizenship, which could potentially offer new opportunities in other countries. The result, contrary to the theoretical hypotheses, illustrates that other factors weight more in the emigration decision. Although the data does not allow to con-

trol for these factors, tentative competing elements could include the acquisition of country-specific skills in the destination country or the creation of social networks, which could increase the costs of migration. Additionally, experiencing persistent overqualification could deter the individual from migrating, as they could think that their employment situation could not get better in another country.

The dynamics of overqualification, however, encompasses more than the presented evidence. Additional factors could play an important role in the interplay between overqualification and emigration. For instance, the employment situation of the partner could be a driver of emigration if both are overqualified; additionally, field of education and occupation could also impact the effect of being in a mismatched job. Despite these limitations, the findings shed important light on the relevance and issue of overqualification, for which information is, to this day, scarce.

The results of this paper yield important findings for both policy-makers and researchers. First, overqualification is substantially higher for highly-educated immigrants than for native-born individuals. The empirical evidence presented here shows that these individuals do not seek other opportunities abroad or go back to their country, but rather stay, even if overqualified for many years. This implies an important loss, not only at the individual level, but also at the social level, as the skills of these individuals could be be used more efficiently. Labor market policies with the aim of better integrating these individuals in the labor market are therefore highly encouraged.

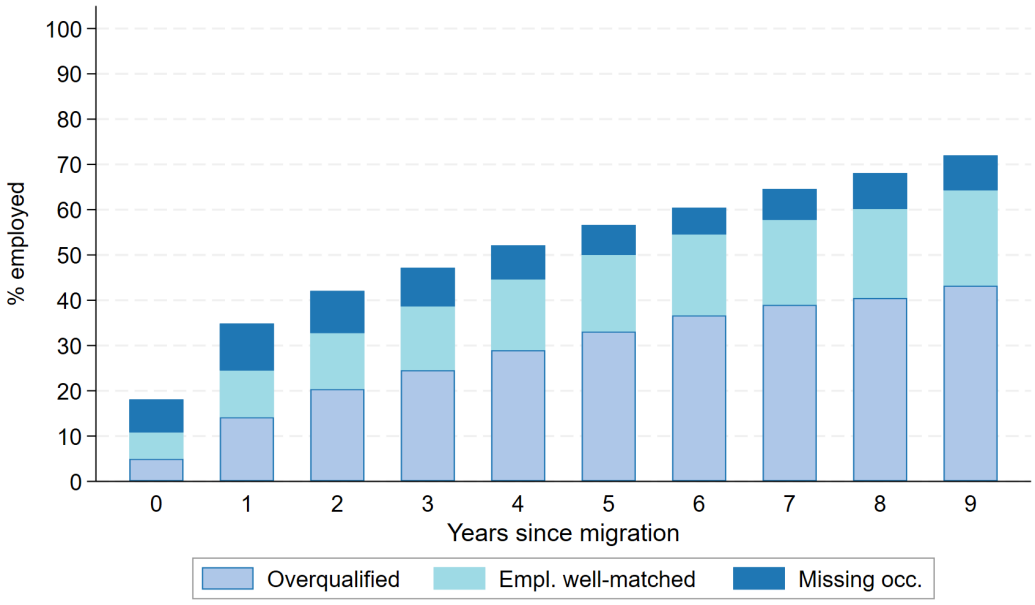
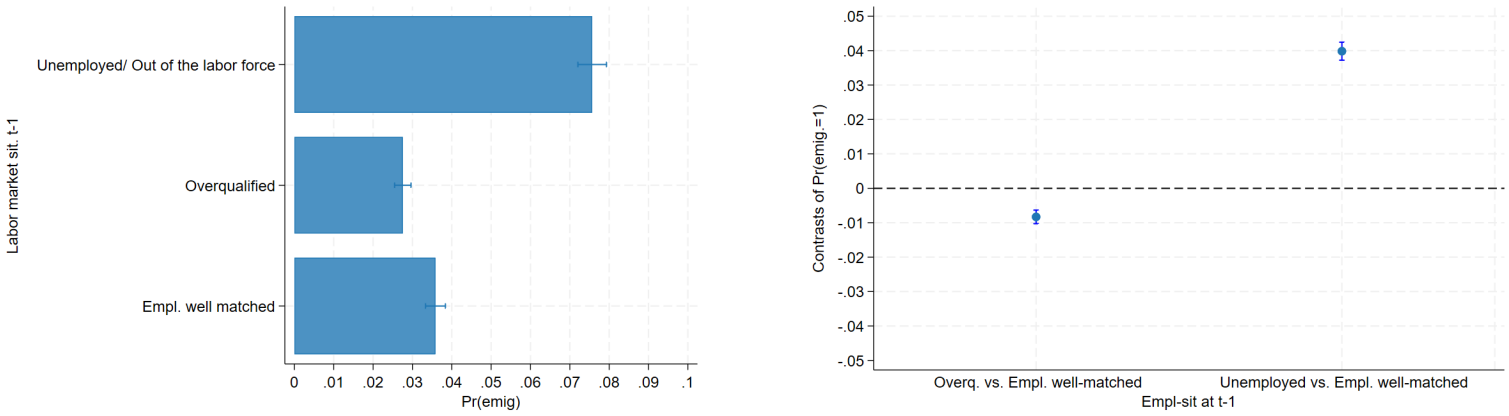


