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The Race for Highly-Skilled Workers

Editors
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Editorial

Returns to Human Capital and the Incorporation of Highly-Skilled Workers in the Public and Private Sector of Major Immigrant Societies: An Introduction

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Abstract
Across the major immigrant societies of the European Union, EU-15 countries, migrants and minorities still experience economic disadvantage. This failure of economic integration poses significant questions about the utilization of human capital, the management of mobility and the competitiveness of European labour markets (Cameron, 2011; OECD, 2017). Using a variety of datasets, this special issue pushes the debate forward in several ways. We will consider the integration outcomes of both migrants and second generation minority members in comparison to majority members. Labour market outcomes will be considered broadly: the probability of employment but also overqualification will be taken into account. Offering both analysis of single country cases and a cross-national comparison, the special issue will build a comprehensive picture of the factors associated with labour market disadvantage of migrant men and women, and their descendants—particularly, differential returns to foreign qualifications and educational credentials, differences between public and private sectors placements, and where possible the period of the economic crisis will be examined as well.

Keywords
ethnic minorities; ethnic penalty; highly-skilled work; immigrant societies; returns to human capital

Issue
This editorial is part of the issue "The Race for Highly-Skilled Workers", edited by Neli Demireva (University of Essex, UK) and Ivana Fellini (University of Milano Bicocca, Italy).

1. Introduction: The Debate on Migrants and Minorities' Returns to Human Capital in Major Immigrant Societies

Across the major immigrant societies of Europe, migrants and minorities still experience significant economic disadvantage. This failure of economic integration poses important questions about the utilization of human capital, the management of mobility and the competitiveness of European labour markets. As the race for highly-skilled workers between the industrial economies of Europe, US, Canada and Australia intensifies, the success with which different regimes address the migration challenge and ensure the successful labour market incorporation of migrant workers becomes an issue of significant research and policy concern. The recognition of human capital is a major part of the story, and the collection of articles for this thematic issue suggests a relevant framework for the analysis of human capital returns in relation to employment outcomes and occupational attainment. Moreover, the articles consider the opportunities and labour market patterns of both new comers and their descendants as further shaped by their insertion into the public and the private sectors of the receiving societies.

Relying on both single-country and comparative studies, this thematic issue pushes forward in several ways

the debate on minorities' returns to human capital in Europe (comparatively in a cross-national perspective, but also through case studies in the UK, Italy, France, the Netherlands and Spain) and the US. First, all contributions place important focus on how *time* and *generational status* affect immigrants and minorities' labour market outcomes and returns to human capital. Among migrants, recent arrivals can be expected to experience some disadvantage as they lack specific human capital, knowledge of the labour market and social networks upon which to rely when searching for work. The collected studies provide important understanding of progress over time and generations. While some contributions look at the role of education in shaping the integration outcomes of migrants and second-generation minority members in comparison to majority members, others analyse how migration status and educational attainment—and their interaction—affect immigrants' labour market position and occupational mobility over time. In addition, some contributions have also considered changes occurring during the economic crisis, comparing the pre- and post-crisis period.

Second, in order to understand the role played by migrants' and minorities' educational attainment on their economic incorporation, the articles in this thematic issue consider a broad range of labour market outcomes. Returns to education are a traditional area of study for economists in migration studies, and the most considered outcome has been wages and the minorities-majority wage gap (Chiswick, 1978, 2000). The choice of multiple outcomes on which to assess the returns to education such as activity, employment probability and occupational status, including over and under qualification (the term qualification here used interchangeably with education), allows the authors in this thematic issue to account both for the "quantitative" dimension of the economic incorporation of immigrants—participation and employment opportunities—and the "qualitative" dimension which considers the types of job immigrants and ethnic minorities find and their consistency with individual's educational attainment. The measures of overeducation adopted in the studies throughout this issue focus both on deviations from the mean qualification level in each occupation (such as in the Spanish case), the mean, median and mode (as in the Norwegian case), or on the individual perception of overqualification (as in the French case).

Where possible and relevant, the articles collected here further share a focus on the role of the public sector in labour market integration and on the skill rewards of migrants and minorities in this sector compared to private sector employment (see the case study of the UK, the Netherlands, Norway and the US). Research shows that well-educated minority individuals may seek public sector jobs in order to avoid discrimination (Heath & Yu, 2005). Moreover, it has been demonstrated that graduates of female-dominated fields are disproportionately employed in the public sector (Roksa, 2005). States are often seen as having an obligation to serve as a model employer (Andrews, 2012), and minority members may note the better representation of penalized groups among the highly-skilled public sector employees observed in some countries (Chatterji, Mumford, & Smith, 2011).

2. Methodological and Empirical Frame

One of the major analytical strengths of this thematic issue is that it relies on a wide array of national and international data, in order to make the most of the specific information included in national surveys (for the country case studies), international surveys (European Labour Force Survey for the cross-national comparison) or administrative data (Norway). Not every article in the thematic issue considers all the above-mentioned labour market outcomes due to the characteristics of the data they use, and the empirical strategy adopted. Thus, even though all articles deal with similar research questions, and adopt a similar multivariate approach, every contribution has its own peculiar specificity due to the characteristics of available data, which necessitates a modification of the empirical strategy in order to allow for the specificity of the migration phenomenon in national labour markets (with due attention paid to the integration debate in the national contexts).

It is important to highlight that the country studies cover both "old" migration countries as the US, UK, the Netherlands, Norway and France and "new" migration countries like Italy and Spain. This distinction encompasses a number of relevant factors with important implications for labour market insertion, such as the composition of the population, the share of foreign-born and second generation in each country, the difference of migrant motivations (the share of refugees is high in Nordic countries), as well as a whole set of observable (socio-demographic features) and unobservable (motivation, projects, etc.) characteristics. While the average educational attainment of immigrants across OECD countries is similar to the educational attainment of majority members in the receiving society, there are large differences across OECD countries (OECD, 2014): in Southern European countries, for example, the foreign-born have a lower educational profile than the foreign-born in Continental and Anglo-Saxon countries.

These differences motivate some of the empirical choices made in the contributions here collected. All contributions take into account the different areas of origin of migrants and minorities, paying due attention to the country case migration history. Yet, we have tried to adopt a common framework which allows for a distinction between the old EU (EU15), post-2004 EU (new EU) member states, as well as an identification of the generally more disadvantaged migrants from predominantly Muslim (North African and Middle Eastern) countries.

To facilitate the interpretation of the results we also adopt a common terminology. We distinguish between

first generation immigrants (also called foreign born) and the second generation (individuals of immigrant descent born and raised in the receiving society).[1] We compare their outcomes to those of majority members (constituting the majority group in the receiving society). The terms host and receiving society are used interchangeably. Where it is not possible to distinguish the second generation from majority members because there is no information on parents' country of origin in the data, the authors have clearly indicated this.

3. The Country Studies: An Overview

Using an extensive number of national and international datasets, the articles in this thematic issue delve into the patterns of labour market incorporation of migrants and minorities in Europe and the US. Despite the very different educational and occupational attainment of immigrants across countries, the country studies here collected depict a generalised and substantial under-utilization of their human capital. Indeed, all studies estimate lower returns to education for immigrants and minorities, in comparison with majority members with the same characteristics. Nevertheless, the penalization of the highly-educated immigrants shows relevant differences across countries and the origin of the immigrants continues to be a most decisive factor, although the sector in which they are incorporated, public or private, and the period of observation, before or after the crisis matters too.

Zwysen and Demireva, in their contribution on the UK using Understanding Society, show that migrants face substantial difficulties in realizing good returns to their skills and human capital even if they have good degrees (Zwysen & Demireva, 2018). Foreign-obtained higher degrees make very little difference for men but bring a small gain among women. Importantly, this discounting of qualifications seems to mainly occur among migrants whose productivity and skills may be less clear to employers to start with—more recent migrants, those with poorer language skills, and those without UK qualifications. They show improvement over generations, with most UK-born ethnic minorities doing relatively better than their migrant co-ethnics, with important exceptions such as Pakistani and Bangladeshi as well as male black African second-generation individuals who remain at high risk of unemployment and over-qualification. Importantly, working in the public sector in the UK seems to bring with it some protection from the risk of over-qualification for the second-generation individuals and especially first-generation migrants.

Fellini, Guetto and Reyneri study the Italian case focusing on the returns to origin country education on the first job they find at arrival and on their subsequent occupational mobility (Fellini, Guetto, & Reyneri, 2018). Building on an extensive national survey and focusing exclusively on the first generation, they find very poor returns to origin-country post-secondary education, with very few differences in the area of origin, apart for immigrants from Western countries. This suggests a strong labour market segmentation in the Italian case, and, importantly, in the context of the Italian labour market, differences in the transferability and quality of skills are scarcely relevant. The analysis shows that in such a peculiar labour market and migration system the modes of labour market insertion—e.g., formal search methods or relying on contacts with majority members—have a sizeable impact on skill returns. Similarly, post-secondary degrees are associated with low returns on subsequent mobility, although highly educated immigrants from new EU member states experience higher chances of upward mobility. As regards mobility, the recognition of educational credentials is decisive for the very few non-Western immigrants who succeed in improving their occupational attainment over time.

Fernández-Reino, Radl and Ramos focus on Spain and the impact of the economic crisis. This study builds on the two ad-hoc modules of the European Union Labour Force Survey (2008 and 2014) and on the national Labour Force Survey. The analysis shows that, before the crisis, differences among the majority group, immigrants and their descendants as regards labour market participation and employment chances are not significant, whereas quite sizeable penalization of immigrants is to be noted as regards "employment quality" measured by involuntary part time and overeducation (Fernández-Reino, Radl, & Ramos, 2018). Nevertheless, labour market outcomes improve in the second generation. With the crisis, the penalization of immigrants dramatically increases as immigrant men are hit harder by the Great Recession than Spanish men in terms of employment (penalization that is perhaps underestimated given the fact that many immigrants have potentially returned to the country of origin).

The article by Guetto provides a comparative picture of returns to tertiary education for the foreign-born and the country-born population before and after the crisis (Guetto, 2018). Building on EU-LFS data from 2005 to 2013 for a selection of 10 Western European countries, this article shows that while employment gaps between immigrant and those born in the receiving society employment gaps remained unchanged in Northern and Continental Europe or even decreased, in Southern Europe, the immigrant disadvantage increased substantially, especially among men. No convergence between the selected European countries is observed regarding immigrant men's employment returns to tertiary education. While these returns increased in Southern European countries since the onset of the crisis, they still remained. Specifically, in countries such as Italy and Greece, the absolute returns to tertiary education for immigrants remain half of those of immigrants in Continental Europe, even after the economic crisis.

[1] Very few data allow such as Understanding Society in the UK, for the distinction of third generation individuals of immigrant descent. In this case second and third generation individuals have been grouped together.

Larsen, Rogne and Birkelund show that counter to their initial hypotheses, relative differences in overqualification do not seem to differ substantially by gender, nor by sector refuting the idea that the public sector plays a sheltering role (Larsen, Rogne, & Birkelund, 2018). They find that, while the prevalence of overqualification is generally higher for immigrants than for their descendants and majority members, these differences seem to diminish by time since immigration. For second and further generations, the prevalence of overqualification is generally comparable to its level among majority members. Thus, while overall overqualification is higher among the highly educated, the relative differences between immigrants and majority members remain substantial.

