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Geographies of occupational (mis)match

The case of highly educated refugees and family migrants in Sweden

Louisa Vogiazides, Henrik Bengtsson & Linn Axelsson

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Preface

This paper is the result of collaboration between Louisa Vogiazides and Linn Axelsson at the Department of Human Geography at Stockholm University and Henrik Bengtsson at Region Skåne. The work of Louisa Vogiazides and Linn Axelsson was supported by the Swedish Research Council for Health, Working life and Welfare (FORTE) under grant 2016-07105. We are grateful for the feedback received at a seminar presentation at the Department of Human Geography in January 2021.

Stockholm, February 2021
Louisa Vogiazides, Henrik Bengtsson and Linn Axelsson

Sammanfattning

Tidigare forskning om kvalifikationsmatchning, det vill säga forskning som undersöker om individer har ett yrke som motsvarar deras utbildningsnivå eller inte, visar att utrikes födda tenderar att vara överutbildade i större utsträckning än de som är födda i landet. Jämfört med inrikes födda har de med andra ord oftare en formell utbildning som är högre än vad deras arbete kräver. Den här forskningen har i viss utsträckning jämfört graden av kvalifikationsmatchning för den utrikesfödda befolkningen i olika länder. Däremot saknas kunskap om hur graden av kvalifikationsmatchning skiljer sig åt inom länder. Syftet med den här artikeln är därför att beskriva och förklara mönster i kvalifikationsmatchning för flyktingar och familjemigranter i Sverige med särskild tonvikt på regionala skillnader. Den undersöker förekomsten av kvalifikationsmatchning för flyktingar och familjemigranter som fick uppehållstillstånd i Sverige mellan 2001 och 2014 med hjälp av deskriptiv statistik och regressionsanalys utförd på longitudinella registerdata på individnivå. Resultaten visar att det finns vissa regionala skillnader i kvalifikationsmatchning för flyktingar och familjemigranter. Initialt är de som är bosatta i Stockholm–men även i Göteborg och i mindre tätorter och landsbygdskommuner–kvalifikationsmatchade i större utsträckning än flyktingar och familjemigranter i andra typer av regioner. De regionala skillnaderna i kvalifikationsmatchning minskar dock över tid och på längre sikt verkar bosättningsort inte utgöra något större hinder för att uppnå kvalifikationsmatchning. Efter åtta i Sverige har de geografiska skillnaderna i kvalifikationsmatchning utjämnats och den enda statistiskt säkerställda skillnad som kvarstår är den mellan flyktingar och familjemigranter som är bosatta i Stockholm, där sannolikheten att hitta ett arbete som motsvarar utbildningsnivå fortsatt är större, respektive Malmö, där samma grad av kvalifikationsmatchning inte uppnås. En möjlig förklaring är att de högutbildade flyktingar och familjemigranter som uppnår kvalifikationsmatchning ofta gör det i yrken där det finns en efterfrågan över hela landet, särskilt inom vård- och utbildningssektorn. Dessutom visar studien att validering och bedömning av utländska utbildningar samt utbildningar som erhållits i Sverige oftare leder till kvalifikationsmatchning.

Summary

A small but growing literature on occupational (mis)match, i.e. whether the educational requirements of one's occupation correspond to one's level of education, shows that foreign-born individuals tend to be overeducated to a larger extent than the native-born. Although there is some comparative research across countries, little is known about the geographical variation in occupational (mis)match within countries. This paper aims to describe and explain the patterns of occupational (mis)match among refugees and family migrants in Sweden, with a particular emphasis on their geographical dimension. Applying descriptive and regression analysis to individual-level longitudinal register data, it examines the occurrence of occupational (mis)match among refugee and family migrants who gained residency in Sweden between 2001 and 2014. The results indicate a moderate significance of the regional context for migrants' likelihood of achieving occupational match. After three years in Sweden, migrants residing in the capital region of Stockholm are the most likely to find a job in line with their qualifications, followed by migrants in Gothenburg and migrants in small city/rural regions. After eight years, however, the only statistically significant difference is between migrants in Stockholm, relative to migrants in the less prosperous region of Malmö. A plausible explanation is that highly educated migrants who achieve occupational match tend to be employed in occupations that are in demand all across the country, notably in the healthcare and education sectors. In addition, the study shows that the validation/assessment of foreign education as well as education obtained in Sweden are positively associated with occupational match.

1. Introduction

With the large flows of refugees and family migrants in the 2010s, the issue of migrants' labour market integration has received increased attention among both policymakers and researchers. In many migrant-receiving countries, newly arrived migrants, and particularly refugees, face difficulties in establishing in the labour market. Foreign-born individuals often have a lower employment rate than the native-born population (OECD, 2019a, 2019b). Moreover, compared to other migrant categories, refugees tend to occupy the most vulnerable position (Delmi, 2021a). This is even the case for highly qualified refugees (Irastorza & Bevelander, 2017a; Jamil, Aldhalimi, & Arnetz, 2012; Kelly & Hedman, 2016). The literature on migrant integration has traditionally focused on the outcome of being employed. Less emphasis has been given to the *type* and *quality* of employment that migrants obtain and whether it matches their educational qualifications. This is arguably due to the fact that the literature on migrants' labour market integration tends to overlook the employment outcomes of highly qualified migrants, for whom job quality issues, such as occupational (mis)match, are particularly relevant (Irastorza & Bevelander, 2017a).

A small but growing economic literature studies occupational (mis)match, i.e. whether the educational requirements of one's occupation correspond to one's level of education. It has been shown that the incidence of over-education tends to be higher for migrants than for natives (Chiswick & Miller, 2010; Dahlstedt, 2011; Visintin, Tijdens, & van Klaveren, 2015). Among OECD countries, the highest rates of migrant over-education are found in Italy, Spain, Greece and South Korea (OECD 2018). Returns to qualifications are also lower for migrants than for the native-born populations (Andersson Joona, Gupta, & Wadensjö, 2014). The main explanations for these trends are migrants' limited knowledge of the host country's labour market and language, occupational licensing requirements and labour market discrimination (Chiswick & Miller, 2010).

Most studies of occupational mismatch analyze the migrant population as a whole, without distinguishing between different categories of migrants (e.g. B. Chiswick & Miller, 2010; Dahlstedt, 2011). Yet the case of highly educated refugees and family migrants deserves particular consideration. In countries such as Sweden, refugees and family migrants make up the majority of new migrants. As much as three-fourths of the migrants who were granted a legal

status in Sweden in 2016 belonged to those two categories. In addition, a substantial share of refugees and family migrants hold post-secondary degree upon arrival in the host country. In Sweden, this is the case of about a third of refugees and family migrants who arrived in the period 2001-2014.[1] However, it has been shown that over-education is more prevalent among refugees than among individuals who migrated for non-humanitarian reasons (Irastorza & Bevelander, 2017a; Jamil et al., 2012; OECD, 2017).

The underutilization of migrants' human capital, sometimes referred to as 'brain waste', is not only detrimental to migrants themselves, who usually have the ambition to make full use of their qualifications in their new country (Mozetič, 2018; Piętka-Nykaza, 2015; Willott & Stevenson, 2013), but also for host countries. Many countries indeed suffer from a shortage of workers in highly qualified occupations, such as engineers, programmers and doctors. More generally, declines in fertility and rising longevity in many advanced economies, resulting in population ageing, increase the need for the inflow of working-age migrants (Akbari & Macdonald, 2014; Malmberg, Wimark, Turunen, & Axelsson, 2016).

A noteworthy shortcoming of the occupational mismatch literature is the lack of attention to the geographical dimension. While the significance of the geographical context for migrants' labour market entry and participation is increasingly acknowledged in the migrant integration literature as a whole (Gilmartin & Dagg, 2020; Platts-Fowler & Robinson, 2015), its impact on the likelihood of being occupationally matched is largely overlooked. The characteristics of the regional labour market are of particular importance for migrants' labour market integration. Previous research in Sweden has found important regional differences in migrants' labour market outcomes. Migrants' employment rate tends to be greater in the internationally-connected and knowledge-oriented Stockholm region, and poorer in the Malmö region which has long suffered from high unemployment (Bevelander, Mata, & Pendakur, 2019; Hedberg & Tammaru, 2013; Vogiazides & Mondani, 2020a). Presumably, the regional context also influences individuals' prospects for finding an employment that matches their educational level. Occupational match is most likely to occur in regional labour markets where the demand for highly qualified workers is greater. Moreover, there are regional and local variations in the access to integration initiatives assisting newly arrived migrants to find a job that matches their qualifications (de Lange, Berntsen, Hanoeman, & Haidar, 2020; van Riemsdijk & Axelsson, 2019).

