

BARRIERS TO ACCESS? *Immigrant Origin and Occupational Regulation*

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Abstract

European labour markets have become increasingly accessible to foreign workers because of increased global migration and the implementation of international labour mobility agreements. Yet, skilled immigrants have lower occupational attainment. The regulated occupations, however, are more inclusive of immigrants than unregulated occupations. This article investigates immigrants' likelihood of gaining access to licensed occupations in Norway, as well as how this varies between regions of origin and between immigrants with a foreign or domestic degree to determine whether employment outcomes are due to different impacts of regulatory frameworks. The empirical investigation uses administrative register data that cover the years 2003–2012. The results show that there are no significant differences between the immigrant groups with a domestic degree, while the results for immigrants with foreign degrees signal that without international agreements on mutual recognition of education credentials, those who are educated for a licensed profession are somewhat restricted in performing it.

Keywords

Professional regulation • Common labour markets • Skilled migration

Introduction

European labour markets have become increasingly accessible to immigrants because of increased global migration and the implementation of European labour mobility agreements. Some areas of the labour market, however, remain less open. Research shows that immigrants are underrepresented in skilled occupations and are more likely to be overeducated compared to the majority population (Frank 2013; Demireva 2011; Kogan 2006; Støren & Wiers-Jenssen 2010), especially if they have foreign credentials (Støren & Wiers-Jenssen 2010). Licensed occupations hold a special position in European labour

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markets because the regulations governing these occupations are settled at the national level. By definition, they are not as accessible to people with foreign credentials as skilled occupations in general. To overcome this barrier, specific conditions have been applied for regulated occupations in both Nordic and European labour market agreements.

This study investigates immigrants' likelihood of gaining access to licensed occupations in Norway. This study concentrates on the highly educated workforce and compares immigrants by region of origin (Nordic, European Economic Area (EEA), Western, non-Western) and where they earned their degree (foreign/domestic). We accomplished two inquiries with this design. First, we examined whether the agreements on mutual recognition of qualifications and diplomas increase access to licensed occupations by comparing foreign-degree holders from the Nordic and EEA regions to those from other Western and non-Western regions. Second, by comparing immigrants with domestic degrees from different regions of origin, we were able to disclose inequalities in employment that relate to region of origin.

The conclusions from this research contribute to three current debates. First, we expanded on the limited European literature on the consequences of supranational agreements facilitating the free mobility of labour (Koumenta et al. 2014). The Nordic and European Common Labour Market agreements shall ensure free mobility of professionals within these regions, and our research provides evidence to their effects. Second, given the high share of migration to Europe from non-Western regions, insufficient utilisation of immigrants' skills and resources causes concern with regard to the utilisation of scarce skills. High-skilled immigrants' lower access to regulated professions has an estimated cost to the Norwegian society in the range of 0.8–4.0 million Norwegian krone (NOK) per overqualified person (NOU 2011). Finally, licensed occupations yield higher wages (Bol & Drange 2017, Bol & Weeden 2015) and a lower risk of occupational attrition (Alecu & Drange 2016). Undoubtedly, these occupations are affiliated with 'good' positions in the labour market. Regulated occupations are also characterised by similar earning profiles between immigrants and majority colleagues (Gomez et al. 2015; Drange 2013; 2014; Drange & Helland 2018; Karlsen 2012; Redbird 2017). If immigrants are less likely to attain employment in regulated occupations, despite having the necessary qualifications, then these occupations contribute to aggregate earnings' inequality between immigrants and the majority population.

A strength of the current study is the use of longitudinal, high-quality data from administrative registers. This study includes all individuals with completed tertiary degrees. This inclusion criterion is important because education credentials are the cornerstone for licensure in professional occupations and information about education credentials is available in the registers. We can therefore observe whether immigrants have the educational qualifications that are necessary, but not sufficient, to receive a licence. Information about whether an occupation is licensed comes from the Norwegian Occupational Regulations (NOR) database (cf. page 11).

This study expands on previous research, as the results are representative for the labour market as a whole. Previous studies have typically focused on a small number of

occupations, such as physicians, nurses, and engineers (Bach 2010; Boyd & Schellenberg 2007; Boyd & Thomas 2002; de Veer, den Ouden & Francke 2004; Forcier, Simoens & Giuffrida 2004; Karlsen 2012). Moreover, it augments previous research, mainly Canadian (Boyd & Schellenberg 2007; Boyd & Thomas 2002; Frank 2013; Girard & Smith 2013), using data from a different national and institutional context.

This article is structured as follows. The next section describes occupational regulations and the reciprocity agreements for foreign qualifications. It continues with a review of prior research on immigrants' access to regulated occupations. The third section presents the theoretical framework and analytical strategy. The remainder of this article includes a presentation of the data, the estimation strategy, results, discussion, and concluding remarks.

Occupational licensure and reciprocity agreements for foreign qualifications

Licensure is the most comprehensive form of occupational regulation because the requirements of practitioners are enshrined in law and it is illegal to perform these occupations without a licence. The requirements to obtain a licence vary across countries, but formal educational credentials play an important role in the European system of occupational regulation (Bol & Weeden 2015).

Norwegian legislation usually stipulates a minimum level of education and training, but it might also require other qualifications, such as apprenticeships, a good moral character, and/or the posting of financial bonds. However, these other requirements, such as apprenticeships, are conditional on having the education, and training and assessment of the moral character are often integral to the education, as the inability to show proper conduct during training can lead to expulsion. Hence, an educational diploma is also a document of suitability at the time of graduation.

Foreign-degree holders who would like to practice a licensed profession need accreditation of the academic content of their qualifications. The outcome can be non-approval, partial approval, or complete approval. In the former two cases, candidates have to repeat all or part of their degree. If the qualification is approved, licensure might still require additional practice and coursework relating to the Norwegian context and legislation. The rules also pertain to Norwegians educated abroad (Rambøll 2009). The legislation erects a barrier for immigrants' access to the occupations for which they are trained, as their opportunity to use their occupational-specific skills is conditional on compliance with national regulatory requirements (Peterson et al. 2014). Milder forms of occupational regulations, such as registration or voluntary certification, do not prohibit immigrants' use of specialised skills in the labour market.

To overcome the mobility barrier inherent in the national regulations, supranational agreements on labour mobility have specific directives for the regulated professions. Norway is part of two common labour market agreements. The Nordic labour mobility

agreement has been in force since 1954.¹ The agreement allows licensed professionals from one country to practice their occupation in any Nordic country. This rule also applies to foreign citizens whose credentials were approved in any of the Nordic countries. Norway became part of the European internal labour market in 1995 and has since implemented the European system of mutual recognition of qualifications and diplomas.