In France, Brinbaum's research shows that ethnic penalties in employment and in access to skilled occupations are observed for all immigrants but they decline in the second generation for almost all groups apart from immigrants of North-African and Sub-Saharan African origin (Brinbaum, 2018). Lack of human capital explains to some extent migrants' labour market disadvantages, particularly French knowledge and educational qualification transferability are very important. These variables have however a greater impact on occupation and perceived overqualification than on employment. In addition, tertiary degrees acquired abroad are largely discounted.

Using data from the first wave of the Netherlands Longitudinal Life-Course Study (NELLS), Khoudja demonstrates disadvantages in employment probabilities for men and women from different foreign origin groups compared to the Dutch majority even after accounting for differences in human capital (Khoudja, 2018). These remain stark for Turkish and Moroccan men but are less pronounced among women. Having a foreign degree brings substantial disadvantage. Overeducation appears less pronounced in the public sector than in the private sector with little differences among minorities and majority members in their returns to human capital in the Dutch public sector.

Finally, Lo Iacono and Demireva examine the US and find some sheltering for migrants and minorities in the public sector. Occupational attainment gains remain associated with public sector employment, underlying its importance in the fight against inequality and the existence of racial and ethnic hierarchies. Tertiary degrees especially the ones obtained in the US have a very important role in the labour market of the private sector, even more so among first- and second-generation women than among men. Yet, certain groups remain at a disadvantage considering they have been born in the US—such as Black men and second-generation Asian women (Lo Iacono & Demireva, 2018).

Some further interesting patterns can be noted. The articles in this thematic issue demonstrate low *transferability of degrees* obtained in educational systems other than the one of the receiving society, even in the case of tertiary degrees, which pattern in line with previous research appears to prevent access to highly-skilled occupations (Lancee & Bol, 2017). It is hard however to explain the penalization of the second generation in terms of lack of sufficient knowledge about degree transfers—their outcomes and particularly the low premium to tertiary degrees among some highly visible and disadvantaged groups raise important considerations about the existence of discrimination towards both immigrants and minorities (OECD, 2008, 2013).[2] Even though with no clear pattern, migrant women remain in a particularly disadvantaged position in the labour markets discussed in this article with more articulated and complex outcomes to interpret, this highlighting the need to go deeper in the gendered pattern of migrants' and minorities' economic incorporation.

Finally, a word on limitations. The empirical assessment of immigrants' returns to education on their labour market outcomes (whatever the outcome considered) presents some significant difficulties, and this is especially true for studying the first generation. Data does not always allow us to distinguish where immigrants acquired their education (in the origin or in the destination country) and to encompass fully a complex phenomenon such as the transferability of educational degrees. Even when controlling for origin-country education, we may miss the effect of immigrants' self-selection into higher education based on the origin country, depending on the level of socio-economic development and the share of population obtaining tertiary education (Barro & Lee, 2001). Moreover, data only rarely allow us to account for the effect of additional and country-specific human capital obtained in the receiving country under the form of training and/or work experience. The contributions in this thematic issue try to take account of these empirical problems where possible but more work needs to be done in this respect.

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Conflict of Interests

The authors declare no conflict of interests.

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[2] The field experiments in the GEMM project (Growth, Equal Opportunities Migration and Markets) will further contribute to this literature.

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Article

An Examination of Ethnic Hierarchies and Returns to Human Capital in the UK

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Abstract
This article focuses on the returns to human capital of migrants and minorities in the UK. The question of whether skills and qualifications are properly utilized is very pertinent given the global competition for skilled migrants and the aim of European and British markets to attract such workers. Using data from Understanding Society (2009 to 2017) we find that there is a clear evidence of ethnic hierarchies with black Caribbean and black African minorities generally most disadvantaged, while other white UK-born have the best outcomes compared to the white British. Western migrants generally do very well, but new EU migrants have high levels of employment, and low returns to their qualifications and relatively high levels of over-qualification. Foreign qualifications are generally discounted, and more so for migrants with less certain legal status or low language skills. Public sector employment plays an important role and is associated with the higher economic placement of migrants and minorities in the UK. There are some worrying trends however. Highly skilled migrants, particularly black migrants as well as those from Eastern Europe, come in with high qualifications, but their jobs do not match their skill levels.

Keywords
ethnicity; international migration; labour market; over-qualification

Issue
This article is part of the issue "The Race for Highly-Skilled Workers", edited by Neli Demireva (University of Essex, UK) and Ivana Fellini (University of Milano Bicocca, Italy).

1. Introduction

This article focuses on the labour market integration of migrants and minorities in UK, and the returns to human capital among different ethnic groups. The question whether skills and qualifications are properly utilized is very pertinent given the global competition for skilled migrants and the aim of European markets to attract such workers (Damas de Matos & Liebig, 2014). The economic integration of migrants and minorities is part of a wider conversation about equity and social cohesion and played an important role in the Brexit debates. Currently, both the Conservative government and the Labour party in opposition hold on to an ambition of reducing net migration and keeping migration under firm control. A decision however to curb migration to the 'tens of thousands' (The Conservative and Unionist Party, 2017) might come into direct conflict with plans to attract and ensure the inflow of highly skilled workers.

It is usually assumed that migrants' qualifications will not be fully transferable because they lack knowledge of the operation of the local labour market. Consecutive generations, born and raised in the UK, should not be exposed to the same process of discounting and knowledge adaptation that blighted their migrant parents. Yet, despite substantial increases in qualifications obtained over time and generations, labour market gaps are found to persist even for UK-born ethnic minority workers (e.g.,

Algan, Dustmann, Glitz, & Manning, 2010; Dustmann & Theodoropoulos, 2010). Such inability to match work and qualification levels is problematic and represents a loss for the UK as it signals the underutilization of skills and leads to a persistence of migrant and ethnic disadvantage within the UK.

Using data from Understanding Society, a representative UK panel study with a large ethnic minority boost sample (Knies, 2017), we analyse gaps in the employment and the probability of finding work appropriate to their skills for highly-skilled migrants and UK-born ethnic minorities comparing them to the white British majority. The article answers several pertinent questions. First, it describes the degree of transferability of migrants' qualifications and the importance of further human capital acquisitions for their labour market placement. We go beyond previous studies by considering heterogeneity in the returns to UK and foreign qualifications. Second, the article makes use of a large and recent data-set which includes an ethnic minority boost sample allowing for a detailed break-down of migrants and UK-born ethnic minorities compared to the white British majority. The previous literature on the topic has focused mainly on the dated Fourth National Survey of Ethnic Minorities 1993–1994 (e.g., Battu & Sloane, 2004) and the UK Labour Force Survey (LFS) (e.g., Lindley, 2009), and this timely analysis represents an important contribution. Finally, we study differences between the public and private sector to comment on the possible role of hiring discrimination, which is generally substantially larger in the private sector (Wood, Hales, Purdon, Sejersen, & Hayllar, 2009). This highlights the difference by sectors in the extent to which skills are put to use. By considering the role of education as to a variety of labour market outcomes and comparing the white British majority to migrants and ethnic minorities within one framework, this article contributes to the growing literature on labour market integration of highly educated migrants and ethnic minorities in the UK.

2. Background

Migrants in the UK are consistently found less likely to be employed than the white British majority. When employed, they tend to work on lower quality jobs and have lower earnings (e.g., Demireva & Kesler, 2011; Dustmann & Theodoropoulos, 2010; Li & Heath, 2008). There is evidence of clear polarization as migrants to the UK tend to be somewhat more highly educated than the white British majority on average, although this pattern differs between groups, but they are also more likely to arrive with very low qualifications (Dustmann & Theodoropoulos, 2010).

Within the general economic assimilation framework, migrants' labour market outcomes are expected to be lower both compared to their own position before migration and compared to similar majority members, as migrants lack host country specific human capital in the resident society (Chiswick, 1978, 2009; Duleep & Regets, 1999). Higher qualified migrants in particular may be at a disadvantage if their qualifications are not trusted or recognized by employers and are discounted. Over time, as migrants learn the customs and language, and acquire social networks and resources, these disadvantages should decrease. Further investments in host country human capital are also expected to benefit the more highly qualified as they increase the transferability of previously held qualifications (Duleep & Regets, 1999).

Indeed, Damas de Matos and Liebig (2014) show that the average migrant receives low returns to their qualifications, more so in Europe than in the US. They point to two barriers in transferring qualifications—namely a lack of language skills and employers not recognizing foreign qualifications as equivalent—and show that returns to qualifications are substantially higher for migrants who report better language skills and for those who obtained equivalence of their foreign degrees. Previous research has indicated that, even in countries such as Canada with a highly selective inflow of migrants through a points-based system, migrants' high qualifications are discounted and essentially worthless on the labour market in the short term (Aydemir, 2011).

These hurdles towards full labour market integration and equal valuation of qualifications should not be present for ethnic minorities born in the country, who received training in the receiving society. Contrary to this positive expectation, studies on generational improvement generally find persistent ethnic penalties in employment, earnings and occupational status for UK born minorities despite an improvement in education (e.g., Algan et al., 2010; Cheung, 2013; Dustmann & Theodoropoulos, 2010). These patterns are all the more puzzling because education has substantially increased over time and generations, with UK-born ethnic minorities generally more likely to be highly qualified than the white British (Modood, 2005). It is therefore very relevant to study the extent to which different qualifications can improve the economic standing of individuals.

It is important to consider not only employment, but also whether migrants and minorities work on jobs that match their qualifications. Working on a job for which one is over-qualified does not have to be problematic in itself, as it can reflect genuine heterogeneity in skills within qualification levels, is associated with generally higher pay than those doing the same job with matched qualifications and, especially for migrants, may also still represent a significant improvement in pay from the situation in the origin country (Borjas, Kauppinen, & Poutvaara, 2018; Green & McIntosh, 2007; Quintini, 2011). Previous research does suggest a disproportionally high risk for migrants and ethnic minorities of working on jobs for which they are over-qualified, as well as lower returns to this over-qualification meaning their qualifications are generally disregarded (Battu & Sloane, 2004; Lindley, 2009). While this is problematic for individuals, over-qualification can also represent a loss for the host coun-

try as the hoped-for productivity improvements does not occur (Huber, Landesmann, Robinson, & Stehrer, 2010).

Several studies have focused specifically on returns to human capital. Using a 1993–1994 sample of ethnic minorities in the UK, Battu and Sloane (2004) show that non-white minorities are generally more at risk of over-education. They also show that foreign qualifications are generally discounted in the sense that they increase the risk of over-education. UK-born minorities are at a disadvantage as they are more likely to be over-educated and also receive no payment bonus for their higher-than-average qualifications while white workers do. In the more credentialist, and possibly less discriminatory, public sector, these disadvantages are generally lower. Lindley (2009) uses the UK LFS to study over-education for migrants and minorities with UK qualifications and shows that UK-born non-white men and Indian, Pakistani and Bangladeshi women are more likely to be over-qualified than UK-born whites and receive lower returns to their high qualifications. Johnston, Khattab and Manley (2015) use the UK LFS to study over-qualification among West and East European migrants compared to the white British natives. They show especially high over-qualification for new EU migrants who are also paid least for their additional qualifications within each job, while West European migrants are very highly qualified and do well on the labour market. Rafferty (2012) shows substantial ethnic penalties in graduate over-education, employment probability and earnings even among the highly qualified British ethnic minorities. He suggests this may be partly explained by differences in socio-economic status or types of qualifications. Zwysen and Longhi (2018) use detailed data on recent graduates from UK universities to show substantial ethnic gaps in employment and, to a lesser extent, earnings, six months after graduation. Even when accounting for detailed type of degree, parental background and socio-economic status these differences in employment remained.