In light of the above considerations, this paper aims to describe and explain the patterns of occupational (mis)match among refugees and family migrants

[1] This proportion corresponds to migrants and family migrants who had a post-secondary degree of at least two years. It was calculated by the authors based on the register data from Statics Sweden used in the study (see section on Data and methods).

in Sweden, with a particular emphasis on their geographical dimension. It seeks to answer the following research questions:

- To what extent do highly educated refugees and family migrants match their educational qualifications in the Swedish labour market?
- What factors influence occupational match among highly educated refugees and family migrants?
- Are there regional differences in the patterns and timing of occupational match?

Highly educated migrants in this study are individuals who possessed a post-secondary degree of at least three years when they obtained residency in Sweden.

This paper contributes to the literature in four important ways. First, going beyond the general focus on migrants' labour market participation, it extends the relatively limited literature on the 'quality' of migrants' employment, through its focus on occupational (mis)match. Second, it explores the role of the geographical context on the propensity of highly educated migrants to realize occupational match, which is an aspect that tends to be missing in the literature. Third, most research on occupational match consider migrants as a whole, irrespective of their entry route. This paper instead focuses on highly educated refugees and family migrants, who constitute an important share of highly educated migrants in Sweden and who occupy a more vulnerable position in the labour market, compared to individuals who were granted residency for employment reasons (Delmi, 2021a; Irastorza & Bevelander, 2017a). Fourth, to the best of our knowledge, this is the only Swedish study examining the association between occupational matching and validation/assessment of foreign degrees for migrants who immigrated after the turn of the 21st century.

2. Refugees and family migrants in the Swedish labour market

Sweden has long been a main destination for asylum seekers and their families. Beginning in the 1970s, people from the Middle East, Latin America and the Horn of Africa sought refuge in Sweden. The Balkan wars in the 1990s and the war in Iraq in 2003, and the ongoing conflict in Syria resulted in new waves of refugees to Sweden. Since the turn of the 21st century, about a million refugees and family migrants were granted residency in Sweden (Delmi, 2021b). As pointed out above, a substantial share of these individuals had obtained a higher education degree from their home country, while many pursue their education in Sweden.

The employment rate is significantly lower for refugees when compared with other migrant groups as well as the Swedish-born population (Delmi, 2021a). For humanitarian migrants who arrived in Sweden between 1998 and 2012, more than ten years after their arrival, the employment rate was 65 per cent for female refugees and 70 per cent for male refugees (Irastorza & Bevelander, 2017b). Highly educated refugees tend to have a higher employment rate than low educated ones. Yet, their employment propensity is lower than that of the native-born population, even after they have resided in the country for a decade (Ibid.).

Since the 1970s, Sweden has actively sought to increase the employment rate for all residents and, particularly, for disadvantaged groups including migrants (Valenta & Bunar, 2010). Swedish integration policy was reformed in 2010 (SFS, 2010:197). There are both differences and similarities between the introduction programmes that were offered newly arrived refugees and their families before and after 2010. For example, the overall aim to facilitate the labour market integration of refugees has remained the same and both programmes include language training, civic orientation and labour market activities (e.g. Qi, Irastorza, Emilsson, & Bevelander, 2021). However, in 2010, the administrative responsibility for the establishment programmes was transferred from local municipalities to the national level and the Swedish Public Employment Service in order to standardise services across the country (Borevi, 2012). Yet, local municipalities remain responsible for Swedish language training and civic orientation and have continued to develop local labour market activities (Qvist & Tovatt, 2014). Research suggests that partici-

pants in the 2010 establishment programme have a higher probability of employment and higher earnings than participants in the pre-2010 programme (Andersson Joona, Wennemo Lanninger, & Sundström, 2017; Qi et al., 2021). A recent study also shows that highly educated refugees participate in labour market activities and further education both earlier and to a higher extent than lower educated refugees (Andersson Joona, 2020).

Practices for the recognition of prior learning have been part of Swedish integration policy since the early 2000s. Foreign academic qualifications of at least two years are compared to Swedish higher education degrees before statements are issued to show that the degree is recognised in Sweden. Prior qualifications of migrants in so-called regulated professions, that is, occupations such teachers and medical doctors who require a certificate to practice, are validated by different government authorities. For example, the National Board of Health and Welfare is responsible for the validation of the credentials of health care professionals. In addition, there are various systems to test and improve Swedish language skills and provide further education if needed (Joyce, 2015).

3. Determinants of occupational (mis)match

Several theoretical explanations have been put forward to explain the occurrence of occupational mismatch. A first reason behind occupational mismatch is that workers may differ in certain characteristics that are difficult to measure, such as efficiency, dedication and ambition (Chiswick & Miller, 2010). Very dedicated and capable individuals may come to occupy highly qualified professional positions despite lacking an equivalent academic degree. While this argument concerns workers in general, it is particularly relevant for economic migrants in economically advanced countries. This is because, when compared to their fellow countrymen who stayed in the origin country, economic migrants are considered to be positively selected on unobservable characteristics such as ability and efficiency (Borjas, 1994; Chiswick, 1999). One could therefore expect that they would be more likely to be *under-educated*. Yet, the positive selection of migrants is more forceful among low-skilled migrants. Moreover, refugees and family migrants, who are the focus of this paper, are assumed to be less self-selected, which in turn makes them less likely to be under-educated (Chiswick, 1999; Qi et al., 2021).

A contrasting hypothesis, which is also supported by empirical research in Sweden (Andersson Joona et al., 2014; Berggren & Omarsson, 2002; Dahlstedt, 2011; Irastorza & Bevelander, 2017a) and elsewhere (e.g. B. Chiswick & Miller, 2010; OECD, 2018b; Visintin et al., 2015), is that migrants should have a greater propensity of *over-education* compared to the native born-population. The main reason put forward is the limited international transferability of human capital. Migrants can indeed experience difficulties to make use of their skills and knowledge due to a lack of information about the functioning of the host country's labour market as well as the culture and norms in their profession (Willott & Stevenson, 2013). Over-education may also be due to poor knowledge of the national language (Imai, Stacey, & Warman, 2019) or a lack of experience of type of technology commonly employed. Additionally, there may be institutional barriers in the form of requirements for occupational licenses to pursue certain professions (Andersson Joona et al., 2014; Chiswick & Miller, 2010; Khan-Gökkaya & Mösko, 2020). The validation or assessment of foreign degrees and the pursuing of higher education in the host country are therefore expected to reduce the probability of occupational mismatch. A reasonable assumption is that the incidence of over-education among migrants will decrease with their duration of residence in the host country. As time goes by, migrants become more acquainted with

the labour market and gain fluency in the national language. Over time, migrants can also make "investments" to increase their human capital by validating their foreign credentials or pursuing additional education in the host country (Chiswick & Miller, 2010). In the Swedish context, there is research pointing at the importance both of the duration of residence in the country (Andersson Joona et al., 2014; Dahlstedt, 2011) and of the assessment of foreign degrees (Berggren & Omarsson, 2002).

In addition, there is substantial empirical evidence of discriminatory practices against ethnic minorities in the labour market in Sweden (Arai, Bursell, & Nekby, 2016; Bursell, 2014; Carlsson & Rooth, 2007) and beyond (e.g. Shinnaoui & Narchal, 2010). Over-education among migrants could therefore also be a result of labour market discrimination. In that respect, a survey study across 30 European countries showed that people who experienced workplace discrimination based on ethnic background and ethnicity were more likely to report having skills above the requirements for their occupation (Rafferty, 2020). The lower propensity of occupational match is also probably related to the limited international transferability of social capital. Newly arrived migrants tend to lack instrumental contacts that could facilitate getting a job equivalent to their educational level (Webb, 2015). Compared to refugees, however, family migrants tend to have greater access to social networks in the host country, which they can mobilize to enhance their job-seeking process (Bevelander, 2011). Institutional factors, such as access to integration support programmes, are also considered to influence migrants' employment outcomes. There is some evidence of positive effects of integration initiatives on migrants' labour market outcomes (e.g. Auer, 2018; Neureiter, 2019). As previously mentioned, the 2010 reform of the Swedish establishment programme appears to have had a positive effect on migrants' employment (Andersson Joona, 2020; Andersson Joona et al., 2017; Qi et al., 2021), but it remains to be seen if it had a similar effect on occupational match.