The EU Directive on the Recognition of Professional Qualifications (2005/36/EC) specifies the rules for an automatic and a general system of recognition. The automatic system applies to the harmonised educations,² and these professionals receive automatic approval in other contracting states. The general system applies to the remainder of professions and requires an assessment of the education credentials, work practice, and optionally an aptitude test of the applicant before granting a licence. The host country might require language test and national tests under both systems before granting a licence, but the reciprocity agreements commit the contracting states to remove any potentially discriminatory arrangements against non-nationals.

All contracting states have an obligation to report number of applicants and number of licences to the European Database on Regulated Professions since 2014. The database shows that the average acceptance rate of foreign credentials was 84% in Norway in 2014 across all licensed occupations, which was the same as within the EU. Between 2010 and 2016, Norway received 12% of all applications within the EEA, and the largest applicant groups were from Sweden (35%), Denmark (19%), and Poland (15%). Nurses, doctors, and teachers were the most mobile professions within the period. The mobility pattern is comparable to that of the EU in terms of main professional groups.

Immigrants' occupational attainment

Comparative studies on economic integration of migrants in European labour markets show that employment is both a function of origin and destination effects (Fleischmann & Dronkers 2010; van Tubergen, Maas & Flap 2004). Immigrants from affluent countries with well-developed institutions integrate more easily in the labour market compared to immigrants from poor and politically unstable countries (Fleischmann & Dronkers 2010; van Tubergen, Maas & Flap 2004). Undoubtedly, selection plays a role, as Fleischmann & Dronkers (2010) show that the EU migrants have the lowest likelihood of experiencing unemployment. This finding reflects the positive selection of labour migrants compared to refugees and the effect of the internal market in the EU (Fleischmann & Dronkers 2010). The employment rates of highly educated immigrants from affluent countries are, however, equal to those of immigrants from poorer countries (Fleischmann & Dronkers 2010; van Tubergen, Maas & Flap 2004: 723).

High-skilled immigrants nevertheless have a lower likelihood of obtaining work that matches their level of qualifications compared to the majority population. European studies show that immigrants from the new EU countries and non-Western regions experience lower levels of occupational attainment, while immigrants from the old EU countries or English-

speaking countries are less disadvantaged (Demireva 2011; Pichler 2011; Støren & Wiers-Jenssen 2010). The risk of overqualification increases for Norwegians and non-Western immigrants if they hold a foreign degree, but this does not apply to Nordic or Western immigrants (Støren & Wiers-Jenssen 2010).

The evidence on immigrants' access to licensed occupations is mixed, likely due to cross-country differences in regulating licensed occupations or variations between occupations within countries. One line of research showed that immigrants are more likely to obtain a job match in licensed occupations. Karlsen (2012) found that in Norway, nursing graduates from non-Western countries are more likely to be employed in their primary profession than graduates in engineering, which is not a licensed occupation there. Similarly, Koumenta et al. (2014) found that licensed occupations in the UK have the same share of EU immigrants as non-licensed occupations. Koumenta et al. (2014) also showed that the stringency of licensing requirements is unrelated to the proportion of EU immigrants in licensed occupations. Chavez & Bird (2015) found that immigrants' access to licensed occupations in the US varies significantly with the skill level, residency time, and age at immigration. Immigrants have a higher likelihood of obtaining employment in a licensed occupation, but not in licensed occupations that require a college degree. Newly arrived immigrants and immigrants who arrive after the age of 25 have a lower likelihood of obtaining employment in a licensed occupation. Yet, by observing changes in occupations' licensure status, Chavez & Bird (2015) showed that licensure does not reduce the supply of immigrant labour to skilled occupations, probably because reciprocity agreements on education facilitate in-migration to these occupations.

Conversely, other studies pointed to licensed occupations being less inclusive (Boyd & Schellenberg 2007; Boyd & Thomas 2002; Girard & Smith 2013). Girard & Smith (2013) found that immigrants are less likely to be employed in regulated occupations compared to Canadian-born workers, but country of origin, foreign degree, and language proficiency explain the immigrant-native attainment gap (Girard & Smith 2013). Peterson et al. (2014) examined cross-state variations in licensing requirements to foreign-educated physicians in the US and found that strict licensing requirements were a barrier to access for migrant physicians. Thus, licensure constitutes a 'behind the boarder' occupational-specific barrier to high-skilled migrants that reduces their ability to integrate successfully in the labour markets of the host country (Peterson et al. 2014: 58).

Licensure and the consequences for skilled migrants

The present article questions how licensure might play out with regard to immigrants' chances of finding employment in regulated professions and whether agreements of common labour market increase the employment opportunities of foreign-educated immigrants. Our expectation is that the terms and conditions pertaining to licensed occupations equalise the immigrants' chance of finding relevant employment. This expectation comes from two theoretical perspectives often used in studies on occupational licensing. The first perspective

emphasises that licensure increases the quality of service and safety for consumers (Kleiner 2006; Weeden 2002). The second perspective stems from a closure argument that licensure reduces supply of labour into an occupation (Weeden 2002).

The first explanation focuses on the systems for ensuring quality that surrounds the licensed professions and the potential consequences this system have for public trust and transparency in skill requirements. Most occupations do not draw a line between qualified and unqualified practitioners, but licensed occupations have strictly defined boundaries. The licensing requirements standardise the education and training needed for occupational entry, and the government retains supervisory authority over practice. Because the authorities and professional bodies scrutinise the skill content and skill level of a foreign-trained professional, employers and clients are relieved from this task. Employers may be hesitant to hire immigrants if they doubt the academic content of foreign credentials or immigrants' language proficiency and cultural competence more generally (Arendt, Nielsen & Jakobsen 2017; Midtbøen 2015). However, the licensing authority performs an evaluation of the skills and suitability of the practitioner, which can increase the trustworthiness of the practitioner. Thus, having a government-approved qualification might reduce employers' uncertainty and increase the possibility of a job match (Chavez & Bird 2015; Drange & Helland 2018). According to Chavez & Bird (2015), the system of licensure provides more standardised information to not only employers but also employees. The path to occupational entry in licensed professions can also reduce immigrants' need for knowledge of local labour markets and social networks to find relevant employment.