These studies all indicate that, while higher qualifications are beneficial and lead to better outcomes for migrants and minorities, the actual benefits experienced among these groups are substantially less than those experienced by the white British majority. Worryingly, even UK qualifications are discounted for migrants and ethnic minorities. We build on this literature and expand it by using recent representative data with detailed ethnic groups and migrant status; considering both employment and over-qualification compared to the majority for these detailed groups; and analyzing the conditions under which foreign qualifications are discounted more.

Besides a lower transferability of human capital, these differences may also be due to discrimination. To obtain an indication of the role played by employer decisions—both in uncertainty about qualifications and in discounting them due to statistical discrimination or prejudice—we study differences in ethnic penalties between the public and private sector of employment. Hiring discrimination, estimated through correspondence tests, has been shown to be much lower or even non-existent, in the more scrutinized public sector in the UK (Wood et al., 2009).

3. Data and Variables

In order to answer our questions on labour market outcomes of skilled migrants and minorities we use the seven available waves of Understanding Society, a large and representative UK Household Panel Study which started in 2009 (Knies, 2017). The survey includes an ethnic minority boost sample which oversampled respondents of six large ethnic groups in the UK, as well as having recently added a further immigrant boost sample. We restrict the sample to those of working age (16 to 64) who reported not being in full-time education or training or being retired. After listwise deletion of missing observations the final sample consists of 175,773 observations for 46,514 respondents. We use the provided weights to account for sample selection and attrition over the waves throughout the article.

We consider two main outcomes: first, the probability of being employed rather than inactive or unemployed; second, among those who work, we consider whether the type of job matches respondents' qualifications. There are several ways of measuring whether qualifications are matched, including expert assessments of the requirement of a position, subjective assessments of workers and the statistical method—where the respondents' qualifications are compared to the qualifications of people doing the same or similar work, using the average or mode (Battu & Sloane, 2004; Quintini, 2011). In this article we use the latter, as it is more readily available and follows previous studies in the UK (e.g., Battu & Sloane, 2004; Johnston, Khattab, & Manley, 2015; Lindley, 2009). One drawback may be that this does not capture skills differences within qualifications. We compare workers' education expressed as years,[1] to the UK average in the 4-digit occupation. The average years of schooling within the occupation is obtained from a detailed set of highest qualifications within 4-digit occupations in pooled quarters of the UK LFS, a large-scale representative survey of workers. As the occupational codes (SOC) change in 2010 we use the 2008 and 2009 LFS to estimate the years of schooling for detailed SOC2000 codes, and LFS 2011 through to 2017 to obtain information at SOC2010 level. These averages and the standard deviation of years of schooling within an occupation were then matched to the Understanding Society sample, with 27% having SOC2010 codes, and have been used to catego-

[1] Respondents to Understanding Society (Knies, 2017) report their highest obtained qualifications, which we converted to the expected years of education for that qualification. Those with higher degrees were assigned 17 years of education; those with a first degree, or nursing/other medical qualifications 16; those with a diploma of higher education, teaching qualifications (not PGCE), or other higher 15; those with A-levels, a Welsh baccalaureate, an international baccalaureate, a Higher (Scottish), or a Certificate of 6th year studies 13 years; those with AS levels or other school certificates 12; those with at most a GCSE, CSE, Standard/O/Lower 11 years, and those with no qualifications were arbitrarily assigned 9 years of education.

rize every worker in each year as either under-qualified—meaning their schooling falls 1 standard deviation below the average; matched—their schooling falls within a standard deviation on either side of the average; and over-qualified—their schooling is more than one standard deviation above the average. As a sensitivity test, we define over-qualification as being above the modal years of education and find this makes no difference.

We classify respondents into 17 groups based on country of birth and self-reported ethnicity, which is measured according to census categories—essentially a mixture of ethnicity and immigration status. The reference group consists of white British UK-born respondents, the majority population. We further include two categories each—migrant (born abroad) and UK-born—for other white, Indian, Pakistani and Bangladeshi, other Asian including Chinese, black Caribbean, black African, and other (including mixed) ethnicity. We further split up other white migrants depending on the country of birth, and identify migrants born in one of the 13 post-2004 EU member states (new EU migrant), migrants born in the EU15/EEA or Australia, US and Canada (Western migrants), and migrants who are born elsewhere and identify as other white (other white migrant). Such a distinction is particularly important in the discussion of the placement of highly skilled workers and is particularly relevant in the British context since the Brexit debates questioned the contribution of EU migrants from recently joined EU states.

We are particularly interested in the extent to which educational qualifications benefit migrants and UK-born minorities. Qualifications are measured in three categories: having, at most, upper secondary qualifications (low: A-level or equivalent), having further qualifications (middle: post-secondary non-tertiary), and having degree-level qualifications (high: tertiary). Among migrants we also distinguish between those who have obtained any post-secondary qualifications in the UK and those who acquired a degree outside of the UK.

Respondents are classified as working in the public sector if they report their sector as nationalized industry, central or local government or civil service, health authority or NHS trust, or university or grant-funded education establishment rather than private firm or business or a charity or voluntary organization, excluding those in the armed forces.

4. Methodology

4.1. Differences by Migrant and Ethnic Status by Qualification

To answer our main question on the pattern of labour market outcomes among migrants and UK-born minorities compared to the UK-born white British we estimate differences in the probability of employment and the probability of being over-qualified rather than having matching or too low qualifications (*Y*) as shown in equation 1. These models are estimated through binary logistic regression. All analyses are weighted, and standard errors are clustered by unique person-identifier to account for repeated observations. *X* includes control variables: age, whether respondents cohabit with a partner or are married, self-reported health (fair or poor rather than excellent or good), as well as the year of the interview and government office region. To estimate whether higher qualifications benefit migrants and minorities we include an interaction term between origin (*Or*) and highest obtained qualifications (*Ed*). We report results as the difference in predicted probabilities of being in each outcome for each migrant/minority group compared to white British workers with similar qualifications, estimated at the grand margin.

$$Y = F(\beta_0 + \beta_1 \times X + \beta_2 \times Ed + \beta_3 \times Or + \beta_4 \times Or \times Ed + \varepsilon) \quad (1)$$

4.2. Migrant Returns to Foreign and UK Qualifications

In a second analysis (equation 2) we study differences in the returns to foreign and UK post-secondary qualifications compared to having lower qualifications specifically for migrants. We then include three interactions in three separate models to study whether the returns to foreign and UK qualifications depends on host country acquisitions, namely whether migrants report any difficulties in speaking English in day-to-day conversations, on the phone, reading English or filling in forms in English (*language*), are citizens (*citizen*), and their years of residence (*yor*). On average, we would expect foreign qualifications to be discounted, but less so for those who are otherwise more integrated (through citizenship, good language skills and having lived in the UK for longer). Due to a smaller sample size we do not differentiate between origin groups in these analyses.

$$\begin{aligned} Y = F(&\beta_0 + \beta_1 \times X + \beta_2 \times Ed_{UK} + \beta_3 \times Ed_{fgn} + \beta_4 \times \\ &\times citizen + \beta_5 \times language + \beta_6 \times yor + \\ &+ \varepsilon[base] + \gamma_1 \times Ed_{UK} \times citizen + \gamma_2 \times Ed_{fgn} \times \\ &\times citizen[Model\ 1] + \delta_1 \times Ed_{UK} \times language + \\ &+ \delta_2 \times Ed_{fgn} \times language[Model\ 2] + \theta_1 \times \\ &\times Ed_{UK} \times yor + \theta_2 \times Ed_{fgn} \times yor[Model\ 3]) \end{aligned} \quad (2)$$

4.3. Differences by Sector

The final model tests whether ethnic and migrant penalties in the probability of being over-qualified differ between the public and private sector by interacting origin and working in the public rather than private sector as shown in equation 3. As the public sector ought to be both more credentialist and less discriminating, we expect lower average gaps with the majority. As there are citizenship restrictions on who can apply to public sector jobs, the sample in this analysis comprises of respondents that are either born in the UK or the EU, or have UK citizenship. We restrict the data to those with post-

secondary qualifications.

$$Y = F(\beta_0 + \beta_1 \times X + \beta_2 \times Or + \gamma_1 \times Sector + \\ + \gamma_3 \times Sector \times Or + \varepsilon) \quad (3)$$

5. Findings and Discussion

5.1. Descriptive Statistics

Full descriptive statistics for our sample are available in Table A1 (a, b) in the supplementary annex, while Table A2 shows the proportion of respondents that are employed as well as the proportion that work on jobs where the average qualifications are higher than their own (under-qualified) or are lower than their own (over-qualified).

The share of highly qualified respondents is substantially higher among migrants than among the white British (25%) and ranges between 37% (black African) and 48% (other Asian), with the exception of Pakistani/Bangladeshi migrants (24%) and black Caribbean migrants (20%). The range of migrants with UK qualifications varies immensely between 15% for new EU member states, over 52% among Western migrants and up to 81% for black Caribbean migrants. UK-born ethnic minorities are all more highly qualified than the white British, with the share of graduates ranging between 28% (black Caribbean) and 57% (black African). Migrants in our sample appear to be well integrated with high shares of UK citizenship and relatively few reported difficulties with English.

Descriptively there is a clear pattern of UK-born ethnic minorities as well as black Caribbean, black African and Pakistani/Bangladeshi migrants generally being less likely to be employed than the white British, while migrants from new EU countries, Indian and other Asian migrants have relatively high employment probabilities. The employment probability for low-qualified Pakistani and Bangladeshi women stand out at the very bottom of the employment hierarchy. Higher qualifications contribute substantially and positively to the probability of employment for everyone, although the difference between post-secondary non-tertiary and tertiary qualifications on employment is relatively small. The difference in employment by qualification level is generally smaller among migrants, particularly men, than among the white British.

By operationalization, those with higher qualifications are also more likely to be over-qualified than those with low qualifications. Among white British men the risk of over-qualification is 47% for graduates while it is 41% for women. The shares of over-qualification among highly qualified migrants are generally substantially higher than those of the white British and of UK-born co-ethnics, with the exception of black Caribbean individuals where migrants are less likely than the white British graduates to be over-qualified, and for black Africans where both UK-born and migrants are at very high risks of over-qualification (75 to 79 percentage points). Over-qualification is very high for migrants from the new EU countries (90% for men and 73% for women), while the numbers for Western migrants or UK-born other whites are much closer to those of the white British. On average, over-qualification is generally less likely among women than men. Interestingly, it is very uncommon for UK-born minorities and migrants to work on a job for which their qualifications are less than expected. We therefore focus on over-qualification in the analyses. These descriptive patterns are worrying especially given that migrants appear well-integrated in terms of citizenship, and for migrants and minorities in terms of degrees held.