Finally, the incidence of occupational mismatch is likely to vary geographically. Occupational mismatch can in fact stem from a geographical mismatch between the location of jobs and the location of workers with the required qualifications (Andersson Joona, 2020). Although the role of the geographical context is increasingly highlighted in the literature on migrant integration (e.g. Gilmartin & Dagg, 2020), geographical aspects receive little attention in occupational (mis)match research. There are some studies comparing patterns of occupational mismatch across countries (e.g. Ghignoni & Verashchagina, 2014; OECD, 2018a; Visintin et al., 2015), but inter-regional differences within countries are largely overlooked.

A reasonable assumption is that rates of occupational match should be greater in regional labour markets were the demand for a highly qualified workforce is high. Rates of occupational match among international migrants should therefore be greater in so-called 'Global Cities', i.e. internationally connected postindustrial cities that attract both high and low skilled migrant

workers to fill in jobs in the service sector (Sassen, 1991). It is already well-known that migrants' employment rates are greater in such economically strong and service-oriented regions; and poorer in regions that have been less successful in coping with deindustrialization (Glick Schiller & Çağlar, 2009; Vogiazides & Mondani, 2020a). Moreover, it is probable that the probability of being over-educated should be greater for migrants who reside in less densely populated regions, where the average skill levels of the working population are comparatively lower than in large urban centers. A further reason to expect spatial variation in the patterns of occupational (mis)match stems from the fact that support initiatives directed towards highly skilled migrants are not equally available everywhere within a country (de Lange et al., 2020). Access to such initiatives, at migrants' place of residence, could be crucial for their prospects of achieving occupational match.

A long research tradition has pointed at internal migration as a means for international migrants to improve their labour market prospects in their host country. Swedish research has shown that refugees are more likely to move internally if they lack an employment, and that they increase their earnings through inter-regional mobility (Haberfeld, Birgier, Lundh, & Elldér, 2019; Rashid, 2009; Vogiazides & Mondani, 2020b). Based on these findings, one could assume that internal migration could also be motivated by a preference for a regional labour market where there is a greater demand for their skills.

Based on the above theoretical explanations, we formulated the following five hypotheses:

- Highly educated refugees and family migrants who update their human capital with Swedish education or get their foreign degree validated by the Swedish authorities are more likely to have an occupation that matches their qualifications (**Hypothesis 1**).
- Highly educated family migrants are more likely, compared to highly educated refugees, to have an occupation that matches their qualifications (**Hypothesis 2**).
- Highly educated refugees and family migrants who received residency in Sweden after the 2010 reform of the Swedish integration policy are more likely to have an occupation that matches their qualifications (**Hypothesis 3**).
- Highly educated refugees and family migrants residing in Stockholm are more likely to have an occupation that matches their qualifications (**Hypothesis 4**).
- Highly educated refugees and family migrants who undergo at least one inter-regional move are more likely to have an occupation that matches their qualifications (**Hypothesis 5**).

4. Data and methods

This paper analyses the propensity of occupational (mis)match among highly educated refugees and family migrants who gained residency in Sweden between 2001 and 2014. It employs individual-level longitudinal register data from the Stativ database, which is compiled by Statistics Sweden. The individuals in the study come from Africa, the Middle East and Asia, which are the main regions of origin of refugees and family migrants in Sweden. They were between 20 and 54 years of age and had a post-secondary education of at least three years at the time of immigration. Individuals' educational attainment is based on the Swedish Standard Classification of Education (SUN 2000). It is measured in their second year in Sweden. This is because population registers tend to have a large amount of missing data regarding migrants' educational level at their first year in the country, due to a delay in the registration of individuals' educational information. Two years after immigration, the coverage of educational characteristics is reasonably good (Khaef, 2020). The study population consists of 41,993 individuals, who are followed from the year they were granted residency until 2018. They constitute about 17% of the refugee and family migrants with the same range of ages at immigration and the same regions of origin.

		Cohort 01-04	Cohort 05-09	Cohort 10-14
Year of immigration		21,7	34,9	43,4
Reason for immigration	Family	69,0	61,1	58,2
	Humanitarian	31,0	38,9	41,8
	Total	100	100	100
Gender	Men	56,4	45,9	44,6
	Women	43,6	54,1	55,4
	Total	100	100	100
Age at immigration	20-24	9,7	9,5	9,5
	25-29	28,4	27,8	29,7
	30-39	42,0	40,4	39,8
	40-54	19,9	22,4	20,9
	Total	100	100	100
Region of birth	North Africa	6,1	6,0	6,7
	South East Asia	16,7	13,5	12,5
	South and Central Asia	23,6	16,8	24,8
	South, Central and West Africa	4,7	4,1	4,9
	Western Asia	42,5	52,8	42,6
	East Africa	6,4	6,8	8,6
	Total	100	100	100
Educational orientation	Pedagogy and teacher training	11,1	10,1	8,9
	Healthcare and social care	13,2	11,2	12,8
	Technique, data and natural sciences	25,2	26,0	24,3
	Social, humanities and other	50,5	52,7	54,0
	Total	100	100	100
Type of region of residence, measured at year of immigration	Stockholm	37,5	34,8	32,8
	Gothenburg	11,6	10,1	11,1
	Malmö	13,3	12,8	11,8
	Medium-sized city region	26,3	29,4	28,5
	Other	11,4	12,9	15,8
	Total	100	100	100

Table 1. Characteristics of the study population (in valid percentages).

Descriptive analysis and logistic regression modelling are applied to analyze the occurrence of occupational (mis)match. Various methods have been used in the literature to define over-education. Some studies compare workers' educational attainment to the typical level of formal education within their occupation. Others rely on individuals' self-assessment (see Andersson Joona et al., 2014 for an overview). In this study, we use the "Swedish Standard Classification of Occupation" (in Swedish: *Standard för svensk yrkesklassificering* (SSYK)) which was carried out by professional job analysts at Statistics Sweden and categorizes occupations according to the type of jobs tasks and the skill level required to accomplish them. Two versions of the classification are used in the study: first, the SSYK-1996 classification which covers the period 2001-2013 and was based on the International Labor Organization's International Standard Classification of Occupations (ISCO)-1988; second, the SSYK-2012 classification which was introduced in 2014 and based on the ISCO-2008. In this study, occupations with a high level of qualification correspond to the categories 3 and 4 in the SSYK "occupational area" classification (i.e. the largest aggregation level in that classification). They include leadership work and work requiring post-secondary education of at least three years. The main variable of interest in this study—occupational match—is defined by having an occupation that requires qualifications at the level of one's education. Highly educated refugee and family migrants are thus occupationally matched if they have an occupation with a high qualification level.

The change in the Swedish classification of the occupational level from 2014 onwards constitutes a data limitation for this study. Compared to the SSYK-96, a number of occupations in the SSYK-12 changed qualification level, which implies that the two standards are not entirely comparable. For example, the SSYK-2012 classification includes a new category for leadership work, which implies that some individuals who had non-highly qualified occupation in 2013 may be classified as having a highly qualified one in 2014, without having changed job. However, only 2.5% of the individuals in the study were employed in occupations that have been reclassified as highly qualified in the SSYK-2012 classification in 2014. Therefore, we consider that this limitation can influence the results only to a small extent. A further limitation related to the transition from the SSYK-96 to SSYK-12 is a temporary decrease in quality of the data on occupations' level of qualification. There is indeed a rise of individuals with missing information for the years 2014 and 2015. For instance, among individuals in the study who immigrated in the period 2001-2004, the proportion of employed individuals lacking information about the qualification level of their occupation shifted from 5% to 25% between the years 2013 and 2014. The quality of the data quality was recovered in 2016, but a certain degree of missing information regarding individuals'

occupation exists for all years in the study period. Individuals working in companies with a single employee or who are self-employed are particularly affected (Sweden, 2019).