Figure 1: Employment situation of immigrants, by year since migration

Table 1: Descriptive statistics

			Out of which emigrants:		
	Stayers	**Emigrants**	**Return**	**Onward**	**Missing info**
Individuals*	46,014 (73.8%)	16,360 (26.2%)	11,195 (68.4%)	3,646 (22.3%)	1,519 (9.3%)
Observations					
Country region					
EU/Nordic	14,008 (30.4%)	9,712 (59.4%)	7,640 (68.2%)	1,558 (42.7%)	514 (33.8%)
Eastern Europe	6,406 (13.9%)	816 (5.0%)	426 (3.8%)	270 (7.4%)	120 (7.9%)
Western countries	1,514 (3.3%)	1,318 (8.1%)	928 (8.3%)	247 (6.8%)	143 (9.4%)
MENA region	12,434 (27.0%)	1,275 (7.8%)	491 (4.4%)	528 (14.5%)	256 (16.9%)
Rest of Africa	1,944 (4.2%)	392 (2.4%)	131 (1.2%)	189 (5.2%)	72 (4.7%)
Asia	6,914 (15.0%)	2,164 (13.2%)	1,233 (11.0%)	617 (16.9%)	314 (20.7%)
Latin America	2,794 (6.1%)	683 (4.2%)	346 (3.1%)	237 (6.5%)	100 (6.6%)
Visa category					
Missing	5,008 (10.9%)	5,322 (32.5%)	4,625 (41.3%)	577 (15.8%)	120 (7.9%)
Work	6,832 (14.8%)	4,466 (27.3%)	2,909 (26.0%)	1,073 (29.4%)	484 (31.9%)
Fam. reuni.	26,320 (57.2%)	6,146 (37.6%)	3,532 (31.5%)	1,788 (49.0%)	826 (54.4%)
Refugee	7,854 (17.1%)	426 (2.6%)	129 (1.2%)	208 (5.7%)	89 (5.9%)
Age	39.90	35.00	34.647	35.68	35.995
Married	64.9	51.3	49.9	60.8	38.3
Women	54.5	50	50	52.5	43.9
Years since migration	8.70	3.93	3.62	4.28	5.449
Prior immigration	15.5	15.9	7.7	40.5	17.7
Citizenship	62.5	7.4	4.4	18.5	3.6
No. Of children	1.419	0.79	0.792	0.933	43.3
Education level					
Post secondary-non tertiary	14,228 (30.9%)	3,345 (20.4%)	2,210 (19.7%)	694 (19.0%)	134 (6.3%)
University degree	29,602 (64.3%)	11,171 (68.3%)	7,836 (70.0%)	2,468 (67.7%)	1,198 (56.3%)
Research/ PhD	2,184 (4.7%)	1,844 (11.3%)	1,149 (10.3%)	484 (13.3%)	212 (10.0%)
Employment at t-1					
Employed	19.68	13.84	15.2	14.92	1.18
Overqualified	40.34	12.95	13.39	16.07	2.24
Unemployed	31.88	62.22	59.47	57.02	94.93
Missing info on occ.	8.1	10.99	11.93	11.99	1.65
Cumulative years					
Unemployed	43.72	64.33	62.1	60.25	90.7
Employed well-matched	16.1	12.68	13.96	13.29	1.83
Overqualified	32.18	11.6	11.75	14.2	4.18
Missing info. Occupation	7.99	11.38	12.2	12.2	3.3

**Note:* The percentage share of individuals does not add to 100% due to the omission in the table of the 4.57% of the individuals who have deceased or emigrated and come back in less than 5 years.