5.2. Migrant and Minority Gaps in Outcomes

Figure 1 shows the estimated differences (AME) in the probability of having a job compared to white British workers of the same qualification level who are otherwise similar in terms of socio-demographic characteristics while Figure 2 focuses on the probability of being over-qualified. Full regression results are shown in Table A3 and Table A4 in the supplementary material. A positive effect indicates a higher risk of resp. employment or over-qualification while 0 indicates no difference. In terms of employment the outcomes of white migrants are very similar to those of the white British majority, but the new EU migrants stand out as having very high risks of over-qualification. Contrary to our initial expectations, we do not find a clear gradient and smaller employment gaps for the more highly qualified. Among migrant men the opposite pattern is often found which means their employability decreases with an increase in the qualifications held compared to the white British majority. The largest employment gaps are found for black African migrants and black Caribbean UK-born individuals.

Among female migrants we generally find the most pronounced gaps among the respondents with better qualifications, with the exception of Pakistani/Bangladeshi migrant and UK-born women, where gaps are high among all groups. The patterns for men and women are generally quite similar, although Pakistani and Bangladeshi women do worse than Pakistani and Bangladeshi men, while black Caribbean men do somewhat worse than Black Caribbean women. Over-qualification is a substantial problem for all highly qualified male migrant groups, as well as for black African UK-born men.

We should reiterate that while UK-born minorities generally do better than migrants, some groups—particularly Pakistani and Bangladeshi (especially women), and black Caribbean and black African men regarding resp. employment and over-qualification—are still significantly worse off than their white British counterparts. UK-born other whites generally do better than the white British however. White migrants have generally high employment probabilities, particularly among

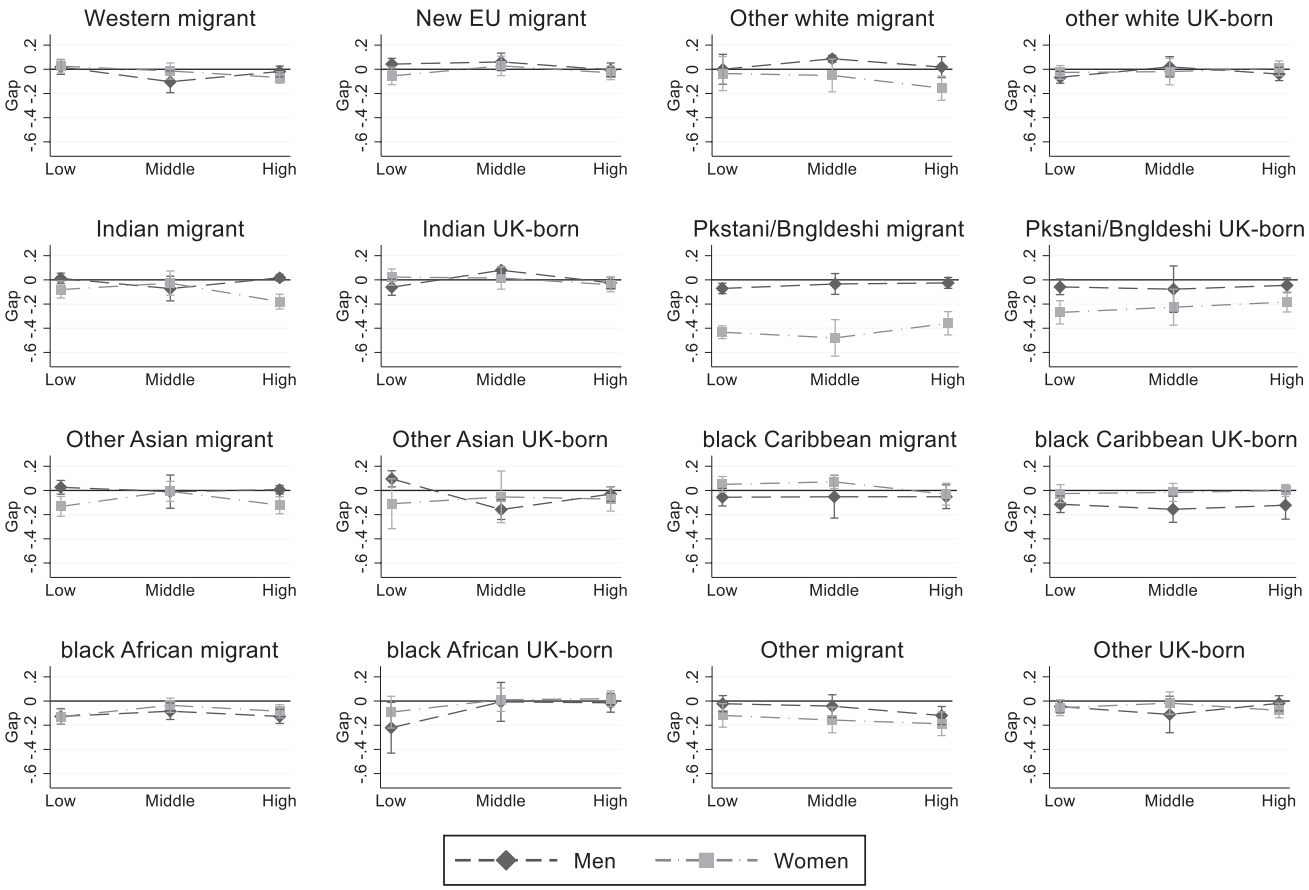

Figure 1. Estimated difference (95% Confidence interval) from white British majority in probability of employment.

men, however new EU men are very likely to be over-qualified. This supports previous findings which indicate that migrants from new EU countries generally worked on less good jobs, possibly due to more cyclical migration patterns and the plan to return back rather than build up a career in the UK (Johnston et al., 2015).

5.3. Mechanisms behind Low Returns to Migrant Qualifications

To test the reason behind low returns to higher qualifications for migrants we split up having any post-secondary qualification into those obtained abroad and those obtained in the UK, comparing both to having only upper-secondary qualifications. To test whether the discounting of qualifications varies by other human capital we estimate three further models in which post-secondary qualifications are interacted with having problems with reading, writing or everyday English, whether respondents are UK citizens, and the years of residence (squared). It is relatively rare to have post-secondary UK qualifications, but low language skills (only 111 cases, or 2% of migrants with UK qualifications) while 14% of migrants with foreign qualifications have poor English skills. Out of the respondents with foreign post-secondary qualifications in the sample 28% are not citizens and 15% have higher UK qualifications.

Figure 3 presents the predicted returns of having foreign post-secondary qualifications and of having UK post-secondary qualifications compared to at most higher secondary qualifications on employment for migrants, estimated as average marginal effects (AME) from binary logistic regression; and Figure 4 shows the probability of being over-qualified. Full regression results are presented in Table A5 and Table A6 in the supplementary material.

A first observation is that the returns to post-secondary qualifications on employment are generally rather small for male migrants, but substantial for women (close to 20 percentage points). The returns to foreign qualifications are generally lower than UK qualifications however, importantly, they are not significantly different from zero for men ($p < 0.05$), although they are associated with better employment outcomes for women. Men with poor English skills do not benefit at all from foreign qualifications. Similarly, the returns to foreign qualifications are higher and significantly different from zero for UK citizens than for those who are not citizens. Both these findings point to foreign qualifications being more discounted in cases of greater uncertainty about the human capital and skills of the applicants—e.g., when English proficiency is poor or there are other possible legal hurdles. Among men the returns to foreign qualifications remain low regardless of years of resi-

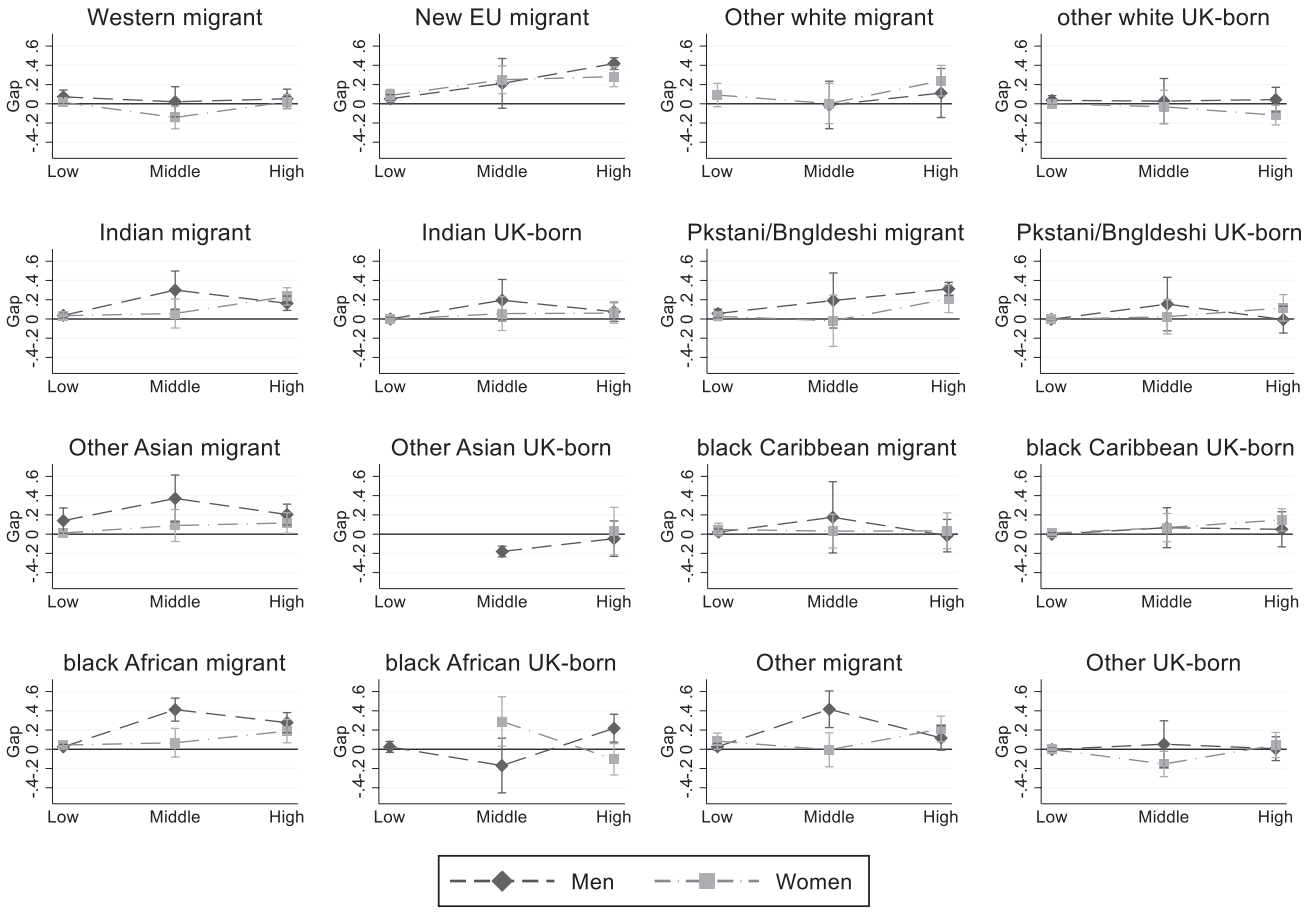

Figure 2. Estimated difference (95% Confidence interval) from white British majority in probability of being over-qualified. Source: Understanding Society 2009–2017 (Knies, 2017), showing the estimated difference in predicted probability at grand margin for origin groups from white British majority by qualification (low: at most upper secondary, middle: post-secondary non-tertiary, or high: tertiary) from weighted binary logistic regression model with clustered standard errors by person. Note: Models control for age (squared), urban, cohabiting, dependent child, poor health, fixed effects for year of survey and government office region, and include qualifications and origin interactions.

dence, but among women the largest discounting occurs among the more recent migrants.