To assess the occurrence of occupational (mis)match, we run a number of logistic models, for migrants' third, fifth and eighth year of residence in Sweden. Inspired by the theoretical considerations described in Section 3, our logistic regression models included a number of independent variables that are considered to influence migrants' occupational (mis)match. A first important variable is the *source of education*, consisting of three alternatives: 1. Swedish education, 2. foreign education that was validated or assessed by Swedish authorities (this process is described in Section 2), and 3. other foreign education. The variable is obtained through the source code for the educational records, which indicates the authority or a survey provided the information in the Swedish register of education. Information on foreign education that was not validated or assessed by Swedish authorities comes from a yearly survey conducted by Statistics Sweden among newly arrived immigrants who lack information about their educational attainment in the register. A Swedish education source can imply a degree from a Swedish higher education institution or the accumulation of educational credits in such an institution without the delivery of a degree. One limitation of this variable is that individuals with foreign doctoral degrees who also have also pursued their education in Sweden are recorded as having a foreign education. Moreover, some forms of education, such as online courses, are not included in Swedish registers. The variable *educational orientation* differentiates between four categories: 1. pedagogical; 2. healthcare, 3. technique, nature and data, 4. social, humanities and other. As shown in Table 1, the majority of migrants in the study belong to the latter category, while technique, nature and data is the second most frequent orientation.

To account for the period of immigration, we distinguished between three *arrival cohorts*: 2001-2005 (N=9118); 2006-2009 (N=14 666) and 2010-2014 (N=18 209). Furthermore, we control for the *reason for immigration* (refugees or family migrant), *gender*, *age at immigration* and *region of birth*. The most common region of birth of migrants in the study is Western Asia (including Turkey and Iraq), followed by South and Central Asia (including Iran, India and Afghanistan) (Table 1). Our study also explores how the regional context is associated with occupational match. Regions correspond to local Labour Market Areas (LMAs), which are annually redefined by Statistics Sweden based on commuting patterns.[2] We use the LMA definition of 2010, as this lies in the middle of our study period. Five categories of regions are distinguished: Stockholm, Gothenburg, Malmö (i.e. Sweden's three metropolitan regions), regions including a medium-sized city and other regions (i.e. regions

[2] Local Labour Market Areas (LMAs) should not be confused with Sweden's 21 administrative regions ('Regioner', formerly called 'Landsting'), which correspond to County Councils.

including a small city or rural regions). 17 regions are classified as medium-sized city regions, based on the 2017 classification of municipalities by the Swedish Association of Local Authorities and Regions (SALAR). Finally, the regression models control for *inter-regional mobility*, that is whether the person has moved across an LMA border.

Despite the richness of the data, there are a number of factors that influence the occupational (mis)match of highly educated migrants which we were not able to observe in our register-based analysis. These include personality traits such as ambition and efficiency, but also the level of proficiency in the Swedish language, the access to beneficial social networks and the existence of discriminatory practices in the labour market (Chiswick & Miller, 2010).

5. Results

5.1 Frequency and timing of occupational match

In a first step, this study explores the patterns of occupational (mis)match among refugees and family migrants who migrated to Sweden since the turn of the 21st century. Figure 1 depicts the proportion of highly educated refugees and family migrants with an employment in line with their educational level by duration of residence. After five years in the country, about 10% of the individuals from the 2001-05 cohort were matched. After nine years, the proportion was 14%. This implies that the vast majority of highly educated refugees and family migrants either had a job below their qualifications or lacked an employment. Interestingly, the most recently arrived cohort shows a higher rate of occupational match. They also have a tendency to be matched earlier. The proportion of occupational match of the 2010-14 cohort reached 10% after only three years in the country, while it took five years for the 2001-04 cohort to reach the same proportion. After seven years in Sweden, almost a fifth of the 2010-14 cohort had achieved occupational match. This was the case of 13% of the 2005-09 cohort.

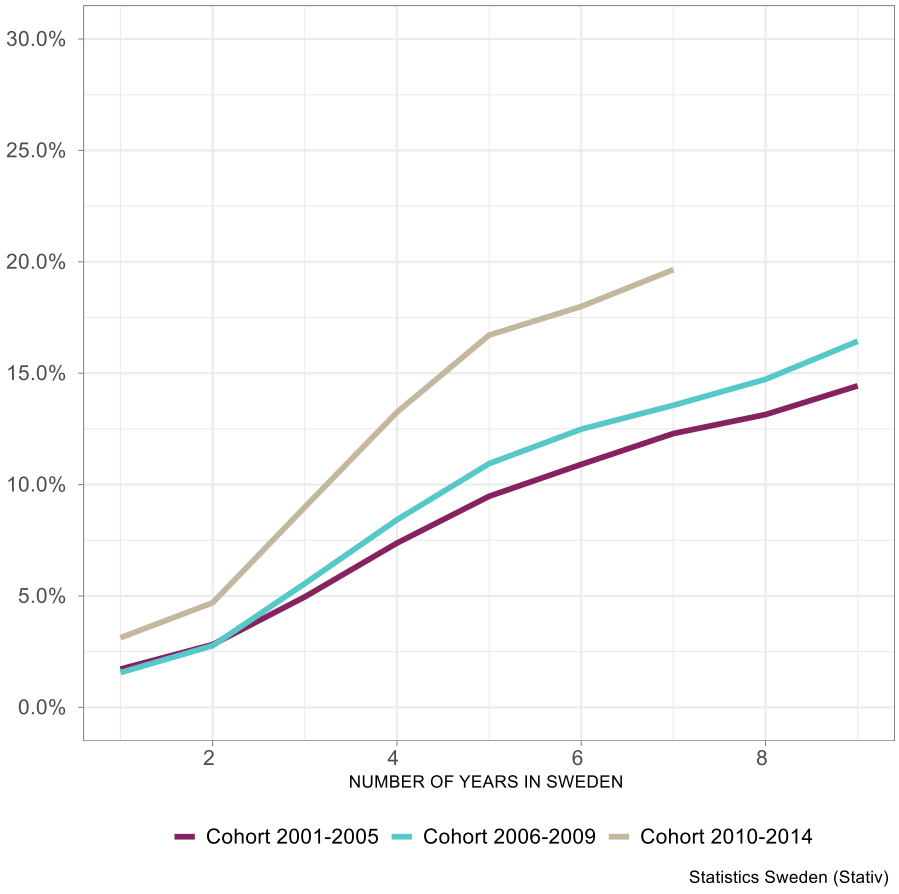

Figure 1. Proportion of highly educated refugee and family migrants, by years of residence in Sweden.

5.2 Socioeconomic and demographic determinants of occupational match

After having examined the incidence of occupational match descriptively, we assess its determinants by running logistic regression models. We estimate cross-sectional models at three different points in time: on migrants' third, fifth and eighth year of residence in Sweden (Table 2). The results are expressed in odds ratios (OR). An OR greater than 1 implies that the likelihood of being occupationally matched is higher than for the reference category, while an OR lower than 1 implies a lower likelihood.

	Year 3	Year 5	Year 8
Arrival cohort			
2001-2004 (ref.)	1	1	1
2005-2009	1.09*	1.06	0.92
2010-2014	1.52***	1.57***	1,50***
Reason for immigration			
Family (ref.)	1	1	1
Humanitarian	1.13**	1.09*	0.96
Gender			
Woman (ref.)	1	1	1
Man	1.47***	1.27***	1.07
Age at immigration			
20-24 years	0.60***	0.82*	0.92
25-29 years	1.25***	1.31***	1.52***
30-39 years	1.26***	1.31***	1.45***
40-54 years (ref.)	1	1	1
Region of birth			
Western Asia (ref.)	1	1	1
North Africa	0.75**	0.64***	0.83
South-east Asia	1.01	0.65***	0.56***
South and Central Asia	1.68***	1.33***	1.51***
South, Central and West Africa	1.03	0.74**	0.95
East Africa	1.10	0.83**	1.03
Source of education			
Foreign/unknown education (ref.)	1	1	1
Validated/assessed foreign education	2.64***	2.92***	3.34***
Swedish education	Few observations	9.80***	9.09***
Educational orientation			
Social sciences, humanities, unknown (ref.)	1	1	1

Healthcare and social care	3.65***	5.89***	8.66***
Pedagogy and teacher training	1.24*	1.24**	1.29**
Technique, data and natural sciences	1.49***	1.56***	1.70***
Type of labour market region			
Stockholm (ref.)	1	1	1
Gothenburg	0.81**	0.87*	1.01
Malmö	0.63***	0.77***	0.86*
Medium-sized city region	0.88*	1.05	1.07
Small city/rural region	0.99	1.05	1.08
Inter-regional mobility			
Stayer (ref.)	1	1	1
Mover	1.45***	1.35***	1.36***

*** p<0.001 ** p<0.01 ***p<0.05

Table 2. Logistic regression models on occupational match among refugee and family migrants, on the third, fifth and eight year in Sweden (results expressed in odds ratios).