The second explanation focuses on supply restrictions that follow from licensure. According to the closure perspective, licensure raises the bar for entry into an occupation and thus decreases labour supply and raises wages (Weeden 2002). Because of their privileged position, licensed professions might have stakes in keeping strong professional borders as deregulation or reciprocity agreements can produce an influx of migrant workers that will increase the supply of labour and hence reduce the professions' ability to collect rents on labour (Bach 2010; Peterson et al. 2014). Yet, the threat to wages and other occupational privileges might actually be less in regulated occupations because of the special terms and conditions pertaining to these occupations. In a tight labour market with national pay determination, migrant workers would not pose a threat to established interests (Bach 2010: 256). Discrimination may actually be minimised in these circumstances because of the strong protection of the benefits of the occupation (Bach 2010) and the low number of available applicants. Field experiments showed that callback rates for ethnic minorities depend on the size of the labour pool, and discrimination is more likely if there is an abundance of candidates (Andriessen et al. 2012; Midtbøen 2015). Norway has an undersupply of labour in the health, welfare, and teaching professions, which is expressed by low unemployment rates for university graduates (Støren & Wiers-Jenssen 2016). Thus, restrictions to accessing regulated occupations likely increase opportunities for appropriately qualified immigrants to integrate into this segment of the labour market.

Analytical strategy

Based on the perspectives outlined above, we expect immigrants' chances of obtaining employment in licensed occupations to depend on whether they hold domestic or foreign degrees. Skilled immigrants with foreign credentials often experience occupational degradation in their host countries (Chiswick, Lee & Miller 2005; Chiswick & Miller 2009). According to Chiswick (1978), this happens because human capital is to a certain extent country specific and cannot be transferred without incurring loss. This loss is partly due to a reduction in the value of education and training unfamiliar to the employers of the host country and partly due to reduced universal skills such as knowledge of language, social norms, and networks. Over time, immigrants are able to transfer more of their human capital, and their earnings eventually converge with those of the native population (Chiswick & Miller 2009). Immigrants educated in Norway have human capital comparable to that of their majority of colleagues. Hence, we do not expect that skill differentials will result in immigrants being less likely to be employed in a licensed occupation.

We expect that among those with foreign degrees, the existence of common labour market agreements facilitates integration, as there are low or no institutional barriers for immigrants who seek recognition of their foreign credentials. Nordic immigrants, especially Danes and Swedes, also benefit from linguistic and cultural similarities with Norwegians. For most EEA immigrants, there are significant language and cultural barriers, which can reduce the likelihood of finding a job match. An important insight from Chiswick & Miller (2009) is that occupational degradation and the lack of international transferability of human capital depend on an immigrant's country of origin. In their research, occupational degradation is negligible for those originating from other English-speaking countries such as the UK, Canada, and Australia. Henceforth, we expect that the Scandinavian language similarities would be equally beneficial for Nordic immigrants to Norway, while language barriers are more likely for those originating from EEA countries. Differences between these two groups of Nordic and EEA labour migrants can thus be interpreted in terms of the significance of language and cultural skills. We separated pre- and post-enlargement EEA countries, because these immigrant groups integrate differently in the labour markets of the host country and occupational degradation is more common among immigrants from post-enlargement EEA countries (Demireva 2011; Voitchovsky 2014).

Both non-EEA Western and non-Western immigrants have significant barriers to accessing Norway's labour market. Most importantly, reciprocity agreements do not cover immigrants from these countries. Comparisons of Western and EEA immigrants reveal the effect of these mutual agreements, as the language and cultural barriers are similar for both groups. Next, comparisons of Western and non-Western migrants indicate the extent of labour market discrimination towards non-Western immigrants, as these groups face similar restrictions to access the labour market and both share a cultural and linguistic distance from Norway's native-born population. Another common barrier is that regular labour migration is not accepted from these countries.³ Because legal employment is conditional on having a residence permit, immigrants from other Western and non-Western

countries have a longer period of transition to employment compared to nationals of Nordic and EEA countries.

Data

This article combines individual-level data from Norwegian administrative registers and occupational-level data from the NOR database.⁴

The NOR database contains information about all licensed occupations in Norway and allows us to differentiate between licensed and unlicensed occupations. An occupation is classified as licensed if the right to practice is regulated either by law or by regulations to a law. The main source used to map the extent of licensed occupations is the database on Norwegian laws and regulations (www.Lovdata.no). The inclusion criterion is that the licensure requirement applies to natural people and not legal people.

The microdata contain information on occupations for the 2003–2014 period. All individuals who were employed and lived in Norway during that time are included, with the exception of those with a residency period of less than six months. A likely consequence of this is the exclusion of people who fill short-term or seasonal vacancies or other temporary contracts.

Our sample covered people aged 25–67 years. The lower age limit was set because young people have more intermittent employment patterns due to educational activity, and the upper age limit corresponded to the common retirement age in Norway. The sample was further restricted to people with tertiary education, as the primary interest in this article was the inclusion of skilled migrants in licensed occupations. We also excluded immigrants for whom we lacked education information, which amounted to approximately 20% of the immigrant population (Steinkellner & Holseter 2013). Table 1 shows the characteristics of our sample, which are further discussed under the results section.

Dependent variable: licensure

The dependent variable was employment in a licensed occupation spanning all occupations.⁵ This variable took the value of 1 if the individual was employed in a licensed occupation and the value of 0 for employment in unlicensed occupations. For individuals who had several jobs within a year, we selected the employment spell that generated the highest income and had the longest duration.

Independent variables: region of origin and foreign degree

Our independent variables were immigrant origin and foreign degree. We distinguished between immigrants from: i) the Nordic countries; ii) the pre-2004 enlargement EEA countries, excluding the Nordic countries; iii) the post-2004 enlargement EEA countries

Table 1: Descriptive statistics by region.

Region of birth	Norway	Nordic countries	Pre-enlargement EEA countries	Post-enlargement EEA countries	Other Western countries	Non-Western countries	Total
Occupation is licensed							
No	59.90	66.67	75.71	84.32	73.11	71.69	62.12
Yes	40.10	33.33	24.29	15.68	26.89	28.31	37.88
Level of education							
Bachelor's degree	64.94	55.33	38.76	52.46	48.01	55.60	62.83
Master's degree	32.25	38.16	46.51	43.60	44.15	37.72	33.64
PhD degree	2.81	6.51	14.74	3.94	7.85	6.68	3.53
Gender							
Men	39.13	42.94	52.33	42.51	39.84	49.45	40.20
Women	60.87	57.06	47.67	57.49	60.16	50.55	59.80
Location of education							
Domestic education	91.73	46.50	34.79	13.19	57.28	57.01	84.25
Foreign	8.27	53.50	65.21	86.81	42.72	42.99	15.75
Employment status in reference week							
Employed	96.42	96.52	96.42	96.09	95.40	93.94	96.26
Outside the labour market	3.58	3.48	3.58	3.91	4.60	6.06	3.74
n	1,570,200	45,016	42,804	57,895	4242	98,519	1,856,854

(Eastern Europe, EU10); iv) other Western countries (including non-EEA European countries and Canada, North America, Australia, and New Zealand); and v) non-Western countries (including Turkey and countries in Asia, Africa, Latin America, and the remainder of Oceania).