In terms of over-qualification there is very little difference among men, with all those with post-secondary qualifications being more likely than those with at most upper secondary qualifications to be over-qualified. Among women the risk is substantially higher for those with foreign qualifications. There is on the whole little difference by host country acquisitions, although foreign qualifications are generally worse in terms of over-qualification for migrants with poor English than for those with better English skills. As the latter is imprecisely estimated, we should be careful not to over-interpret this pattern.

Our findings indicate that high foreign qualifications are indeed less valuable than UK qualifications and are generally associated with a substantially higher risk of being over-qualified. We find some evidence that foreign qualifications are particularly discounted for migrants who are otherwise less integrated—reporting difficulties with English or not having UK citizenship. This indicates that foreign qualifications may be particularly problematic when there is uncertainty about migrant workers. We further find that this difference between foreign and UK qualifications is particularly relevant for women. This may reflect a wider variation in reasons for migration among women, with those with foreign qualifications possibly coming for reasons other than work.

5.4. Differences by Sector

This article shows that over-qualification is a substantial issue for migrants and particularly for those with foreign qualifications, while UK-born minorities are not much more likely than their white British counterparts to be over-qualified with the exception of black African men and black Caribbean women. In this final part we study whether there are differences between sectors as selection of minorities into the public sector, which offers more protection from discrimination, may explain differences. Descriptively we find high rates of working in the public sector for other white second generation groups (39%) and especially black second generation (41%) with even black migrants (33%) more likely to work on the

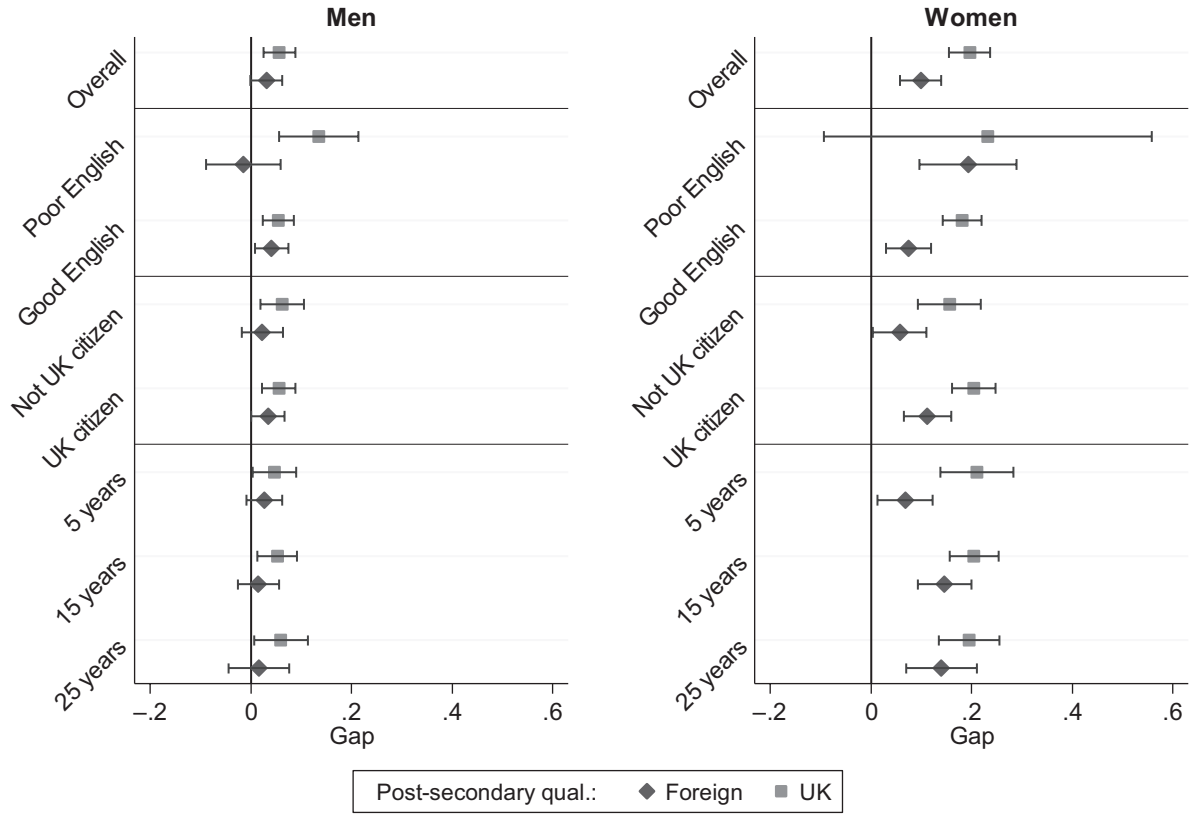

Figure 3. Estimated effect of having foreign or UK post-secondary qualifications over post-secondary qualifications on employment for migrants.

public sector than the white British. This could be an indication of a strategy to protect against discrimination as well as selective recruitment efforts that modify migrant placement.

Table 1 shows the estimated gap in the probability of working on a job matching qualification and on a job for which respondents are over-qualified by gender and by sector. The analyses are restricted to those with UK citizenship or born in the UK, as they all have access to public sector jobs, and to those with post-secondary qualifications. Full regression results are shown in table A7 in the appendix.

Working in the public sector clearly provides shelter from disadvantage compared to similar white British. New EU, Indian, other Asian, Pakistani/Bangladeshi, black African and other male and female migrants, as well as Pakistani/Bangladeshi female UK-born, male Indian UK-born, and other white female migrants are all between 10 and 40p.p. more likely than their white British counterparts to be over-qualified when working in the private sector. In the public sector there are no such gaps with the exception of black African male and female migrants, UK-born black Caribbean women, UK-born black African men, Indian UK-born women, and female migrants from the new EU who are over-qualified in both public and private sector jobs. On average, UK-born minorities and especially migrants are more likely to find work matching their qualifications within the public sector than in the private sector. While this could indicate less discrimination in the hiring process (Wood et al., 2009), it could also indicate higher selection, especially on credentials, in the public sector than in the private sector. Further, the average level of education is higher in the public sector (14 years of education on average compared to 13 years in the private sector) which would mechanically decrease the risk of over-qualification.

5.5. Robustness

Instead of studying the probability of working rather than not working, we restricted the analyses to those reporting they were looking actively for work in the last four weeks prior to the survey. This means the inactive or discouraged workers are excluded. When restricting outcomes to being employed rather than unemployed the differences among male white migrants are generally smaller particularly among lower qualified ethnic minority men—which indicates that they're on average lower employment probabilities are driven by higher inactivity. The same pattern with strong disadvantage for black Africans and black Caribbeans remains however. Among women as well the gaps are generally smaller, but remain substantial especially for Pakistani and Bangladeshi women, which indicates their higher non-employment is driven by higher unemployment as well as substantially higher inactivity rates. For other Asian UK-born women

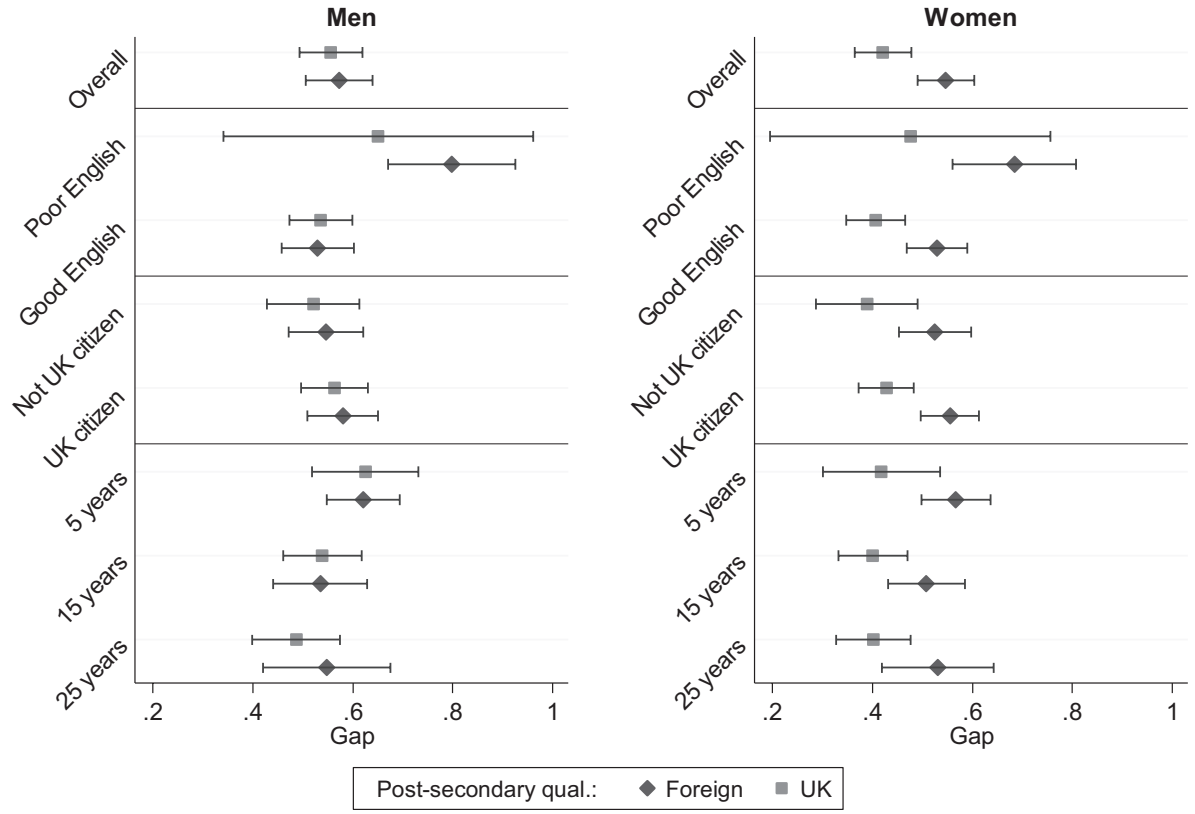

Figure 4. Estimated effect of having foreign or UK post-secondary qualifications over post-secondary qualifications on being over-qualified for migrants. Notes: Showing estimated returns to post-secondary qualifications compared to at most upper secondary for migrants, depending on whether obtained abroad or in the UK, in a baseline model controlling for urbanity, health, family situation, region and year, language skills, citizenship and years of residence (overall), as well as separate models interacting post-secondary qualifications with resp. language skills, citizenship, and years of residence (squared); effect in predicted probabilities estimated at grand margin.

the gap is almost wholly driven by inactivity however. As a second sensitivity test, we defined the qualification level in the occupation through the lowest mode of years of schooling rather than the average. This measure is more robust to highly qualified outliers or high variation within an occupation. We find that the gaps in over-qualification remain very similar whether the mode or mean is used. The results are presented in table A8 and table A9 in the supplementary material.