(a) Marginal effects **(b)** Contrast of predictive margins

Figure 2: Marginal effects of overqualification on the propensity to emigrate and contrast of predictive margins of the employment situation at t-1, results of the logistic regression

Figure 3: Marginal effects of the intensity of overqualification on the propensity to emigrate, results of the logistic regression

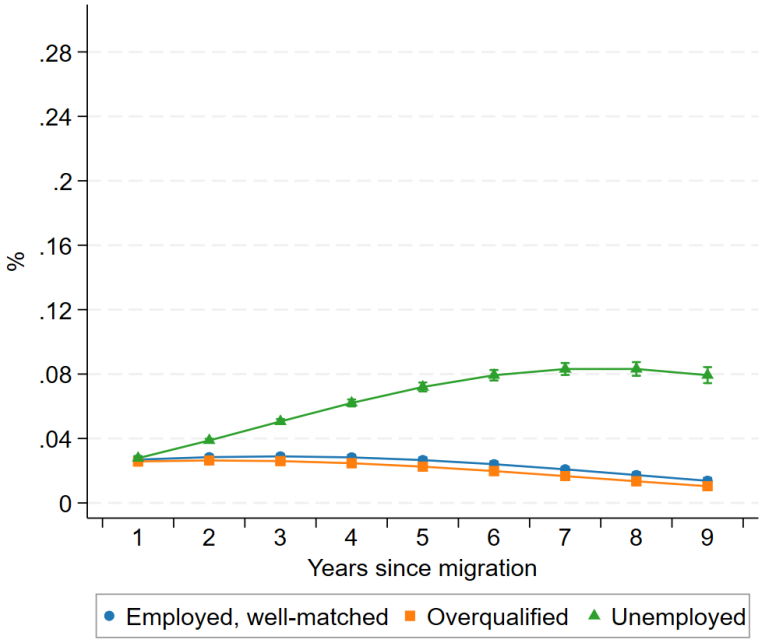


Figure 4: Marginal effects of employment situation (t-1) across years since migration on the propensity to emigrate, results of the logistic regression

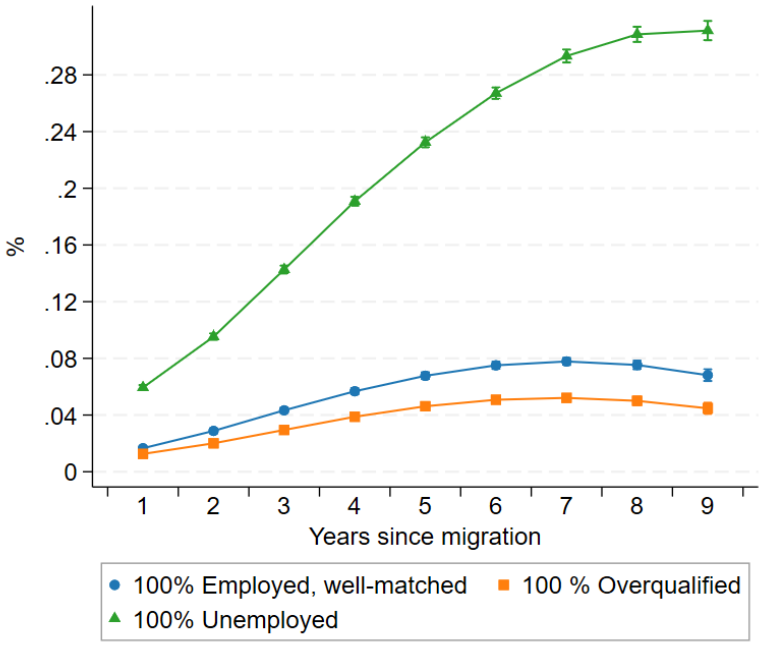


Figure 5: Marginal effects of the cumulative employment situation across time, results of the logistic regression