As mentioned above, a central explanation for occupational mismatch among international migrants relates to the imperfect transferability of human capital between countries. The acquisition of human capital in the country of destination should therefore increase migrants' likelihood to obtain an employment that matches their qualifications. Similarly, migrants who got their foreign diploma validated or assessed by authorities in their new country should be more likely to achieve occupational match. Figure 2 shows that the vast majority of refugee and family migrants have a foreign education. The share of migrants in this study who get their foreign education validated/assessed by Swedish authorities increases during the first two years in the country and then it remains stable at around 15% (for the 2001-04 cohort) or 19% (for the more recent cohorts). The proportion of migrants who obtain Swedish diploma is very low (around 2%), yet it is higher for the most recent cohort (around 4%).

Figure 2. Proportion of highly educated refugees and family migrants, by source of education.

Supporting our first hypothesis, our empirical analyses showed that highly educated refugees and family migrants who updated their human capital with Swedish education or get their foreign degree validated by the Swedish authorities were more likely to have an occupation that matches their qualifications (Hypothesis 1). The results of the regression models indicate that, after five years in Sweden, the migrants who pursued their education in Sweden were nearly ten times more likely to have achieved occupational match than those who only had a foreign degree. After eight years in Sweden, the odds of being matched were 9 times higher for migrants with Swedish education. The validation or assessment of foreign credentials also has a positive, albeit more moderate, effect on the chances of obtaining a highly qualified job. After eight years in Sweden, the likelihood of occupational match was three times greater

for migrants who got their diplomas validated or assessed, compared to those who belonged to the category "other foreign education".

The results of the "source of education" variable suggest that it is easier for employers to evaluate the competences of highly educated migrants when their foreign credentials are validated/assessed or when they hold credentials from a Swedish higher education institution. However, a recent survey among newly arrived migrants found that employers tend to value work experience more than formal education. It also pointed at the absence of useful social contacts as a central hinder for migrants' labour market participation (Region Skåne, 2018). In that respect, our analyses also showed that family migrants who have social contacts in Sweden prior to immigration were slightly more prone to become occupationally matched, compared to refugees, after three and five years in Sweden. This finding gives support to hypothesis 2. Yet, we did not find any statically significant differences between the two categories of migrants after eight years in Sweden.

The results for the variable educational orientation show that medical and healthcare professionals are by far the most likely to obtain a highly qualified job. There is also a clear temporal pattern for medical and healthcare professionals as their odds of being matched increase with their duration of residence in Sweden. After three years in the country, the odds of being occupationally matched were 3 times greater than for migrants with a degree in social sciences, humanities or an unknown orientation. After eight years, they were eight times greater. Migrants who studied pedagogy and teaching and those in the field of technique, data and natural sciences occupy an intermediate position. After eight years of residence, they have respectively 30% and 70% higher odds of being matched than migrants with a degree in social sciences, humanities or an unknown orientation.

Regarding the period of immigration, we found that, relative to the earliest cohort (2001-05), the most recent cohort (2010-14) had 50% greater odds of getting a highly qualified job. This pattern holds true for a shorter and a longer duration in Sweden, which is in line with hypothesis 3. Yet, the models did not indicate any significant difference in the likelihood of occupational match between the oldest cohort and the intermediate one (2006-2009) after five or eight years in the country. The more advantageous outcomes of the recent cohort could be related to the 2010 reform of the Swedish Establishment programme, as several evaluations of the reform have concluded that it enhanced migrants' labour market participation (Andersson Joona, 2020; Qi et al., 2021). Another hypothesis is that the greater tendency of occupational match among the recent cohort is related to more advantageous economic conjuncture in the 2010s, while the follow-up period for the earlier cohorts coincides with the financial crisis in 2008. Finally, it could also be associated to a greater shortage of highly skilled workers in various sectors. According to Statistics Sweden's labour force barometer, employers reported higher levels of short-

age of highly qualified workers in the period 2014-2018 compared to the period 2005-2008 (Statistics Sweden, 2021). In 2019, the greatest shortages concerned nurses, teachers and programmers. In this context, employers may have given less importance to Swedish education and work experience from Sweden (Arbetsförmedlingen, 2019).

Turning to the demographic variables, we find that men are more likely than women to achieve occupational match during their initial period in Sweden. After three years in Sweden, men have nearly 47% higher odds of having a highly qualified job. After five years, men's odds are 27% higher. However, men's advantage disappears with time as we did not find any statistically significant difference between genders after eight years spent in the country. These results probably reflect the fact women often immigrate at an age of family formation, which can postpone their entry into the labour market (Ruist, 2018). Moreover, women generally tend to take more responsibility in childcare and household work, which can be a hinder for their labour market participation (Elo, Aman, & Täube, 2020; Segendorf & Teljosuo, 2011).

Regarding age at immigration, our results show that migrants who belong to the two intermediate age categories (25-29 and 30-39) are the most likely to be occupationally matched, irrespective of their duration of residence in Sweden. Surprisingly, individuals in the youngest age category (20-24) have the lowest probability of occupational match after three and after five years in the country. This trend goes against the fact that individuals who migrated at a younger age tend to have better labour market prospects than who were older at immigration (Gustafsson, Katz, & Österberg, 2017). A probable explanation is that migrants that arrive at a younger age may be inclined to restart an entire education programme in Sweden, which delays their labour market entry.

Our analyses also revealed differences in the propensity of occupational match between migrants from different world regions. After eight years in Sweden, migrants from South and Central Asia (incl. Iran, India and Afghanistan) have 50% higher odds of being occupationally matched compared to migrants from Western Asia (incl. Iraq and Turkey), whereas odds for migrants from South-east Asia (incl. Thailand) are 50% lower. Possible explanations for trends include cultural differences on women's professional career and differential exposure to discrimination. Unfortunately, the data available for the study did not allow for more detailed analyses at the country-level.

5.3 Geographies of occupational match

After having examined how occupational match is influenced by educational and demographic characteristics, we turn to the geographical variables of type of region and inter-regional mobility. It is worth keeping in mind that the five types of region distinguished in this paper vary not only in terms of population density, but also regarding the structure of their labour market. Stockholm is Sweden's administrative capital; it has a strong service sector and global connections. In Malmö, deindustrialization has been accompanied by high levels of unemployment and growing social polarization (Holgersen & Baeten, 2017; Vogiazides & Mondani, 2020a). The five types of region also vary in terms of the structure of their labour market. As shown in Table 3, the most densely populated regions have a higher proportion of highly educated workers. While 42% of the working population in Stockholm are employed in highly qualified occupations, this corresponding number is only 25% in small city/rural regions.

	% employed in highly qualified occupations
Stockholm	42
Gothenburg	38
Malmö	34
Medium-sized city regions	32
Small city and rural regions	25

Table 3. Proportion of working population aged 20-64 employed in highly qualified occupations (including both native- and foreign-born individuals), by type of region.

As shown in Table 1, around a third of migrants in the study resided in Stockholm during their first year in Sweden. Middle-sized city regions are the second most common type of region of residence, hosting between 26% and 29% of migrants, depending on the arrival cohort.