6. Conclusion

This article sets out to study the labour market integration and full use of the high human capital of migrant and ethnic minority workers in the UK. We show that tertiary qualifications do help to increase labour market outcomes of migrants and ethnic minorities and somewhat close their labour market gaps compared to the white British—the largest penalties are invariably experienced by the lowest qualified, not by the highest. Yet, important gaps remain even among highly qualified migrants and minorities. They are generally lowest for white second generation and worst for black Caribbean and black African first- and second-generation individuals. UK-born minorities and especially migrants are almost never under-qualified compared to white British indicating that while majority members may be able to project higher productivity than their qualification implies, this is very unlikely for minorities and all but impossible for migrants.

How helpful are higher qualifications to migrants and second-generation minority members in the UK? Migrants face substantial difficulties in realizing good returns to their skills and human capital from abroad to the UK, which also represents a loss for the UK economy. Even foreign-obtained higher degrees make little difference for men, while for women there is a very small gain. Importantly, this discounting of qualifications seems to mainly occur among migrants whose productivity and skills may be less clear to employers to start with—more recent migrants, those with poorer language skills, and those without UK qualifications. This indicates that further integration in the host country—and further investments such as language skills—also help diminish the discounting of qualifications for migrants. This should be a policy priority in order to make the most of the highly-skilled migrants in the UK who already have invested perhaps considerable resources to obtain a University degree abroad.

Finally, we show that compared to the public sector, in the private sector, UK-born minorities as well as mi-

Table 1. Estimated difference in predicted probability of being matched or over-qualified for job compared to white British majority, for those with post-secondary qualifications by gender and sector.

		Men		Women	
		Match	**Over-qualified?**	**Match**	**Over-qualified?**
Western migrant	Private	−0.042	0.074	0.036	−0.038
	Public	0.022	0.003	0.060	−0.016
New EU migrant	Private	−0.317***	0.371***	−0.246***	0.259***
	Public	0.115	−0.047	−0.126	0.168*
Other white migrant	Private	0.095	−0.031	−0.113	0.138*
	Public	0.177	−0.100	−0.180	0.150
Other white UK-born	Private	−0.076	0.058	0.027	−0.129**
	Public	−0.069	0.052	0.006	−0.071
Indian migrant	Private	−0.179***	0.223***	−0.218***	0.241***
	Public	0.059	0.006	−0.024	0.097
Indian UK-born	Private	−0.111**	0.134**	−0.015	0.017
	Public	0.012	0.023	−0.098	0.132*
Pakistani/Bangladeshi migrant	Private	−0.291***	0.338***	−0.216***	0.226***
	Public	0.012	0.026	−0.001	0.045
Pakistani/Bangladeshi UK-born	Private	−0.149**	0.051	−0.134**	0.136**
	Public	0.105	−0.071	0.031	0.011
Other Asian migrant	Private	−0.252***	0.296***	−0.132**	0.158***
	Public	0.089	−0.048	0.069	−0.018
Other Asian UK-born	Private	−0.121	−0.020	0.284**	−0.274***
	Public	0.163	−0.120	−0.001	0.072
Black Caribbean migrant	Private	−0.046	0.100	−0.038	0.067
	Public	0.172	−0.112	−0.031	0.093
Black Caribbean UK-born	Private	−0.099	0.052	−0.046	0.071
	Public	−0.030	0.061	−0.122*	0.174**
Black African migrant	Private	−0.329***	0.390***	−0.145***	0.149***
	Public	−0.143	0.199**	−0.110	0.153*
Black African UK-born	Private	−0.126	0.174	−0.013	−0.059
	Public	−0.469***	0.323**	0.024	0.019
Other migrant	Private	−0.223***	0.266***	−0.187***	0.197***
	Public	0.124	−0.068	−0.047	0.101
Other UK-born	Private	0.053	−0.021	0.029	−0.023
	Public	−0.117	0.146	0.007	−0.057
N			20,269		27,939

Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$; estimated gap in predicted probability of working a job matching own qualifications or being over-qualified compared to white British UK-born for those with at least post-secondary qualifications, estimated from logistic regression controlling for age (squared), urban, health, family situation, education, year of survey and region, weighted and with clustered standard errors; marginal effects by private/public sector are shown at the grand margin.

grants are less likely to work on jobs that match their qualifications fully. While there may be several reasons for this finding, it could indicate that part of this discounting is due to higher discrimination when hiring ethnic minorities—particularly present in the private sector. Future research should address the clearly better outcomes within the public sector.

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Conflict of Interests

The authors declare no conflict of interests.

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Annex

Table A1a. Descriptive statistics of sample for UK-born.

	White British UK-born	Other white UK-born	Indian	Pakistani/ Bangladeshi	Other Asian	Black Caribbean	black African	other
Employed	0.80	0.73	0.78	0.60	0.76	0.71	0.79	0.70
Unemployed	0.07	0.08	0.10	0.17	0.12	0.17	0.12	0.14
Inactive	0.13	0.20	0.13	0.23	0.12	0.12	0.09	0.16
Match qualifications (mean)	0.60	0.54	0.61	0.62	0.62	0.62	0.52	0.60
Over-qualified (mean)	0.22	0.25	0.05	0.09	0.08	0.11	0.04	0.15
Under-qualified (mean)	0.18	0.21	0.33	0.29	0.30	0.27	0.44	0.25
Match qualifications (mode)	0.58	0.57	0.61	0.59	0.71	0.62	0.56	0.59
Under-qualified (mode)	0.25	0.26	0.13	0.12	0.09	0.16	0.09	0.19
Over-qualified (mode)	0.17	0.17	0.26	0.29	0.20	0.22	0.35	0.22
Low qualifications	0.62	0.61	0.46	0.60	0.45	0.55	0.30	0.52
Middle qualifications	0.12	0.11	0.12	0.09	0.07	0.17	0.14	0.15
Tertiary qualifications	0.25	0.29	0.42	0.30	0.49	0.28	0.57	0.34
Degree obtained in the UK	0.99	0.95	1.00	0.98	0.99	0.97	0.89	0.98
dummy: urban	0.74	0.56	0.98	0.99	0.93	1.00	0.98	0.95
dummy: cohabiting	0.70	0.66	0.58	0.57	0.53	0.34	0.33	0.43
dummy: dependent child	0.42	0.46	0.49	0.50	0.38	0.45	0.40	0.41
dummy: poor health	0.17	0.21	0.15	0.18	0.09	0.21	0.10	0.19
dummy: UK citizen	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
dummy: English first language	0.99	0.97	0.77	0.65	0.91	1.00	0.93	0.97
N observations	136431	3930	2176	2877	435	2083	521	2834
N person-id	34589	983	617	918	123	583	177	798

Table A1b. Descriptive statistics of sample for migrants.

	EU-15 + NO	New EU	Other white	Indian	Pakistani/ Bangladeshi	Other Asian	Black Caribbean	Black African	Other
Employed	0.81	0.81	0.80	0.75	0.47	0.76	0.71	0.67	0.67
Unemployed	0.06	0.06	0.07	0.07	0.11	0.07	0.16	0.15	0.11
Inactive	0.13	0.13	0.14	0.18	0.42	0.18	0.13	0.18	0.22
Match qualifications (mean)	0.59	0.40	0.51	0.46	0.43	0.49	0.56	0.43	0.49
Over-qualified (mean)	0.13	0.17	0.12	0.14	0.23	0.10	0.23	0.12	0.13
Under-qualified (mean)	0.29	0.43	0.38	0.39	0.34	0.41	0.21	0.45	0.37
Match qualifications (mode)	0.61	0.41	0.59	0.53	0.51	0.56	0.56	0.51	0.53
Under-qualified (mode)	0.16	0.15	0.12	0.13	0.16	0.09	0.23	0.10	0.14
Over-qualified (mode)	0.22	0.44	0.29	0.34	0.33	0.35	0.21	0.39	0.33
Low qualifications	0.41	0.52	0.35	0.45	0.71	0.40	0.66	0.46	0.46
Middle qualifications	0.14	0.10	0.23	0.11	0.04	0.12	0.14	0.17	0.11
Tertiary qualifications	0.45	0.38	0.42	0.44	0.24	0.48	0.20	0.37	0.43
Degree obtained in the UK	0.52	0.15	0.24	0.34	0.36	0.47	0.81	0.51	0.46
dummy: urban	0.78	0.86	0.84	0.98	1.00	0.97	0.99	0.99	0.95
dummy: cohabiting	0.69	0.77	0.79	0.85	0.85	0.78	0.42	0.59	0.70
dummy: dependent child	0.43	0.54	0.53	0.54	0.75	0.54	0.40	0.62	0.58
dummy: poor health	0.12	0.10	0.14	0.18	0.27	0.14	0.28	0.12	0.18
dummy: UK citizen	0.73	0.62	0.78	0.82	0.87	0.80	0.89	0.79	0.81
dummy: English first language	0.70	0.12	0.35	0.22	0.12	0.15	0.96	0.35	0.31
N observations	3408	1942	686	3998	5320	2506	1201	3327	2098
N person-id	997	585	212	1201	1731	737	388	1202	673

Table A2. Probability of employment and match with qualifications by qualifications and gender. Source: Understanding Society 2009-2017, showing labour market outcomes by qualifications (low: at most upper secondary, middle: post-secondary non-tertiary, or high: tertiary) (Knies, 2017).