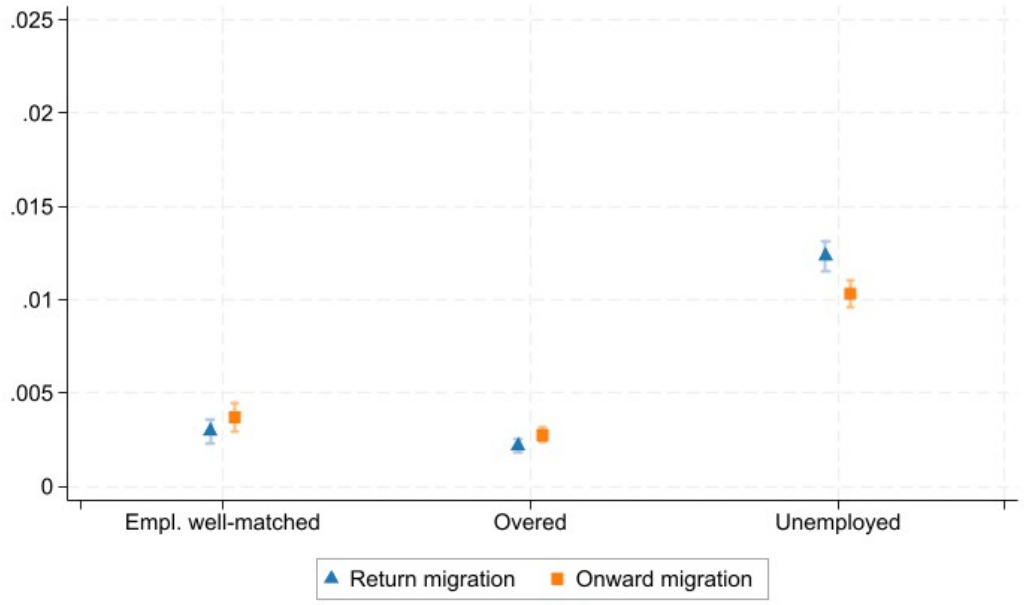


Figure 6: Marginal effects of the employment situation at t-1 on the propensity to emigrate, results of the multinomial logistic regression