In this study, we anticipated that highly educated migrants would be more likely to find a highly qualified job in Stockholm, the region with the highest proportion of people employed in highly qualified occupations (Hypothesis 4). This is because we expected the demand for highly qualified workforce to be greater in this region. Yet the results only partially support this hypothesis. After three years in Sweden, migrants residing in Stockholm are indeed more likely to more likely to be occupationally matched compared to those who reside in other types of regions. Migrants in Malmö, for instance, have 40% lower odds of being matched. However, the results for migrants residing in small city/rural regions are not statistically significant. In the models for five

and eight years in Sweden, the results for additional types of region lose statistical significance. After five years in Sweden, statistically significant differences in the likelihood of occupational match can only be found between the three metropolitan regions, with Stockholm being the most advantageous region and Malmö the least advantageous. After eight years of residence, only migrants in Malmö are significantly less likely to be matched relative to migrants in Stockholm.[3]

One possible explanation for the moderate importance of the regional context for occupational match, especially after longer durations of residence in the country, is that highly qualified migrants tend to be employed in occupations that are in demand across the whole country. Jobs in the healthcare and education sectors, in particular, tend to be geographically spread. To further investigate this, we run four separate models by educational orientation (Appendix 1). Just as for the pooled model, the results for the type of region where mostly statistically insignificant after eight years. For migrants with an education within healthcare, we found no significant association between the type of region and the likelihood of occupational match. In the case of migrants with degrees in education and technique, data and natural sciences, only residents in Malmö have significantly lower odds of being matched relative to residents in Stockholm. In contrast, Gothenburg and medium-sized city regions are the most advantageous types of regions for migrants with an education in social sciences, humanities or other.

Although our results suggest a moderate significance of the regional context for migrants' likelihood of achieving occupational match, previous research in Sweden has shown that it matters for refugees labour market participation (Bevelander, 2011; Bevelander et al., 2019; Ruist, 2018; Vogiazides & Mondani, 2020a). In order to examine whether this is also true for the highly qualified refugees and family migrants in this study, we estimated three additional models for the likelihood of being employed (irrespective of the qualification level of the occupation) (Appendix 2). In line with the study by Vogiazides & Mondani, 2020a, we found that the Stockholm region is the most advantageous region for finding an employment, followed by small city/rural regions, whereas employment prospects are the poorest in Malmö.

Finally, consistent with our expectations, our analyses showed that migrants who have undergone at least one inter-regional move are more likely to be occupationally matched (Hypothesis 5). After three years in Sweden, movers have 45% higher odds of having a highly qualified job compared to those who stayed in the region where they initially settled. After eight years, movers

[3] It is important noting that statistically significant association between the Type of region and occupational match signifies a correlation, not a causal relationship. Selection mechanisms may be at play. For instance, the advantage associated with residing in Stockholm may be due to the fact that the region attracts the most motivated individuals.

have 36% higher odds of being matched. It is plausible that international migrants choose to relocate to a regional labour market that offers greater possibilities to be employed in an occupation that matches their qualifications.

6. Concluding discussion

This paper examined the patterns and determinants of occupational (mis)match among refugee and family migrants in Sweden. Based on longitudinal individual-level register data, migrants who obtained residency between 2001 and 2014 were followed over an eight-year period.

The paper paid particular attention to the geographical aspects which are under-researched in occupational (mis)match literature. Our analyses revealed an association between the type of regional context and the occupational (mis)match, but indicated that it loses significance the longer migrants stay in Sweden. After three years in the country, migrants residing in the capital region of Stockholm are the most likely to find a job in line with their qualifications, followed by migrants in Gothenburg and migrants in small city/rural regions. After eight years in Sweden, however, the only statistically significant difference is between migrants in Stockholm, relative to migrants in the less prosperous region of Malmö. Interestingly, the characteristics of the region of residence have a greater significance for migrants' likelihood to find any type of employment (irrespective of the occupational skill level). These results suggest that, while the regional economic conjuncture matters for labour market participation, it is less important for achieving occupational match. One plausible explanation is that highly educated migrants who find a job at the level of their qualifications tend to be employed in sectors that have a countrywide presence, particularly in the healthcare and education sectors. It might also be the case that the geographical context matters less when migrants' length of stay in the country increases because other factors, such as knowledge of cultural norms and the Swedish language, gain in importance. The study findings have implications for the settlement policy of refugees and family migrants. The lack of pronounced geographical variation in occupational match, especially after a longer stay in Sweden, suggests that settlement outside the prosperous Stockholm region is not a major impediment for achieving occupational match.

Another important result of the study is that validation/assessment of foreign education and education obtained in Sweden are positively associated with occupational match. This finding was already established in the case of migrants who arrived in the 1990s (Berggren & Omarsson, 2002). From a policy perspective, it implies that more efforts should be made to attract highly educated migrants to enroll complementary courses or programmes in the Swedish higher education system. Special focus should also go to facilitating

migrants' pathways towards highly qualified jobs in unregulated sectors, such as in business, economy and engineering. Such policy efforts to address over-education among migrants are not only beneficial for the migrants themselves but for the broader society as qualified workforce shortages are affecting many crucial sectors of the economy.

Overall, this paper shows that the proportion of highly educated refugees and family migrants who obtain a job commensurate to their qualifications is relatively low. After seven years in the county, only 15% of those who arrived in the period 2001-2014 was occupationally matched. The over-education patterns in our study echo similar trends in other countries, regarding migrants in general (Banerjee, Verma, & Zhang, 2019; Imai et al., 2019 (Canada); Chiswick & Miller, 2010 (US); Johnston, Khattab, & Manley, 2015 (UK)) and refugees in particular (Jamil et al., 2012 (US); Khan-Gökkaya & Mösko, 2020 (Germany)). The findings of this paper suggest the presence of hinders to migrants' possibility to transfer their human capital to their new country. These hinders likely consist of a combination of labour market discrimination, language barriers and lack of instrumental social contacts. A further possible explanation of the relatively low incidence of occupational match is that refugee and family migrants may choose to invest in the education and future professional career of their children rather than their own career (Frykman, 2012). Prioritizing other considerations over efforts to obtain a highly qualified employment may be increasingly frequent among recently arrived refugees in Sweden as a result of the 2016 introduction of a maintenance requirement for family reunification.

There are several avenues for further research. First, it would be interesting to analyze geographical aspects of occupation (mis)match of the native-born population, as well as other migrant groups (students and economic migrants). Second, it is important to continue to follow occupational matching for highly educated refugees and family migrants. The introduction of new immigration legislation in 2016, which according to which refugees must be in employment to obtain permanent residence, could potentially contribute towards reversing the positive trend in occupational match that we observed for the most recent cohort. Third, it is useful to map any regional, or even municipal-level, variation in the access to initiatives supporting highly educated refugee and family migrants for establishing in the Swedish labour market. Fourth, formal education may not be a perfect proxy for individuals' human capital, as individuals can improve their knowledge and skills in the workplace. Migrants' occupational (mis)match should also be studied based on other operationalizations, such as self-reported skills and abilities. Fifth, migrants' pathways towards occupational match should also be studied through qualitative methods, in order to highlight migrants' strategies, motivations and hinders.

References

Akbari, A. H., & Macdonald, M. (2014). Immigration policy in Australia, Canada, New Zealand, and the United States: An overview of recent trends. *International Migration Review*, *48*(3), 801–822. https://doi.org/10.1111/imre.12128

Andersson Joona, P. (2020). *Aktiviteter för flykting och anhöriginvandrare inom etableringsprogrammet*.

Andersson Joona, P., Gupta, N. D., & Wadensjö, E. (2014). Overeducation among immigrants in Sweden: incidence, wage effects and state dependence. *IZA Journal of Migration*, *3*(1), 1–23. https://doi.org/10.1186/2193-9039-3-9

Andersson Joona, P., Wennemo Lanninger, A., & Sundström, M. (2017). Etableringsreformens effekter på integrationen av nyanlända. *Arbetsmarknad & Arbetsliv*, *23*(1), 25–43.

Arai, M., Bursell, M., & Nekby, L. (2016). The Reverse Gender Gap in Ethnic Discrimination: Employer Stereotypes of Men and Women with Arabic Names,. *International Migration Review*, *50*(2), 385–412. https://doi.org/10.1111/imre.12170

Arbetsförmedlingen. (2019). *Var fins jobben? Bedömning för 2019 och på fem års sikt*. Stockholm.

Auer, D. (2018). Language roulette–the effect of random placement on refugees' labour market integration. *Journal of Ethnic and Migration Studies*, *44*(3), 341–362. https://doi.org/10.1080/1369183X.2017.1304208

Banerjee, R., Verma, A., & Zhang, T. (2019). Brain Gain or Brain Waste? Horizontal, Vertical, and Full Job-Education Mismatch and Wage Progression among Skilled Immigrant Men in Canada. *International Migration Review*, *53*(3), 646–670. https://doi.org/10.1177/0197918318774501

Berggren, K., & Omarsson, A. (2002). Rätt man på fel plats –arbetsmarknaden för utlandsfödda akademiker. *Arbetsmarknad & Arbetsliv*, *8*(1), 5–14.