The education register had information on whether a degree was from a Norwegian or a foreign institution of higher education. Thus, if a nurse from the Philippines would have to retake all or part of their education in Norway to receive a licence, this nurse's education was listed as domestic in the register. Our education variables captured the highest level of education the person attained at each year of observation. Thus, if immigrants continued their education in Norway, we captured their highest level of education, not necessarily the level they had on arrival.

Control variables

A major strength of our analysis is that we had information on both education level and subject field (53 narrow fields of education categories in the International Standard of Classification of Education) that we included as fixed effects. This is a highly efficient way to control for any compositional differences between the majority population and the immigrant groups in terms of the subject and level of education. We additionally controlled for overeducation because immigrants had a risk of being overeducated in comparison to the native population. We calculated the yearly mean educational level within each occupation and subtracted the individual's educational level. If the mean education level was bachelor's degree, an individual with a master's degree was coded as overeducated.

The other control variables were gender (1 for women and 0 for men) and years since graduation from their highest degree. Years since graduation was included as a polynomial term and acted as a proxy for labour market experience. To check robustness, we also estimated models with interactions between the region of origin and the time polynomial to pick up any assimilation effects for immigrants.

Estimation strategy

We had a longitudinal, person-year data structure with years nested in persons. The data were right censored for people not in employment by 2014. Because we used a discrete-time model, we needed to deal with inherent time dependency. Our preferred approach was to employ a cubic approximation of time dependency as it accommodates non-proportional hazards (Carter & Signorino 2010). The substantial findings remained robust to various specifications with time dummies and square terms. Moreover, adjusting for the yearly employment rates for each group did not alter the overall results in terms of magnitude or significance. Moreover, we estimated the regressions with clustered standard errors to relax the assumption of independent and identically distributed error terms.

The analysis included three hierarchical logistic regression models.⁶ The first model only included region of origin and domestic or foreign degree and showed the gross effects of region of origin adjusted for having a foreign degree. The second model included interaction between region of origin and foreign degree and showed whether the gross effects of foreign degree and region of origin display mutual dependence. The third model included a full set of controls and showed the net effect of region of origin and foreign degree adjusted for gender, age, time since graduation, level of education, and subject field. This final model showed the differences between the majority population and the immigrant groups' 'all else equal' with respect to potential labour market experience and education. Because we compared individuals within the same narrow groups of education, we can ensure that they had the same formal qualifications. Unobserved differences between the migrant groups' skills remained unaccounted for; we will return to this in the discussion of our findings.⁷

Results

Descriptive statistics

Table 1 presents the descriptive statistics for our sample by region of origin. The share of employees in licensed occupations is highest among Norwegians (40%), followed by immigrants from Nordic countries (33%), non-Western countries (28%), other Western countries (27%), pre-enlargement EEA countries (24%), and post-enlargement EEA countries (16%). The distribution of education levels shows that immigrants are overrepresented among those with master's and PhD degrees.

More than 90% of Norwegians have domestic degrees. In all, 43% of non-Western immigrants and immigrants from other Western countries have foreign degrees. One explanation for this low rate of foreign degrees is that these immigrant groups often have to acquire additional education in Norway in order to practice their profession. Among Nordic and pre- and post-enlargement EEA immigrants, 54%, 65%, and 87% have foreign degrees, respectively. Again, because these immigrant groups can fully access the labour market, their need for domestic education is substantially less than other immigrant groups.

Regression results

The results of Model 1 in Table 2 indicate that all immigrant groups, except Nordics, have lower odds of accessing licensed occupations in the absence of controls. The difference between the majority of population and immigrants from pre-enlargement EEA countries is moderate, as an odds ratio of 0.735 indicates approximately 26% ($100-74=26\%$) lower odds of occupying a licensed job. The difference between the majority of population and the three remaining immigrant groups ranges from 0.758 to 0.512, which corresponds to ca. 49–24% lower odds of being in a licensed job. The coefficient for foreign degree is 0.448,

Table 2: Odds ratio of attaining a licensed job. Clustered standard errors.

Independent variables	Model 1		Model 2		Model 3	
	Odds ratio	SE	Odds ratio	SE	Odds ratio	SE
Baseline: Norway						
Nordic countries	1.053*	(0.026)	0.910**	(0.031)	0.906*	(0.038)
Pre-enlargement EEA countries	0.735***	(0.021)	0.671***	(0.028)	0.917	(0.047)
Post-enlargement EEA countries	0.512***	(0.014)	0.777***	(0.043)	0.845*	(0.058)
Other Western countries	0.703***	(0.018)	0.726***	(0.024)	0.902**	(0.034)
Non-Western countries	0.758***	(0.013)	0.818***	(0.017)	0.965	(0.025)
Foreign degree	0.448***	(0.006)	0.463***	(0.007)	0.725***	(0.015)
Nordic countries *Foreign degree			1.318***	(0.063)	1.167**	(0.070)
Pre-enlargement EEA countries *foreign degree			1.139*	(0.064)	1.048	(0.069)
Post-enlargement EEA countries *foreign degree			0.569***	(0.036)	0.629***	(0.049)
Other Western countries *foreign degree			0.885*	(0.048)	0.823**	(0.053)
Non-Western countries *foreign degree			0.772***	(0.029)	0.623***	(0.027)
Constant	0.710***	(0.003)	0.709***	(0.003)	0.091***	(0.022)
Fixed effects	No		No		Yes	
Time polynomial	No		No		Yes	
Observations	1,856,854		1,856,854		1,856,854	
Pseudo R ²	0.0207		0.0210		0.439	

Model 3 includes fixed effects on age, gender, education subject and level, overeducation, and years since graduation. * $p < 0.05$, ** $p < 0.01$, and *** $p < 0.001$.