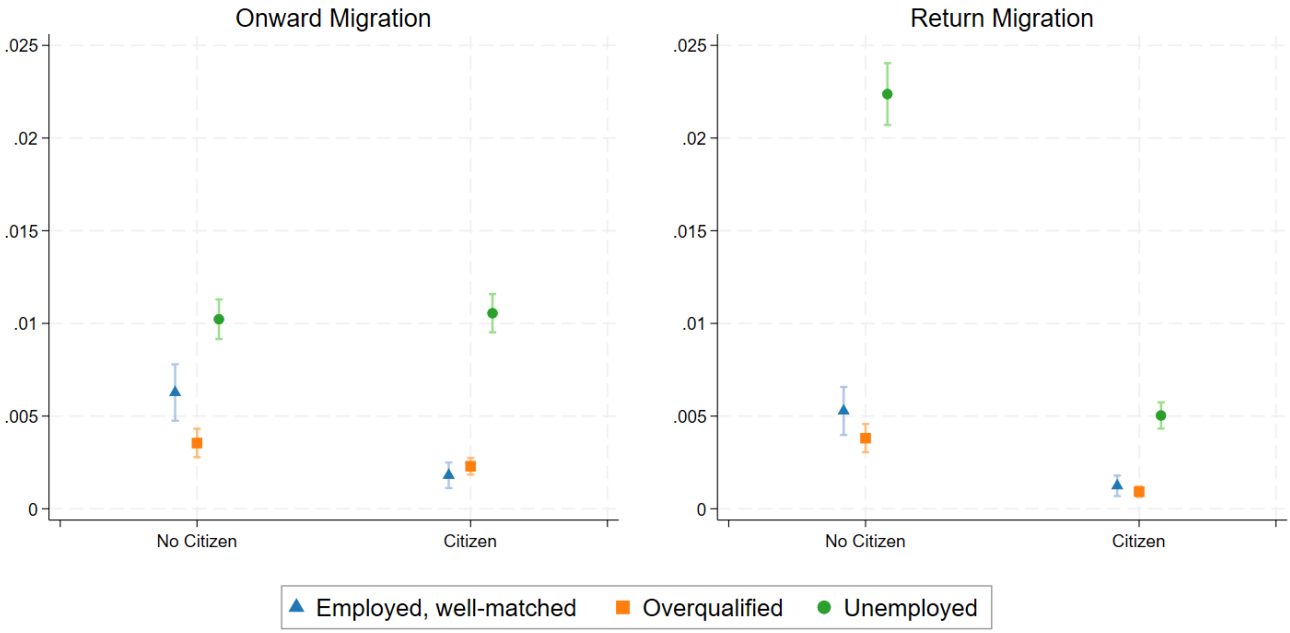


Figure 7: Marginal effects of the interaction of employment situation at t-1 with citizenship on the propensity to emigrate, results of the multinomial logistic regression

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Appendix

Table A1: Country classification

1.EUROPEAN UNION/NORDIC COUNTRIES

Austria	Italy	• 2004-2016:
Belgium	Norway	Czech Republic
Denmark	Spain	Estonia
Finland	Switzerland	Hungary
Germany	Portugal	Latvia
France	The Netherlands	Lithuania
Greece	United Kingdom	Poland
Ireland		Slovakia
Iceland		Slovenia

2. EASTERN EUROPEAN COUNTRIES

Albania	Moldova	• 1997-2004:
Armenia	Montenegro	Estonia
Azerbajdzjan	North Macedonia	Latvia
Belarus	Romania	Lithuania
Bosnia and Herzegovina	Serbia	Poland
Bulgaria	Serbia and Montenegro	Slovakia
Czechoslovakia	Soviet Union	Slovenia
Georgia	Ukraine	Czech Republic
Kosovo		Hungary
Kroatien (Croatia)		

3. WESTERN COUNTRIES

Australia	New Zealand
Canada	United States

4.MENA COUNTRIES

Afghanistan
Algeria
Cyprus
Djibouti
Egypt
Iraq
Iran
Israel
Jordan
Kuwait
Lebanon
Libya
Morocco
Pakistan
Palestine
Saudi Arabia
Somalia
Sudan
Syria
Tunisia
Turkey
United Arab Emirates
Yemen