		Men			Women		
Qualification		**Low**	**Middle**	**High**	**Low**	**Middle**	**High**
White British	Employed	0.80	0.92	0.94	0.70	0.86	0.90
	Under-qualified	0.35	0.15	0.02	0.30	0.10	0.03
	Over-qualified	0.01	0.35	0.47	0.01	0.41	0.41
Western migrant	Employed	0.82	0.84	0.92	0.72	0.85	0.84
	Under-qualified	0.26	0.07	0.00	0.32	0.08	0.00
	Over-qualified	0.09	0.35	0.52	0.03	0.25	0.43
New EU migrant	Employed	0.88	0.98	0.95	0.62	0.89	0.87
	Under-qualified	0.41	0.00	0.00	0.23	0.03	0.00
	Over-qualified	0.07	0.57	0.90	0.11	0.71	0.73
Other white migrant	Employed	0.80	0.99	0.95	0.60	0.78	0.74
	Under-qualified	0.33	0.02	0.00	0.28	0.10	0.00
	Over-qualified	0.00	0.32	0.58	0.11	0.43	0.65
Other white UK-born	Employed	0.67	0.91	0.89	0.65	0.83	0.89
	Under-qualified	0.47	0.12	0.05	0.33	0.24	0.08
	Over-qualified	0.05	0.42	0.51	0.01	0.37	0.28
Indian migrant	Employed	0.85	0.85	0.96	0.59	0.81	0.69
	Under-qualified	0.43	0.00	0.00	0.29	0.00	0.00
	Over-qualified	0.04	0.63	0.63	0.04	0.46	0.66
Indian UK-born	Employed	0.71	0.98	0.89	0.70	0.83	0.86
	Under-qualified	0.13	0.00	0.02	0.15	0.01	0.00
	Over-qualified	0.02	0.57	0.60	0.01	0.47	0.53
Pakistani/Bangladeshi migrant	Employed	0.74	0.87	0.91	0.20	0.31	0.46
	Under-qualified	0.46	0.00	0.00	0.38	0.00	0.00
	Over-qualified	0.06	0.58	0.78	0.04	0.41	0.64
Pakistani/Bangladeshi UK-born	Employed	0.73	0.85	0.89	0.39	0.62	0.70
	Under-qualified	0.14	0.05	0.08	0.20	0.01	0.00
	Over-qualified	0.01	0.54	0.50	0.01	0.51	0.62
Other Asian migrant	Employed	0.86	0.93	0.95	0.55	0.85	0.79
	Under-qualified	0.31	0.00	0.00	0.37	0.01	0.00
	Over-qualified	0.14	0.72	0.67	0.02	0.51	0.53
Other Asian UK-born	Employed	0.93	0.73	0.90	0.54	0.84	0.86
	Under-qualified	0.12	0.00	0.12	0.14	0.00	0.00
	Over-qualified	0.00	0.20	0.44	0.00	0.00	0.53
Black Caribbean migrant	Employed	0.70	0.78	0.89	0.66	0.90	0.81
	Under-qualified	0.52	0.00	0.00	0.24	0.04	0.00
	Over-qualified	0.03	0.52	0.41	0.05	0.42	0.45
Black Caribbean UK-born	Employed	0.64	0.72	0.78	0.60	0.79	0.87
	Under-qualified	0.27	0.19	0.00	0.15	0.00	0.00
	Over-qualified	0.01	0.43	0.54	0.02	0.49	0.56
Black African migrant	Employed	0.70	0.85	0.84	0.49	0.76	0.79
	Under-qualified	0.24	0.00	0.00	0.38	0.07	0.00
	Over-qualified	0.04	0.75	0.75	0.05	0.50	0.63

Table A2. (Cont.) Probability of employment and match with qualifications by qualifications and gender. Source: Understanding Society 2009-2017, showing labour market outcomes by qualifications (low: at most upper secondary, middle: post-secondary non-tertiary, or high: tertiary) (Knies, 2017).

		Men			Women		
Qualification		**Low**	**Middle**	**High**	**Low**	**Middle**	**High**
Black African UK-born	Employed	0.57	0.89	0.90	0.56	0.82	0.90
	Under-qualified	0.25	0.00	0.05	0.10	0.00	0.05
	Over-qualified	0.05	0.21	0.79	0.00	0.73	0.34
Other migrant	Employed	0.80	0.86	0.83	0.52	0.63	0.69
	Under-qualified	0.34	0.00	0.00	0.29	0.04	0.00
	Over-qualified	0.04	0.78	0.59	0.11	0.42	0.64
Other UK-born	Employed	0.72	0.75	0.91	0.60	0.78	0.81
	Under-qualified	0.26	0.04	0.00	0.30	0.07	0.05
	Over-qualified	0.02	0.44	0.50	0.01	0.30	0.48

Table A3. Binary logistic regression model (odds ratio) of employment, under- and over-qualification for men.

Men	**Employed**	**Under-qualified**	**Over-qualified**
Age	1.125***	1.022	0.900***
	(0.013)	(0.015)	(0.016)
Age2	0.999***	1.000	1.001***
	(0.000)	(0.000)	(0.000)
Qualifications (ref. low)			
Middle qual. (ref. low)	2.161***	0.304***	39.700***
	(0.200)	(0.028)	(4.747)
High qual. (ref. low)	2.653***	0.043***	67.722***
	(0.177)	(0.006)	(7.420)
dummy: urban	0.728***	1.165***	0.958
	(0.039)	(0.068)	(0.067)
dummy: cohabit	3.139***	1.257***	0.792***
	(0.170)	(0.080)	(0.057)
dummy: dependent child	0.826***	0.979	1.040
	(0.047)	(0.056)	(0.066)
dummy: poor health	0.178***	1.066	1.068
	(0.007)	(0.057)	(0.079)
dummy: UK citizen	1.098	1.035	1.012
	(0.108)	(0.125)	(0.102)
Origin (ref. white British UK-born)			
Western migrant	1.177	0.673*	6.530***
	(0.317)	(0.155)	(3.098)
New EU migrant	1.466	1.627**	4.873***
	(0.350)	(0.374)	(1.817)
Other white migrant	1.000	1.079	1.595
	(0.511)	(0.550)	(0.881)
Other white UK-born	0.622***	1.559*	3.657**
	(0.102)	(0.369)	(1.988)
Indian migrant	1.102	1.176	3.705***
	(0.206)	(0.254)	(1.170)

Table A3. (Cont.) Binary logistic regression model (odds ratio) of employment, under- and over-qualification for men.

Men	Employed	Under-qualified	Over-qualified
Indian UK-born	0.644**	0.393**	0.970
	(0.144)	(0.182)	(0.564)
Pakistani/Bangladeshi migrant	0.603***	1.533***	5.294***
	(0.085)	(0.244)	(1.966)
Pakistani/Bangladeshi UK-born	0.654**	0.413**	0.725
	(0.141)	(0.145)	(0.339)
Other Asian migrant	1.254	0.839	12.783***
	(0.334)	(0.261)	(6.831)
Other Asian UK-born	2.758**	0.318	0.824
	(1.374)	(0.228)	(0.325)
Black Caribbean migrant	0.664*	1.812*	2.528*
	(0.163)	(0.606)	(1.216)
Black Caribbean UK-born	0.463***	0.827	0.892
	(0.094)	(0.278)	(0.730)
Black African migrant	0.431***	0.707	2.836***
	(0.082)	(0.235)	(1.004)
Black African UK-born	0.262**	0.896	2.832
	(0.141)	(0.994)	(2.173)
Other migrant	0.843	1.051	2.880**
	(0.212)	(0.330)	(1.380)
Other UK-born	0.712*	0.898	0.883
	(0.132)	(0.240)	(0.602)
Origin * qual (ref. white British low qual.)			
Western migrant * middle	0.324***	0.683	0.168***
	(0.140)	(0.497)	(0.099)
Western migrant * high	0.664		0.190***
	(0.257)		(0.099)
New EU migrant * middle	2.074		0.501
	(2.190)		(0.331)
New EU migrant * high	0.634		2.063
	(0.289)		(1.002)
Other white migrant * middle	9.789*	0.109*	0.593
	(11.921)	(0.128)	(0.470)
Other white migrant * high	1.333		
	(1.243)		
Other white UK-born * middle	2.124	0.653	0.310
	(1.402)	(0.421)	(0.239)
Other white UK-born * high	0.993	1.428	0.328*
	(0.330)	(0.801)	(0.198)
Indian migrant * middle	0.442*		0.964
	(0.207)		(0.534)
Indian migrant * high	1.189		0.536*
	(0.349)		(0.189)
Indian UK-born * middle	9.884***		2.345
	(6.982)		(1.727)

Table A3. (Cont.) Binary logistic regression model (odds ratio) of employment, under- and over-qualification for men.

Men	Employed	Under-qualified	Over-qualified
Indian UK-born * high	1.122 (0.402)	2.565 (2.871)	1.404 (0.865)
Pakistani/Bangladeshi migrant * middle	1.130 (0.526)		0.424 (0.301)
Pakistani/Bangladeshi migrant * high	1.203 (0.359)		0.810 (0.342)
Pakistani/Bangladeshi UK-born * middle	0.713 (0.587)	1.078 (1.197)	2.655 (1.981)
Pakistani/Bangladeshi UK-born * high	0.886 (0.341)	11.885*** (10.492)	1.341 (0.737)
Other Asian migrant * middle	0.704 (0.602)		0.393 (0.323)
Other Asian migrant * high	0.879 (0.334)		0.188*** (0.111)
Other Asian UK-born * middle	0.095*** (0.054)		0.457* (0.198)
Other Asian UK-born * high	0.247** (0.151)	23.008*** (23.576)	
Black Caribbean migrant * middle	0.867 (0.740)		0.828 (0.757)
Black Caribbean migrant * high	0.816 (0.444)		0.370* (0.221)
Black Caribbean UK-born * middle	0.576 (0.232)	1.851 (1.228)	1.499 (1.395)
Black Caribbean UK-born * high	0.653 (0.307)		1.378 (1.242)
Black African migrant * middle	1.022 (0.337)		2.207 (1.075)
Black African migrant * high	0.676 (0.188)		1.226 (0.553)
Black African UK-born * middle	3.485 (3.867)		0.143 (0.178)
Black African UK-born * high	3.155 (2.321)	3.380 (5.101)	1.331 (1.164)
Other migrant * middle	0.752 (0.392)		2.228 (1.635)
Other migrant * high	0.364*** (0.134)		0.566 (0.313)
Other UK-born * middle	0.506 (0.293)	0.370 (0.270)	1.426 (1.226)
Other UK-born * high	1.088 (0.462)	0.184 (0.193)	1.163 (0.846)
Year of survey dummies	Yes	Yes	Yes
Government office region dummies	Yes	Yes	Yes

Table A3. (Cont.) Binary logistic regression model (odds ratio) of employment, under- and over-qualification for men.

Men	Employed	Under-qualified	Over-qualified
Constant	0.319*** (0.082)	0.109*** (0.035)	0.221*** (0.084)
Observations	77,430	52,677	57,217

Notes: *** p < 0.01, ** p < 0.05, * p < 0.1; estimated odds ratio of being employed, having lower than average qualification, or having higher than average qualifications for those aged 16–64, not in education/training or retired; weighted binary logistic regression clustered by person-id; controlling for age, education, urbanity, cohabiting, dependent child, poor health, f.e. for survey year and region.

Table A4. Binary logistic regression model (odds ratio) of employment, under- and over-qualification for women.