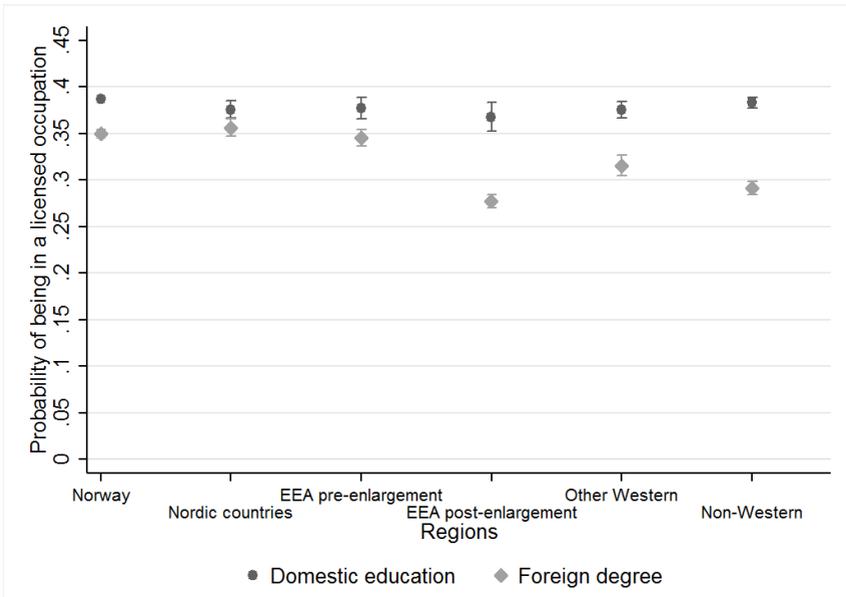


Figure 1: Predicted probabilities of employment by region and foreign or domestic degree.

which translates to 55% lower odds of holding a licensed job. This effect averages over all individuals, independent of region of origin.

The results from Model 2 show that the differences between the majority of population and immigrants from post-enlargement EEA-countries, other Western countries, and non-Western countries are comparable to the results from Model 1 if the people completed their education in Norway. There is a substantial reduction in the likelihood of obtaining a licensed job for foreign-degree holders from these immigrant groups. This is in line with our expectations because skilled immigrants from other Western and non-Western countries cannot directly access licensed occupations. The result for post-enlargement EEA countries is more surprising considering the common labour market agreements. We will return to this in our discussion of the results.

Immigrants from Nordic and pre-enlargement EEA countries have a lower likelihood of working in a licensed occupation when holding a degree from a Norwegian institution, but this likelihood increases with a foreign degree. This result might be due to selection and compositional effects as Nordic and pre-enlargement EEA immigrants can migrate to Norway with the explicit purpose of finding employment in licensed occupations.

Model 3 adjusts the estimates for individual characteristics of age, gender, education subject and level, overeducation, year since graduation, and a time polynomial. There is a clear reduction in the difference between the majority of population and immigrant groups with domestic credentials. The odds ratio varies from 0.845 to 0.965, which corresponds to a 15–3% reduction in the odds of having a licensed job. The coefficients for EEA immigrants and non-Westerners with a domestic degree lose significance when we adjust for level and field of education and overeducation. This implies that the differences observed in Models 1 and 2 are partly due to compositional effects and that non-Westerners are probably less likely to have an educational background that qualifies for a licensed job. The negative effect of having a foreign degree is substantially reduced in Model 3, but the pattern is similar to Model 2. To ease interpretation, the predicted probabilities with their respective 95% confidence intervals from Model 3 are displayed in Figure 1.

Discussion

The point of departure for this article was to investigate immigrants' access to licensed professions. The agreements on mutual recognition of qualifications settled in the Nordic and European directives constitute an institutional framework for mobility to ensure free movement of professionals. A truly common labour market requires that nurses, teachers, and accountants can find employment in other contracting states. Our study compared immigrants from different regions with foreign and domestic degrees to investigate whether immigrants experience barriers to access licensed occupations that are due to institutional barriers.

We have explored two research questions. First, we examined whether the agreements on mutual recognition of qualifications and diplomas increase access to licensed occupations by comparing foreign-degree holders from the Nordic and EEA regions to those from other Western and non-Western regions. Second, we compared immigrants with domestic degrees from different regions of origin to assess any inequalities in employment outcomes. We begin by discussing the results of the first topic of investigation.

Both Nordic immigrants and pre- and post-enlargement EEA immigrants can freely access the Norwegian labour market, but Nordic immigrants benefit from being highly similar to Norwegians in culture and language. Thus, we theorised that differences between the Nordic group and the EEA groups could be due to human capital differences. The results show that immigrants from pre-enlargement EEA countries and Nordic countries are just as likely to be employed in licensed occupations as the majority if they have a foreign degree. This result has multiple interpretations. First, the small differences between Nordic and pre-enlargement EEA countries signal that the reciprocity agreements facilitate a single European market for the regulated professions. The finding is also compatible with a selection effect. Mobility within the common labour market areas is likely contingent on employment. Hence, there is a positive selection of immigrants from Nordic and pre-enlargement EEA countries to Norway. Labour migration is, among others, motivated

by push and pull factors related to the economic situation in the home country and the receiving country. High unemployment and overeducation can increase mobility to other member states with better employment opportunities and higher wages. For instance, Norway has had an undersupply of health professionals. To remedy this deficiency, authorities institutionalised a recruitment program to attract personnel from Germany, Finland, and Poland to complement recruitment from Scandinavia (van Riemsdijk 2006). Immigrants from Nordic countries and Germany represent the largest groups employed in the health services (SSB 2015). It is less surprising then that the number of Nordic and pre-enlargement EEA immigrants in licensed jobs equals that of the majority. Yet, this finding does not apply to immigrants from post-enlargement EEA countries. Voitchovsky (2014) and Demireva (2011) had previously documented a similar pattern in Ireland and the UK, pointing to the significance of economic motivations over professional development. Hence, wage rates are probably the main pull factor for these workers. Finally, the results can also indicate a preference by employers to hire immigrants from Nordic or pre-enlargement EEA countries over immigrants from the new EEA countries.

Common labour market agreements do not cover immigrants from other Western and non-Western countries, and Norway does not accept regular labour migration from these countries. Thus, the finding that non-Western and other Western immigrants with foreign degrees are less likely to be employed in a licensed job was expected. Because these immigrant groups have the education credentials associated with the requirement for licensure (cf. the detailed educational control variables), a likely interpretation is that Western and non-Western immigrants have a larger risk of not obtaining a recognition of their credentials and hence not obtaining a licence.

The results show that immigrants from non-Western countries are more disadvantaged in terms of occupational attainment; however, the difference between non-Western and other Western immigrants is small. The difference between these two groups can be due to human capital discrepancy or discrimination, as the formal regulations are similar for both groups. One interpretation is that it signals discrimination against non-Western immigrants, but alternatively, it might also signal that the accreditation process demands resources in terms of money, time, and social contacts. Because we did not observe whether foreign educations were accredited, this difference might also reflect skill differentials.

Finally, we argue that the different employment outcomes for other Western immigrants and immigrants from pre-enlargement EEA countries reflect the effect of common labour market agreements. These immigrant groups are comparable in terms of the quality of their educational systems and cultural distance to Norway. The difference in their access to licensed occupations is around four percentage points lower among other Western immigrants, which is a modest effect. The lack of regulative frameworks for labour mobility of other Western immigrants does not seem to severely hamper their access to the labour market. These results are averaged over time since immigration; therefore, the short-term effect might be more negative than the long-term effect.