Bevelander, P. (2011). The employment integration of resettled refugees, asylum claimants, and family reunion migrants in Sweden. *Refugee Survey Quarterly*, *30*(1), 22–43. https://doi.org/10.1093/rsq/hdq041

Bevelander, P., Mata, F., & Pendakur, R. (2019). Housing Policy and Employment Outcomes for Refugees. *International Migration*, 1–21. https://doi.org/10.1111/imig.12569

Borevi, K. (2012). The Flagship of Multiculturalism. In *Immigration Policy*

and the Scandinavian Welfare State 1945–2010. (Migration, pp. 25–96). London: Palgrave Macmillan.

Borjas, G. J. (1994). The Economics of Immigration. *Journal of Economic Literature*, *32*(4), 1667–1717.

Bursell, M. (2014). The multiple burdens of foreign-named men - Evidence from a field experiment on gendered ethnic hiring discrimination in Sweden. *European Sociological Review*, *30*(3), 399–409. https://doi.org/10.1093/esr/jcu047

Carlsson, M., & Rooth, D. O. (2007). Evidence of ethnic discrimination in the Swedish labor market using experimental data. *Labour Economics*, *14*, 716–729. https://doi.org/10.1016/j.labeco.2007.05.001

Chiswick, B. R. (1999). Are Immigrants Favorably Self-Selected ? *The American Economic Review*, *89*(2), 181–185.

Chiswick, B. R., & Miller, P. (2010). Educational Mismatch: Are High-Skilled Immigrants Really Working at High-Skilled Jobs and the Price They Pay if They Arent? In *The Stockholm University Linnaeus Center for Integration Studies (SULCIS) Educational*.

Dahlstedt, I. (2011). Occupational Match: Over- and Undereducation Among Immigrants in the Swedish Labor Market. *Journal of International Migration and Integration*, *12*(3), 349–367. https://doi.org/10.1007/s12134-010-0172-2

de Lange, T., Berntsen, L., Hanoeman, R., & Haidar, O. (2020). Highly Skilled Entrepreneurial Refugees: Legal and Practical Barriers and Enablers to Start Up in the Netherlands. *International Migration*. https://doi.org/10.1111/imig.12745

Delmi. (2021a). Arbetsmarknadsstatistik och statliga transfereringar efter invandringsskäl (1999-2017) [Labour market statistics and public transfers by immigration groud (1999-2017)]. Retrieved January 5, 2021, from https://www.delmi.se/migration-i-siffror#!/arbetsmarknadsstatistik-och-statliga-transfereringar-efter-invandringsskal-1997-2013

Delmi. (2021b). Beviljade uppehållstillstånd och migrationslagstiftning i Sverige (1980-2018) [Granted residence permits and migration legislation in Sweden (1980-2018)]. Retrieved January 5, 2021, from https://www.delmi.se/migration-i-siffror#!/beviljade-uppehallstillstand-i-sverige-1995-2014

Elo, M., Aman, R., & Täube, F. (2020). Female Migrants and Brain Waste – A Conceptual Challenge with Societal Implications. *International Migration*, 1–24. https://doi.org/10.1111/imig.12783

Frykman, M. P. (2012). Struggle for recognition: Bosnian refugees' employment experiences in Sweden. *Refugee Survey Quarterly*, *31*(1), 54–79. https://doi.org/10.1093/rsq/hdr017

Ghignoni, E., & Verashchagina, A. (2014). Educational qualifications mismatch in europe. is it demand or supply driven? *Journal of Comparative Economics*, *42*(3), 670–692.

https://doi.org/10.1016/j.jce.2013.06.006
Gilmartin, M., & Dagg, J. (2020). Spatializing immigrant integration outcomes. *Population, Space and Place*, (September), 1–14. https://doi.org/10.1002/psp.2390
Glick Schiller, N., & Çağlar, A. (2009). Towards a comparative theory of locality in migration studies: Migrant incorporation and city scale. *Journal of Ethnic and Migration Studies*, *35*(2), 177–202. https://doi.org/10.1080/13691830802586179
Gustafsson, B., Katz, K., & Österberg, T. (2017). Residential Segregation from Generation to Generation: Intergenerational Association in Socio-Spatial Context Among Visible Minorities and the Majority Population in Metropolitan Sweden. *Population, Space and Place*, *23*(4). https://doi.org/10.1002/psp.2028
Haberfeld, Y., Birgier, D. P., Lundh, C., & Elldér, E. (2019). Selectivity and Internal Migration : A Study of Refugees ' Dispersal Policy in Sweden. *Frontiers in Sociology*, *4*(66), 1–14. https://doi.org/10.3389/fsoc.2019.00066
Hedberg, C., & Tammaru, T. (2013). "Neighbourhood Effects" and "City Effects": The Entry of Newly Arrived Immigrants into the Labour Market. *Urban Studies*, *50*(6), 1165–1182. https://doi.org/10.1177/0042098012461674
Holgersen, S., & Baeten, G. (2017). Beyond a Liberal Critique of 'Trickle Down'': Urban Planning in the City of Malmö.' *International Journal of Urban and Regional Research*, *40*(6), 1170–1185. https://doi.org/10.1111/1468-2427.12446
Imai, S., Stacey, D., & Warman, C. (2019). From engineer to taxi driver? Language proficiency and the occupational skills of immigrants. *Canadian Journal of Economics*, *52*(3), 914–953. https://doi.org/10.1111/caje.12396
Irastorza, N., & Bevelander, P. (2017a). *The labour market participation of highly skilled migrants in Sweden: an overview*. Malmö.
Irastorza, N., & Bevelander, P. (2017b). The Labour Market Participation of Humanitarian Migrants in Sweden: An Overview. *Intereconomics*, *52*(5), 270–277. https://doi.org/10.1007/s10272-017-0689-0
Jamil, H., Aldhalimi, A., & Arnetz, B. B. (2012). Post-Displacement Employment and Health in Professional Iraqi Refugees vs. Professional Iraqi Immigrants. *Journal of Immigrant and Refugee Studies*, *10*(4), 395–406. https://doi.org/10.1080/15562948.2012.717826
Johnston, R., Khattab, N., & Manley, D. (2015). East versus West? Over-qualification and Earnings among the UK's European Migrants. *Journal of Ethnic and Migration Studies*, *41*(2), 196–218. https://doi.org/10.1080/1369183X.2014.935308
Joyce, P. (2015). *Integrationspolitik och arbetsmarknad-en översikt av integrationsåtgärder 1998-2014*.
Kelly, M., & Hedman, L. (2016). Between Opportunity and Constraint:

Understanding the Onward Migration of Highly Educated Iranian Refugees from Sweden. *Journal of International Migration and Integration*, *17*(3), 649–667. https://doi.org/10.1007/s12134-015-0422-4

Khaef, S. (2020). *Registration of immigrants' educational attainment in Sweden: An analysis of sources and time*. Stockholm.

Khan-Gökkaya, S., & Mösko, M. (2020). Labour Market Integration of Refugee Health Professionals in Germany: Challenges and Strategies. *International Migration*. https://doi.org/10.1111/imig.12752

Malmberg, B., Wimark, T., Turunen, J., & Axelsson, L. (2016). *Invandringens effekter på Sveriges ekonomiska utveckling*.

Mozetič, K. (2018). Being highly skilled and a refugee: Self-perceptions of non-european physicians in Sweden. *Refugee Survey Quarterly*, *37*(2), 231–251. https://doi.org/10.1093/rsq/hdy001

Neureiter, M. (2019). Evaluating the effects of immigrant integration policies in Western Europe using a difference-in-differences approach. *Journal of Ethnic and Migration Studies*, *45*(15), 2779–2800. https://doi.org/10.1080/1369183X.2018.1505485

OECD. (2017). *Finding their way: Labour market integration of refugees in Germany*.

OECD. (2018a). *Settling In 2018: Indicators of Immigrant Integration*. Paris.