5.REST OF AFRICA

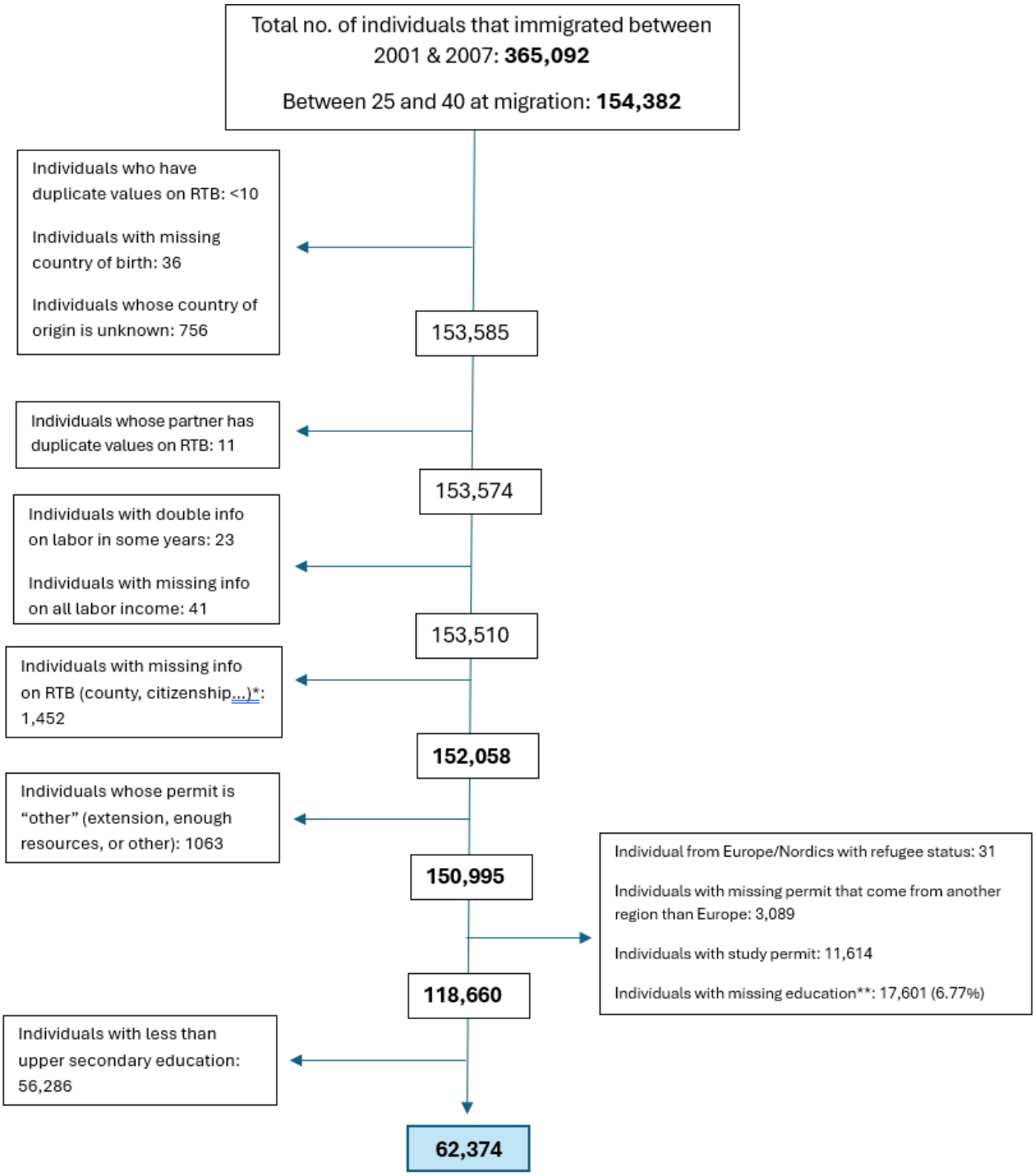
Angola
Burundi
Cameroon
Congo
Democratic Republic of the Congo
Ivory Coast
Eritrea
Ethiopia
Gambia
Guinea
Kenya
Liberia
Nigeria
Rwanda
Senegal
Sierra Leone
South Africa
Tanzania
Uganda
Zambia
Zimbabwe

6.ASIA

Bangladesh
China
Ghana
Hong Kong
India
Indonesia
Japan
Cambodia
Kazakhstan
Kyrgyzstan
Laos
Malaysia
Mongolia
Myanmar
Nepal
Philippines
Russia
Singapore
Sri Lanka
South Korea
Taiwan, province of China
Thailand
Uzbekistan
Vietnam

7.LATIN AMERICA

Argentina
Bolivia
Brazil
Chile
Colombia
Costa Rica
Dominican Republic
Ecuador
El Salvador
Guatemala
Cuba
Mexico
Nicaragua
Peru
Uruguay
Venezuela



*70% of these people are immigrants who leave the same year as they have immigrated.
**Missing education: 59% are from the EU/Nordics, followed by Asia (13%) and the MENA region (12%). 78% of them are emigrants. 56% of the sample emigrates during the first 3 years of stay.

Figure A1: Chart flow of the population

		Required skills for the job				
		Primary /Secondary	**Upper secondary**	**Post-secondary non tertiary**	**Bachelor/Master**	**Research/PhD**
Education acquired	**Primary/Secondary***	Well-matched	-	-	-	-
	Upper secondary*	Overq.	Well-matched	-	-	-
	Post-secondary non tertiary	Overq.	Overq.	Well-matched	-	-
	Bachelor/Master	Overq.	Overq.	Overq.	Well-matched	-
	Research/PhD	Overq.	Overq.	Overq.	Overq.	Well-matched

*Not included in the sample

Int.1 **Int.2**

Figure A2: Definition of overqualification intensity

Table A2: Odd ratios of the logistic regression.