We now turn to the comparisons of the immigrant groups with domestic degrees, for which the results show less internal variation. Our theoretical expectation was that

immigrants educated in Norway would have comparable human capital skills to the majority population. Moreover, domestic education would ensure that there were no formal barriers to access. Thus, any differences between the groups would be attributable to discrimination or unobserved skill differences.

The results showed that all immigrant groups had a slightly lower probability of employment in a job requiring a license compared with the majority population, but interestingly, there were no significant differences between the different immigrant groups. This finding contrasts a previous study on highly skilled immigrants to Norway. Støren & Wiers-Jenssen (2010) found that non-Westerners were more at risk for both unemployment and overeducation compared with Nordic and Western immigrants, even those with domestic degree. Our explanations cover both the signalling value of having a governmental body issue licenses and the institutional framework for licensed occupations. Employers need to worry less about assessing the skills of foreigners if the educational credential is standardised. Correspondingly, access to these occupations is conditional on having a credential, which reduces the labour pool. Assessed collectively, licensed occupations are less selective regarding immigrant origin than skilled occupations in general.

Conclusion

The results show that immigrants with Norwegian credentials have a small but significantly lower likelihood of working in regulated occupations compared to the majority population. The results for immigrants with foreign degrees signal that without international agreements on mutual recognition of education and credentials, those educated for a licensed occupation are more restricted in performing this occupation. Comparisons between different immigrant groups show small variations, but our results indicate that post-enlargement EEA groups have a lower likelihood of entering licensed professions when compared to pre-enlargement EEA migrants. Even under the same accreditation regime, other factors such as individual motivation concerning economic gain or professional achievement may explain, in part, differences between immigrant groups. Policy measures that increase the utilisation of scarce skills among post-enlargement EEA immigrants are advisable.

This study has some limitations. First, we cannot firmly conclude that it is the terms and conditions pertaining to the licensed occupations that increase immigrants' likelihood employment in these occupations, because the occupations will always be licensed or not, never both. To address this issue, we compared individuals with highly similar levels and fields of education. Second, we identified the education but not whether graduates apply for, and is granted, a licence. Third, despite the richness of the data, we were unable to control for preferences and dispositions in the population, e.g. educational preferences in the country of origin of the immigrants, as well as to fully account for the mechanisms that make immigrants, and Norwegians, prefer certain professions and not others. Furthermore, we could not control for language skills of migrants. Fourth, we only divided between

domestic and foreign education and not country of education. This is likely a small source of error, as most of the people were educated in their country of origin. Finally, our sample only included employed persons. The observed differences are likely to be higher in the full population.

This article has made three contributions to the literature. First, our study on occupational regulations is from a European institutional context that has an extensive set of rules for the mutual recognition of education and professional qualifications across borders. The results provide evidence on the effects of common labour market agreements. The shares of Nordic and pre-enlargement EEA immigrants in regulated professions were similar among candidates with domestic and foreign degrees, whereas the shares of foreign-educated Western and non-Western immigrants were substantially lower. This suggests that the agreements facilitate the economic integration of specialised skills in the European labour markets. Second, the findings show that there are unused resources among the Western and non-Western immigrants. Better utilization of the immigrants' skill would benefit the immigrants and the society. A major problem is the lack of transparency and resources available to immigrants seeking recognition of their credentials (Rambøll 2009). Possible solutions could be a one-stop office or an ombudsman for licensed professions that immigrants could call on to support the application process. Third, we have expanded on the European literature on labour migration and the economic integration of immigrants. The regulated professions are 'good' labour market positions in terms of employment stability and wages. The overall results show no significant differences between different immigrant groups with domestic education. This suggests that immigrants are not relatively disadvantaged in obtaining employment in the regulated professions, unless their education originates from outside Europe. Hence, a proximate conclusion is that institutional barriers remain the most significant hindrance for immigrants.

Notes

1. Additional agreements have been settled incrementally between contracting states for the mutual recognition of medical doctors (1960), dentists (1964), nurses (1968), teachers (1982), and all other licensed professions requiring a minimum of three years of higher education (1982).
2. Physicians, dentists, nurses, veterinarians, midwives, pharmacists, and architects. Government of Norway, draft bill no. 29 (2007–2008).
3. Norway accepted labour migrants from outside the Nordic countries until 1975. Since then, the Immigration Act (§ 23) has only allowed for specialised labour migrants.
4. Alecu, AI & Drange, I 2016, The Norwegian Occupational Regulations Database. Documentation report. Oslo: The Work Research Institute. OsloMet – Oslo Metropolitan University.
5. We also ran analyses where licensure only take the value 1 for professions requiring a higher education. With this coding, the overall results remain similar.

6. We only report coefficients of interest. Tables with all coefficients are available upon request.
7. We have conducted a series of robustness checks that are available upon request, including specifications of linear probability models. A weakness of logistic regressions is that it is problematic to compare odds ratios between models, due to unobserved heterogeneity (Mood 2010). The results are generally robust to the linear specifications. We have performed an identical analysis on job match in the appendix.

Appendix A1: Analysis of Job match.

A job match is attained if education at bachelor, master and PhD-level results in a job position in academic occupations (level 2 in ISCO-88) or technical or professional occupations (level 3 in ISCO-88). Manager position (level 1 in ISCO-88) is excluded due to their variable character. Some management jobs are very highly skilled (chief of medicine) or have no skill requirements (general manager of a grocery store).

The analyses includes the same variables as the analyses in table 2 in the manuscript and is built on the same sample.

Table A1: Odds ratio of attaining a job match. Clustered standard errors.

	Model 1		Model 2		Model 3	
	Odds ratio	SE	Odds ratio	SE	Odds ratio	SE
Baseline:Norway						
Nordic countries	1.308***	(0.035)	0.896***	(0.034)	0.904***	(0.037)
Pre-enlargement EEA	1.208***	(0.032)	1.059	(0.049)	0.946	(0.049)
Post-enlargement EEA	0.169***	(0.003)	0.582***	(0.031)	0.579***	(0.035)
Other Western countries	0.619***	(0.014)	0.846***	(0.028)	0.839***	(0.029)
Non-Western countries	0.454***	(0.006)	0.657***	(0.013)	0.577***	(0.013)
Foreign degree	0.430***	(0.005)	0.552***	(0.008)	0.553***	(0.010)
Nordic countries *Foreign degree			1.510***	(0.078)	1.508***	(0.088)
Pre-enlargement EEA*Foreign degree			0.966	(0.054)	0.740***	(0.047)
Post-enlargement EEA *Foreign degree			0.190***	(0.011)	0.140***	(0.009)

Table A1: Odds ratio of attaining a job match. Clustered standard errors.