OECD. (2018b). *The integration of migrants in OECD regions. A first assessment.*

OECD. (2019a). Foreign-born employment (indicator). https://doi.org/10.1787/ba5d2ce0-en

OECD. (2019b). Native-born unemployment (indicator). https://doi.org/10.1787/0f9d8842-en

Piętka-Nykaa, E. (2015). "I want to do anything which is decent and relates to my profession": Refugee doctors' and teachers' strategies of re-entering their professions in the UK. *Journal of Refugee Studies*, *28*(4), 523–543. https://doi.org/10.1093/jrs/fev008

Platts-Fowler, D., & Robinson, D. (2015). A Place for Integration: Refugee Experiences in Two English Cities. *Population, Space and Place*, *21*(5), 476–491. https://doi.org/10.1002/psp.1928

Qi, H., Irastorza, N., Emilsson, H., & Bevelander, P. (2021). Integration policy and refugees ' economic performance: Evidence from Sweden's 2010 reform of the introduction programme. *International Migration*, (November 2019), 1–17. https://doi.org/10.1111/imig.12813

Qvist, M., & Tovatt, C. (2014). *Från förväntningar till utfall – etableringsreformen på lokal nivå*. Nyköping.

Rafferty, A. (2020). Skill Underutilization and Under-Skilling in Europe: The Role of Workplace Discrimination. *Work, Employment and Society*, *34*(2), 317–335. https://doi.org/10.1177/0950017019865692

Rashid, S. (2009). Internal migration and income of immigrant families. *Journal of Immigrant and Refugee Studies*, *7*(2), 180–200.

https://doi.org/10.1080/15562940902935688
Region Skåne. (2018). *Kartläggning av hinder för etablering av nyanlända akademiker i Skåne*.
Ruist, J. (2018). *Tid för integration – en ESO-rapport om flyktingars bakgrund och arbetsmarknadsetablering. [Time for integration - an ESO-report on refugees' background and labour market participation]*.
Sassen, S. (1991). *Global City*. Princeton: Princeton University Press.
Segendorf, Å., & Teljosuo, T. (2011). *Sysselsättning för invandrare – en ESO-rapport om arbetsmarknadsintegration*. Stockholm.
SFS. *Lag (2010:197) om etableringsinsatser för vissa nyanlända invandrare.* , (2010).
Shinnaoui, D., & Narchal, R. (2010). Brain Gain to Brain Waste: Individual Biases, Prejudice, and Discounting of Migrant Skills. *Journal of International Migration and Integration*, *11*(4), 423–437. https://doi.org/10.1007/s12134-010-0151-7
Statistics Sweden. (2021). Arbetskraftsbarometern [Labour force barometer]. Retrieved January 12, 2021, from https://www.scb.se/hitta-statistik/statistik-efter-amne/utbildning-och-forskning/analyser-och-prognoser-om-utbildning-och-arbetsmarknad/arbetskraftsbarometern/
Statistic Sweden. (2019). *The Swedish Occupational Register with statistics 2017*.
Valenta, M., & Bunar, N. (2010). State assisted integration: Refugee integration policies in Scandinavian welfare states: The Swedish and Norwegian experience. *Journal of Refugee Studies*, *23*(4), 463–483. https://doi.org/10.1093/jrs/feq028
van Riemsdijk, M., & Axelsson, L. (2019). Labour market integration of highly skilled refugees in Sweden and the Netherlands. *OMICS*. University of Gothenburg.
Visintin, S., Tijdens, K., & van Klaveren, M. (2015). Skill mismatch among migrant workers: evidence from a large multi-country dataset. *IZA Journal of Migration*, *4*(1), 1–34. https://doi.org/10.1186/s40176-015-0040-0
Vogiazides, L., & Mondani, H. (2020a). A geographical path to integration? Exploring the interplay between regional context and labour market integration among refugees in Sweden. *Journal of Ethnic and Migration Studies*, *46*(1), 23–45. https://doi.org/10.1080/1369183X.2019.1588717
Vogiazides, L., & Mondani, H. (2020b). Geographical trajectories of refugees in Sweden : Uncovering patterns and drivers of inter-regional (im)mobility. *Journal of Refugee Studies*. https://doi.org/10.1093/jrs/feaa074
Webb, S. (2015). 'It's who you know not what': migrants' encounters with regimes of skills as misrecognition. *Studies in Continuing Education*, *37*(3), 267–285. https://doi.org/10.1080/0158037X.2015.1007938
Willott, J., & Stevenson, J. (2013). Attitudes to Employment of Professionally Qualified Refugees in the United Kingdom. *International Migration*,

51(5), 120–132. https://doi.org/10.1111/imig.12038

Appendix 1. Logistic regression models on being occupationally matched among refugee and family migrants, on the eight year in Sweden, by educational orientation (results expressed in odds ratios).

	Healthcare and social care	Technique, data and natural sciences	Pedagogy and teacher training	Social sciences, humanities, unknown
Arrival cohort				
2001-2004 (ref.)	1	1	1	1
2005-2009	0.79***	0.99	0.97	0.99
2010-2014	1.49***	1.29***	1.42***	1.59***
Reason for immigration				
Family (ref.)	1	1	1	1
Humanitarian	1.00	1.09	1.03	0.93
Gender				
Woman (ref.)	1	1	1	1
Man	0.99	1.00	0.97	1.10
Age at immigration				
20-24 years	0.88	0.75**	0.81	0.89
25-29 years	1.34***	1.33***	1.48***	1.79***
30-39 years	1.26***	1.36***	1.46***	1.56***
40-54 years (ref.)	1	1	1	1
Region of birth				
Western Asia (ref.)	1	1	1	1
North Africa	1.04	0.70***	0.71***	0.66***
South-east Asia	0.69***	0.39***	0.42***	0.45***
South and Central Asia	2.06***	1.34***	1.50***	1.36***
South, Central and West Africa	1.28***	0.63***	0.70**	0.91
East Africa	1.66***	0.89	0.88	0.59***
Source of education				

Foreign/unknown education (ref.)	1	1	1	1
Validated/assessed foreign education	3.94***	2.49***	2.27***	2.84***
Swedish education	14.31***	9.22***	8.81***	8.12***
Type of labour market region				
Stockholm (ref.)	1	1	1	1
Gothenburg	0.96	0.90	1.02	1.21*
Malmö	0.91	0.85*	0.82**	0.87
Medium-sized city region	0.94	1.11	1.09	1.21**
Small city/rural region	1.01	1.15	1.06	1.14
Inter-regional mobility				
Stayer (ref.)	1	1	1	1
Mover	1.13	1.71***	1.60***	1.44***

*** p<0.001 ** p<0.01 ***p<0.05

Appendix 2. Logistic regression models on being employed among refugee and family migrants, on the third, fifth and eight year in Sweden (results expressed in odds ratios).

	Year 3	Year 5	Year 8
Arrival cohort			
2001-2004 (ref.)	1	1	1
2005-2009	1.02	0.88***	1,09*
2010-2014	1.41***	1.45***	1,44***
Reason for immigration			
Family (ref.)	1	1	1
Humanitarian	0.83***	1.09	1,01
Gender			
Woman (ref.)	1	1	1
Man	2.98***	2.64***	2.17***

Age at immigration			
20-24 years	1.53***	1.43***	1.62***
25-29 years	1.63***	1.63***	2.00***
30-39 years	1.48***	1.54***	1.41***
40-54 years (ref.)	1	1	1
Region of birth			
Western Asia (ref.)	1	1	1
North Africa	1.40***	1.27***	1.18*
South-east Asia	3.08***	3.01***	3.12***
South and Central Asia	1.34***	1.30***	1.41***
South, Central and West Africa	2.02***	1.79***	1.80***
East Africa	1.40***	1.65***	1.78***
Source of education			
Foreign/unknown education (ref.)	1	1	1
Validated/assessed foreign education	1.46***	1.53***	1.65***
Swedish education	3.82***	2.46***	1.91***
Educational orientation			
Social sciences, humanities, unknown (ref.)	1	1	1
Healthcare and social care	1.35***	1.97***	2.26***
Pedagogy and teacher training	1.02	0.99	0.99
Technique, data and natural sciences	0.97	1.08*	1.10*
Type of labour market region			
Stockholm (ref.)	1	1	1
Gothenburg	0.66***	0.71***	0.78***
Malmö	0.47***	0.52***	0.52***
Medium-sized city region	0.54***	0.71***	0.80***
Small city/rural region	0.65***	0.79***	0.86**
Inter-regional mobility			
Stayer (ref.)	1	1	1
Mover	0.87**	0.89***	0.88**

*** p<0.001 ** p<0.01 ***p<0.05

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