	(1)	(2)
Pr(emig.)		
Employment situation at t-1, ref.: Empl. well-matched		
Overqualified	0.709***	
	(0.029)	
Overqualified., int. 1		0.701***
		(0.042)
Overqualified, int. 2		0.712***
		(0.032)
Unemp/Out of lab. force.	2.889***	2.889***
	(0.109)	(0.109)
Country of origin, ref.: EU/Nordic		
Eastern Europe	0.294***	0.294***
	(0.018)	(0.018)
Western countries	2.427***	2.427***
	(0.144)	(0.144)
MENA region	0.318***	0.318***
	(0.018)	(0.018)
Rest of Africa	0.632***	0.632***
	(0.049)	(0.049)
Asia	0.732***	0.732***
	(0.034)	(0.034)
Latin America	0.610***	0.610***
	(0.040)	(0.040)
Visa category, ref.: family reunification		
Missing	5.289***	5.288***
	(0.311)	(0.311)
Work	2.551***	2.551***
	(0.111)	(0.111)
Refugee	0.294***	0.294***
	(0.019)	(0.019)
Education level, ref.: post-secondary non-tertiary		
Bachelor/Master	1.493***	1.491***
	(0.047)	(0.047)
PhD/Research	3.940***	3.947***
	(0.215)	(0.215)
Gender, ref.: man		
Woman	0.954	0.954
	(0.026)	(0.026)
Civil status, ref.: single		
Married	0.911***	0.911***
	(0.022)	(0.022)
No. of children <18	0.810***	0.810***

Table 5 (continued)

	(1)	(2)
	(0.012)	(0.012)
Prior immigration	1.312***	1.312***
	(0.047)	(0.047)
Years since migration	1.749***	1.749***
	(0.047)	(0.047)
Years since migration (squared)	0.955***	0.955***
	(0.002)	(0.002)
Age at migration	1.001	1.001
	(0.003)	(0.003)
Observations	427,861	427,861

Standard errors in parentheses * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table A4: Odd ratios of the logistic regression, effect of timing on overqualification

	(1)	(2)
Pr.(Emig.)		
Employment situation at t-1, ref.: Empl. well-matched		
Overed.	1.044	
	(0.141)	
Unemp/Out of lab. force.	0.745**	
	(0.074)	
Years since migration		
Years since migration	1.237***	0.992
	(0.059)	(0.189)
Years since migration (squared)	0.969***	1.032
	(0.005)	(0.022)
Employment situation at t-1×ysm, ref.: Empl. well-matched× ysm		
Overed. × ysm	0.897	
	(0.057)	
Overed. × Ysm(squared)	1.007	
	(0.007)	
Unemp/Out of lab. force. × ysm	1.401***	
	(0.067)	
Unemp/Out of lab. force. × Ysm(squared)	0.993	
	(0.005)	
Cumulative % of total years at each employment category		
Cumulative % of total years in unemployment		1.008*
		(0.004)
Cumulative % of total years in employment		0.969***
		(0.005)
Cumulative % of total years overqualified		0.974***
		(0.005)
Cumulative % of total years at each employment category×ysm		
Cumulative % of total years in unemployment × ysm		1.022***
		(0.003)
Cumulative % of total years in unemployment × ysm (squared)		0.998***
		(0.000)
Cumulative % of total years in employment × ysm		1.017***
		(0.003)
Cumulative % of total years in employment × ysm (squared)		0.998***
		(0.000)
Cumulative % of total years overqualified × ysm		1.019***
		(0.003)
Cumulative % of total years overqualified × ysm(squared)		0.998***
		(0.000)

Table A4 (continued)