	Model 1		Model 2		Model 3	
	Odds ratio	SE	Odds ratio	SE	Odds ratio	SE
Other Western countries *Foreign degree			0.458***	(0.021)	0.341***	(0.018)
Non-Western countries *Foreign degree			0.397***	(0.012)	0.347***	(0.013)
Constant	5.679***	(0.026)	5.510***	(0.026)	0.154***	(0.030)
Fixed effects	No		No		Yes	
Time polynomial	No		No		Yes	
Observations	1,756,811		1,756,811		1,756,811	
Pseudo R ²	0.0664		0.0708		0.229	

*** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

Model 3 includes fixed effects on age, gender, education subject and level, over-education, year since graduation.

The results from model 3 A1 clearly shows that attaining a job match is somewhat lower among immigrants from the post-enlargement countries and non-Western countries, conditional on having a domestic degree. It is approximately similar for Norwegians, immigrants from Nordic countries, pre-enlargement countries and Western countries, conditional on having a domestic degree. Furthermore, the results reveal a lower likelihood of attaining a job match conditional on having a foreign degree for all groups but Nordic immigrants. Having a foreign degree severely affect the chances of obtaining a job match among immigrants from post-enlargement countries, western countries and non-Western countries. The patterns are similar to those observed in table 2 for licensed occupations, but the gaps in occupational attainment are more pronounced. Figure A1 displays the results from Model 3.

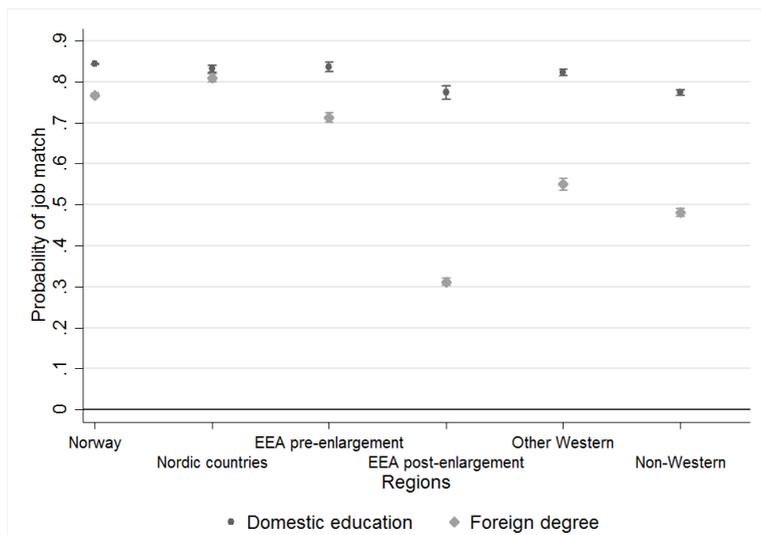


Figure A1: Probability of attaining a job match.

References

- Alecu, AI & Drange, I 2016, 'Hvilken betydning har regulering av yrker for yrkesmobilitet i Norge? [Assessing the role of licensure and certifications for occupational mobility in Norway]', *Søkelys på arbeidslivet*, vol. 33, no. 1-2, pp.101-121, DOI:10.18261/issn.1504-7989-2016-01-02-06
- Andriessen, I, Nievers, E, Dagevos, J & Faulk, L 2012, 'Ethnic discrimination in the Dutch labor market: its relationship with job characteristics and multiple group membership', *Work and Occupations*, vol. 39, no. 3, pp. 237-269, DOI: 10.1177/0730888412444783.
- Arendt, JN, Nielsen, CP & Jakobsen, V 2017, 'The importance of origin and destination country skills for labour market attachment of immigrants from Pakistan, Iran and Turkey', *Nordic Journal of Migration Research*, vol. 6, no. 2, pp. 72-80, DOI:10.1515/njmr-2016-0015.
- Bach, S 2010, 'Managed migration? Nurse recruitment and the consequences of state policy', *Industrial Relations Journal*, vol. 41, no. 3, pp. 249-266.
- Bol, T & Drange, I 2017, 'Occupational closure and wages in Norway', *Acta Sociologica*, vol. 60, no. 2, pp. 134-157, DOI: 10.1177/0001699316659768

- Bol, T & Weeden, KA 2015, 'Occupational closure and wage inequality in Germany and the United Kingdom', *European Sociological Review*, vol. 31, no. 3, pp. 354-369.
- Boyd, M & Schellenberg, G 2007, 'Re-accreditation and the occupations of immigrant doctors and engineers', *Canadian Social Trends*, vol. 84, pp. 1-10.
- Boyd, M & Thomas, D 2002, 'Skilled immigrant labour: country of origin and the occupational locations of male engineers', *Canadian Studies in Population*, vol. 29, no. 1, pp. 71-99.
- Carter, D & Signorino, C 2010, 'Back to the future: modeling time dependence in binary data', *Political Analysis*, vol. 18, no. 3, pp. 271-292.
- Chavez, K & Bird, BR 2015, 'Occupational licensure and changing barriers to immigrant workforce incorporation', in *How global migration changes the workforce diversity equation*, eds T Fashoyin, M Tiraboschi, F Sperotti, C Tilly & P Manzella, Cambridge Scholar Publications, Newcastle upon Tyne.
- Chiswick, B 1978, 'The Effect of Americanization on the Earnings of Foreign-born Men', *Journal of Political Economy*, vol. 86, no. 5, pp. 897-921, DOI:10.1086/260717
- Chiswick, B & Miller, P 2009, 'The international transferability of immigrants' human capital', *Economics of Education Review*, vol. 28, no. 2, pp. 162-169, DOI:10.1016/j.econedurev.2008.07.002.
- Chiswick, B, Lee, YL & Miller, P 2005, 'A longitudinal analysis of immigrant occupational mobility: a test of the immigrant assimilation hypothesis', *International Migration Review*, vol. 39, no. 2, pp. 332-353, DOI:10.1111/j.1747-7379.2005.tb00269.x.
- de Veer, A, den Ouden, DJ & Francke, A 2004, 'Experiences of foreign European nurses in the Netherlands', *Health Policy*, vol. 68, no. 1, pp. 55-61, DOI:10.1016/j.healthpol.2003.08.006.
- Demireva, N 2011, 'New migrants in the UK: employment patterns and occupational attainment', *Journal of Ethnic and Migration Studies*, vol. 37, no. 4, pp. 637-655, DOI:10.1080/1369183X.2011.545308.
- Drange, I 2013, 'Early-Career Income Trajectories Among Physicians and Dentists: The Significance of Ethnicity', *European Sociological Review*, vol. 29, no. 2, pp. 346-358, DOI: 10.1093/esr/jcr071
- Drange, I 2014, 'Degrees of Closure and Economic Success in the Norwegian Labour Market: Field of Study and Non-Western Immigrant Performance', *Journal of Education and Work*, vol. 29, no. 4, pp. 402-426, DOI: 10.1080/13639080.2014.976186
- Drange, I & Helland, H 2018, 'The Sheltering Effect of Occupational Closure? Consequences for Ethnic Minorities' Earnings', *Work and Occupations*, (a-head of print), DOI: 10.1177/0730888418780970
- Fleischmann, F & Dronkers, J 2010, 'Unemployment among immigrants in European labour markets: an analysis of origin and destination effects', *Work, Employment and Society*, vol. 24, no. 2, pp. 337-354.
- Forcier, M, Simoens, S & Giuffrida, A 2004, 'Impact, regulation and health policy implications of physician migration in OECD countries', *Human Resources for Health*, vol. 2, no. 1, p. 12.

- Frank, K 2013, 'Immigrant employment success in Canada: examining the rate of obtaining a job match', *International Migration Review*, vol. 47, no. 1, pp. 76-105, DOI:10.1111/imre.12014.
- Girard, M & Smith, M 2013, 'Working in a regulated occupation in Canada: an immigrant-native born comparison', *Journal of International Migration and Integration*, vol. 14, no. 2, pp. 19-24.
- Gomez, R, Gunderson, M, Huang, X & Zhang, T 2015, 'Do Immigrants Gain or Lose by Occupational Licensing?', *Canadian Public Policy*, vol. 41, Issue supplement 1, pp. S80-S97, DOI:10.3138/cpp.2014-028
- Government of Norway, 'Draft bill no. 29. 2007. For consent to the approval of the EEA Joint Committee Decision No. 142/2007 of 26 October 2007 on the incorporation into the EEA Agreement of Directive 2005/36/EC on the recognition of professional qualifications', <https://www.regjeringen.no/contentassets/1c8ae4b81923482e8417fc5e21c2735b/no/pdfs/stp200720080029000dddpdfs.pdf> (accessed July 2016).
- Karlsen, H 2012, 'Gender and ethnic differences in occupational positions and earnings among nurses and engineers in Norway: identical educational choices, unequal outcomes', *Work, Employment & Society*, vol. 26, no. 2, pp. 278-295.
- Kleiner, MM 2006, *Licensing Occupations: Ensuring Quality or Restricting Competition?* WE Upjohn Institute.
- Kogan, I 2006, 'Labor markets and economic incorporation among recent immigrants in Europe', *Social Forces*, vol. 85, no. 2, pp. 697-721.
- Koumenta, M, Humphris, A, Kleiner, M & Pagliero, M 2014, *Occupational regulation in the EU and UK: prevalence and labour market impacts*. Queen Mary University of London, London.
- Midtbøen, AH 2015, 'Ethnic penalties in western labour markets', *Nordic Journal of Migration Research*, vol. 5, no. 4, pp. 185-193, DOI:10.1515/njmr-2015-0022.
- Midtbøen, AH 2015, 'The context of employment discrimination: interpreting the findings of a field experiment', *The British Journal of Sociology*, vol. 66, no. 1, pp. 193-214, DOI:10.1111/1468-4446.12098.
- Mood, C 2010, 'Logistic regression: why we cannot do what we think we can do, and what we can do about it', *European Sociological Review*, vol. 26, no. 1, pp. 67-82.
- Norges Offentlige Utredninger (NOU) 2011, *Bedre integrering - mål, strategier og tiltak [Better integration - aims, strategies and measures]*. Barne-, likestillings- og inkluderingsdepartementet, Oslo.
- Peterson, BD, Pandya, SS, & Leblang, D 2014, 'Doctors with borders: occupational licensing as an implicit barrier to high skill migration', *Public Choice*, vol. 160, no. 1., pp 45-63. DOI:10.1007/s11127-014-0152-8
- Pichler, F 2011, 'Success on European labor markets: a cross-national comparison of attainment between immigrant and majority populations', *International Migration Review*, vol. 45, no. 4, pp. 938-978, DOI:10.1111/j.1747-7379.2011.00873.
- Rambøll 2009, *Kartlegging: godkjenningsordninger for lovregulerte yrker [Mapping: Recognition for regulated occupations]*. Arbeids- og inkluderingsdepartementet.

- Redbird, B 2017, 'The New Closed Shop? The Economic and Structural Effects of Occupational Licensure', *American Sociological Review*, vol. 82, no. 3, pp. 600-624, DOI: 10.1177/0003122417706463.
- SSB. 2015, Statistics Norway, Oslo. *Helse- og sosialpersonell, 2015, 4. Kvartal [Health- and social workers, 2015, 4th quarter]*, Available from: <http://www.ssb.no/hesospers> [Accessed 27 June, 2016].
- Steinkellner, A & Holseter, AMR 2013, *Befolkningens utdanningsnivå, etter spørreundersøkelsen om utdanning fullført i utlandet [The population's education level after the survey about education abroad]*, *Rapporter 2013/24*. Statistisk sentralbyrå, Oslo/Kongsvinger.
- Støren, LA & Wiers-Jenssen, J 2010, 'Foreign diploma versus immigrant background determinants of labour market success or failure?' *Journal of Studies in International Education*, vol. 14, no. 1, pp. 29-49.
- Støren, LA & Wiers-Jenssen, J 2016, 'Transition from higher education to work: are master graduates increasingly over-educated for their jobs?' *Tertiary Education and Management*, vol. 22, no. 2, pp. 134-148, DOI:10.1080/13583883.2016.1174290.
- van Riemsdijk, M 2006, *Rekruttering av polske sykepleiere til Norge. Erfaringer og virkninger [Recruitment of Polish nurses to Norway. Experiences and Effects]*, Fafo-rapport 2006:27. Fafo, Oslo.
- Van Tubergen, F, Maas, I, & Flap, H 2004, 'The economic incorporation of immigrants in 18 Western societies: origin, destination, and community effects', *American Sociological Review*, vol. 69, no. 5, pp. 704-727.
- Voitchovsky, S 2014, 'Occupational downgrading and wages of new member states immigrants to Ireland', *International Migration Review*, vol. 48, no. 2, pp. 500-537, DOI:10.1111/imre.12089.
- Weeden, KA 2002, 'Why do some occupations pay more than others? Social closure and earnings inequality in the United States', *American Journal of Sociology*, vol. 108, no. 1, pp. 55-101.