	(1)	(2)
Country of origin, ref.: EU/Nordic		
Eastern Europe	0.310***	0.056***
	(0.018)	(0.009)
Western countries	2.296***	7.235***
	(0.129)	(1.113)
MENA region	0.314***	0.035***
	(0.017)	(0.006)
Rest of Africa	0.631***	0.249***
	(0.048)	(0.042)
Asia	0.731***	0.286***
	(0.032)	(0.031)
Latin America	0.612***	0.236***
	(0.039)	(0.032)
Visa category, ref.: family reunification		
Missing	4.650***	58.730***
	(0.242)	(13.940)
Work	2.300***	22.060***
	(0.093)	(4.138)
Refugee	0.307***	0.074***
	(0.019)	(0.023)
Education level, ref.: upper secondary education		
Bachelor/Master	1.465***	2.821***
	(0.044)	(0.215)
PhD/Research	3.818***	20.770***
	(0.193)	(3.805)
Gender, ref.: man		
Woman	0.954	0.689***
	(0.025)	(0.040)
Civil status, ref.: single		
Married	0.948*	0.850***
	(0.023)	(0.035)
No. of children <18	0.827***	0.579***
	(0.012)	(0.023)
Prior immigration	1.290***	1.977***
	(0.044)	(0.135)
Age at migration	0.999	0.993
	(0.003)	(0.006)
Observations	427,861	427,861

Standard errors in parentheses * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table A6: Multinomial logistic regression, base category: staying. Relative risk ratios.

	(1) Return	(2) Onward	(3) Return	(4) Onward
Employment situation, ref.: employed, well-matched				
Overqualified	0.731*	0.742*	0.718*	0.562***
	(0.104)	(0.094)	(0.119)	(0.094)
Unemp/Out of lab. force.	4.353***	2.862***	4.392***	1.678***
	(0.503)	(0.321)	(0.580)	(0.229)
Citizenship	0.222***	0.850*	0.232***	0.284***
	(0.016)	(0.055)	(0.061)	(0.066)
Overqualified. ×Citizenship			1.041	2.260**
			(0.334)	(0.615)
Unemp/Out of lab. force. ×Citizenship			0.943	3.553***
			(0.258)	(0.850)
Country of origin, ref.: Eastern Europe				
MENA region	1.507***	1.377**	1.506***	1.374**
	(0.155)	(0.148)	(0.155)	(0.149)
Rest of Africa	1.342	2.989***	1.339	2.992***
	(0.215)	(0.378)	(0.215)	(0.379)
Asia	1.941***	1.838***	1.939***	1.846***
	(0.177)	(0.191)	(0.177)	(0.192)
Latin America	2.443***	1.742***	2.441***	1.757***
	(0.274)	(0.228)	(0.274)	(0.230)
Visa category, ref.: family reunification				
Work	2.738***	1.993***	2.741***	1.859***
	(0.249)	(0.219)	(0.250)	(0.210)
Refugee	0.359***	0.682***	0.358***	0.686***
	(0.040)	(0.061)	(0.040)	(0.061)
Education level, ref.: post-secondary non-tertiary				
Bachelor/Master	1.218**	1.273***	1.218**	1.278***
	(0.082)	(0.089)	(0.082)	(0.089)
Research/PhD	1.753***	2.202***	1.749***	2.232***
	(0.226)	(0.320)	(0.226)	(0.323)
Gender, ref.: man				
Woman	0.719***	0.870*	0.720***	0.866*
	(0.047)	(0.061)	(0.047)	(0.061)
Civil status, ref.: single				
Married	1.199**	1.096	1.199**	1.093
	(0.075)	(0.073)	(0.075)	(0.073)
No. of children ¡ 18	0.838***	0.853***	0.839***	0.847***
	(0.026)	(0.026)	(0.026)	(0.026)
Prior immigration	0.392***	2.435***	0.392***	2.432***
	(0.040)	(0.160)	(0.040)	(0.160)
Years since migration	1.319	2.011***	1.321	1.944***
	(0.201)	(0.331)	(0.202)	(0.321)

Table A6 (continued)

	(1) Return	(2) Onward	(3) Return	(4) Onward
Years since migration (squared)	0.983	0.950***	0.983	0.953***
	(0.012)	(0.012)	(0.012)	(0.012)
Age at migration	0.988	0.966***	0.988	0.966***
	(0.007)	(0.007)	(0.007)	(0.007)
Constant	0.00227***	0.000668***	0.00224***	0.00115***
	(0.001)	(0.000)	(0.001)	(0.001)
Observations	173778		173778	

Exponentiated coefficients; Standard errors in parentheses * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$