Women	Employed	Under-qualified	Over-qualified
Age	1.159*** (0.012)	1.022 (0.015)	0.873*** (0.015)
Age2	0.998*** (0.000)	1.000 (0.000)	1.001*** (0.000)
Qualifications (ref. low)			
Middle qual. (ref. low)	2.436*** (0.152)	0.235*** (0.021)	90.253*** (11.929)
High qual. (ref. low)	3.100*** (0.159)	0.064*** (0.007)	87.941*** (11.055)
dummy: urban	0.899** (0.038)	0.943 (0.056)	0.884** (0.054)
dummy: cohabit	1.295*** (0.046)	1.031 (0.056)	0.852*** (0.046)
dummy: dependent child	0.344*** (0.014)	1.116* (0.063)	1.060 (0.058)
dummy: poor health	0.215*** (0.007)	1.208*** (0.064)	1.456*** (0.094)
dummy: UK citizen	1.262*** (0.090)	0.863 (0.109)	0.812** (0.071)
Origin (ref. white British UK-born)			
Western migrant	1.160 (0.195)	1.194 (0.240)	2.885* (1.829)
New EU migrant	0.748 (0.142)	0.829 (0.235)	12.226*** (4.805)
Other white migrant	0.827 (0.310)	1.226 (0.583)	12.814*** (9.139)
Other white UK-born	0.867 (0.134)	1.255 (0.340)	1.001 (1.028)
Indian migrant	0.659** (0.115)	0.852 (0.242)	5.103*** (2.632)
Indian UK-born	1.142 (0.228)	0.512** (0.158)	0.507 (0.513)
Pakistani/Bangladeshi migrant	0.125*** (0.018)	1.650* (0.496)	4.208** (2.731)
Pakistani/Bangladeshi UK-born	0.277*** (0.062)	0.961 (0.285)	0.558 (0.363)

Table A4. (Cont.) Binary logistic regression model (odds ratio) of employment, under- and over-qualification for women.

Women	Employed	Under-qualified	Over-qualified
Other Asian migrant	0.514***	1.449	2.452**
	(0.100)	(0.399)	(1.074)
Other Asian UK-born	0.571	0.509	1.144
	(0.284)	(0.512)	(0.605)
Black Caribbean migrant	1.346	0.577*	6.837***
	(0.276)	(0.190)	(4.343)
Black Caribbean UK-born	0.869	0.474***	2.320
	(0.175)	(0.131)	(1.354)
Black African migrant	0.523***	1.547**	6.358***
	(0.075)	(0.335)	(2.933)
Black African UK-born	0.623	0.424	0.624
	(0.202)	(0.292)	(0.250)
Other migrant	0.548**	1.054	11.955***
	(0.128)	(0.353)	(6.272)
Other UK-born	0.743*	1.336	0.757
	(0.124)	(0.346)	(0.707)
Origin * qual (ref. white British low qual.)			
Western migrant * middle	0.769	0.619	0.180**
	(0.247)	(0.335)	(0.127)
Western migrant * high	0.487***		0.380
	(0.116)		(0.249)
New EU migrant * middle	1.730	0.452	0.240***
	(0.776)	(0.356)	(0.122)
New EU migrant * high	1.024		0.277***
	(0.305)		(0.129)
Other white migrant * middle	0.818	0.846	0.079***
	(0.472)	(0.683)	(0.067)
Other white migrant * high	0.394**		0.218*
	(0.185)		(0.174)
Other white UK-born * middle	0.985	2.075	0.873
	(0.456)	(1.266)	(0.948)
Other white UK-born * high	1.251	2.396*	0.582
	(0.434)	(1.199)	(0.613)
Indian migrant * middle	1.218		0.250**
	(0.518)		(0.151)
Indian migrant * high	0.434***		0.530
	(0.104)		(0.293)
Indian UK-born * middle	1.006	0.280	2.500
	(0.483)	(0.303)	(2.700)
Indian UK-born * high	0.612		2.557
	(0.192)		(2.651)
Pakistani/Bangladeshi migrant * middle	0.627		0.219*
	(0.247)		(0.191)
Pakistani/Bangladeshi migrant * high	0.967		0.581
	(0.256)		(0.421)

Table A4. (Cont.) Binary logistic regression model (odds ratio) of employment, under- and over-qualification for women.

Women	Employed	Under-qualified	Over-qualified
Pakistani/Bangladeshi UK-born * middle	0.914 (0.394)	0.123** (0.131)	1.979 (1.503)
Pakistani/Bangladeshi UK-born * high	1.016 (0.321)		2.919 (2.085)
Other Asian migrant * middle	1.826 (0.729)	0.100** (0.106)	0.595 (0.334)
Other Asian Migrant * high	0.775 (0.225)		0.663 (0.325)
Other Asian UK-born * middle	1.170 (1.033)		
Other Asian UK-born * high	0.971 (0.596)		
Black Caribbean migrant * middle	1.604 (0.719)	0.531 (0.486)	0.167** (0.123)
Black Caribbean migrant * high	0.557 (0.241)		0.169** (0.126)
Black Caribbean UK-born * middle	1.006 (0.362)	0.042*** (0.045)	0.574 (0.378)
Black Caribbean UK-born * high	1.153 (0.365)		0.802 (0.503)
Black African migrant * middle	1.445 (0.375)	0.518 (0.422)	0.209*** (0.116)
Black African migrant * high	0.962 (0.223)		0.350** (0.185)
Black African UK-born * middle	1.775 (0.967)		5.678** (4.341)
Black African UK-born * high	1.956 (0.956)	5.557 (6.729)	
Other migrant * middle	0.654 (0.242)	0.357 (0.308)	0.082*** (0.053)
Other migrant * high	0.500** (0.175)		0.204*** (0.123)
Other UK-born * middle	1.171 (0.476)	0.639 (0.503)	0.649 (0.647)
Other UK-born * high	0.709 (0.192)	1.602 (1.112)	1.591 (1.528)
Year of survey dummies	Yes	Yes	Yes
Government office region dummies	Yes	Yes	Yes
Constant	0.212*** (0.045)	0.102*** (0.033)	0.236*** (0.086)
Observations	98,343	59,389	64,298

Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$; estimated odds ratio of being employed, having lower than average qualification, or having higher than average qualifications for those aged 16-64, not in education/training or retired; weighted binary logistic regression clustered by person-id; controlling for age, education, urbanity, cohabiting, dependent child, poor health, f.e. for survey year and region.

Table A5. Binary logistic regression model with sequential interactions of post-secondary qualifications for men.

	Employment				Over-qualification			
	Base	***English**	***UK citizen**	***Years of residence**	**Base**	***English**	***UK citizen**	***Years of residence**
Age	1.164*** (0.056)	1.164*** (0.056)	1.163*** (0.056)	1.184*** (0.061)	1.024 (0.059)	1.030 (0.059)	1.024 (0.059)	1.056 (0.063)
Age2	0.998*** (0.001)	0.998*** (0.001)	0.998*** (0.001)	0.998*** (0.001)	1.000 (0.001)	1.000 (0.001)	1.000 (0.001)	0.999 (0.001)
dummy: urban	0.692 (0.215)	0.697 (0.216)	0.694 (0.216)	0.683 (0.210)	0.944 (0.270)	0.950 (0.271)	0.945 (0.269)	0.954 (0.273)
dummy: cohabit	3.262*** (0.698)	3.212*** (0.688)	3.260*** (0.697)	3.275*** (0.726)	0.665* (0.143)	0.679* (0.144)	0.666* (0.143)	0.668* (0.144)
dummy: dependent child	0.743* (0.119)	0.746* (0.120)	0.743* (0.119)	0.761* (0.125)	1.190 (0.193)	1.195 (0.194)	1.190 (0.193)	1.208 (0.196)
dummy: poor health	0.198*** (0.028)	0.198*** (0.028)	0.198*** (0.028)	0.202*** (0.029)	1.088 (0.196)	1.051 (0.192)	1.091 (0.198)	1.095 (0.199)
dummy: UK citizen	0.972 (0.117)	0.973 (0.118)	0.951 (0.143)	1.032 (0.130)	1.151 (0.132)	1.141 (0.132)	1.014 (0.241)	1.206 (0.142)
Qualifications (ref. at most secondary) foreign post-secondary qual.	1.366* (0.223)	1.571** (0.295)	1.264 (0.265)	1.624 (0.560)	27.165*** (7.137)	19.667*** (5.435)	24.292*** (6.543)	39.037*** (18.080)
UK-based post-secondary qual.	1.883*** (0.355)	1.886*** (0.365)	2.060** (0.579)	1.898 (0.888)	25.248*** (6.668)	20.181*** (5.197)	21.802*** (6.711)	36.096*** (19.620)
English problems	0.571*** (0.083)	0.637*** (0.108)	0.572*** (0.083)	0.538*** (0.079)	1.385 (0.307)	0.595 (0.220)	1.375 (0.302)	1.319 (0.295)
Foreign post-secondary * English problems		0.570* (0.183)				6.228*** (3.945)		
UK-based post-secondary * English problems		2.466 (1.798)				2.491 (2.124)		
Years of residence	0.989* (0.006)	0.990 (0.006)	0.990* (0.006)	0.963 (0.022)	0.979** (0.008)	0.978*** (0.008)	0.979** (0.008)	0.998 (0.044)
Foreign post-secondary * UK citizen			1.119 (0.238)				1.153 (0.303)	
UK-based post-secondary * UK citizen			0.903 (0.269)				1.199 (0.347)	
Foreign post-secondary * years of residence				0.964 (0.039)				0.920 (0.053)
UK-based post-secondary * years of residence				0.992 (0.045)				0.944 (0.050)
Years of residence^2				1.001 (0.000)				0.999 (0.001)

Table A5. (Cont.) Binary logistic regression model with sequential interactions of post-secondary qualifications for men.

	Employment				Over-qualification			
	Base	***English**	***UK citizen**	***Years of residence**	**Base**	***English**	***UK citizen**	***Years of residence**
Foreign post-secondary * years of residence^2				1.001 (0.001)				1.003* (0.001)
UK-based post-secondary * years of residence^2				1.000 (0.001)				1.001 (0.001)
Years of survey dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Government office region dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	0.434 (0.489)	0.415 (0.465)	0.441 (0.498)	0.378 (0.437)	0.096* (0.118)	0.107* (0.130)	0.106* (0.135)	0.044** (0.061)
Observations	9,516	9,516	9,516	9,516	7,703	7,703	7,703	7,703

Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$; estimated gap by ethnicity and migrant status, by qualification (Post-secondary and tertiary compared to at most upper secondary, foreign and UK) overall, then separate for those with better language skills, and citizenship, and for those who were recent and long in the country for 16–64, not in education/training or retired; weighted and clustered by pid; controlling for age, education, urbanity, cohabiting, dependent child, poor health, f.e. for survey year and region.

Table A6. Binary logistic regression model with sequential interactions of post-secondary qualifications for women.

	Employment				Over-qualification			
	***years of residence**	**Base**	***years of residence**	**Base**	***years of residence**	**Base**	***years of residence**	**Base**
Age	1.328*** (0.043)	1.339*** (0.043)	1.328*** (0.043)	1.331*** (0.044)	0.909* (0.048)	0.913* (0.049)	0.909* (0.048)	0.947 (0.054)
Age2	0.997*** (0.000)	0.997*** (0.000)	0.997*** (0.000)	0.997*** (0.000)	1.001 (0.001)	1.001 (0.001)	1.001 (0.001)	1.000 (0.001)
dummy: urban	0.834 (0.161)	0.824 (0.160)	0.832 (0.161)	0.835 (0.162)	0.728 (0.167)	0.722 (0.166)	0.724 (0.166)	0.722 (0.166)
dummy: cohabit	0.822** (0.080)	0.818** (0.080)	0.824** (0.080)	0.822** (0.081)	0.998 (0.160)	0.998 (0.160)	0.999 (0.161)	0.991 (0.160)
dummy: dependent child	0.254*** (0.027)	0.252*** (0.027)	0.253*** (0.027)	0.254*** (0.028)	0.919 (0.138)	0.917 (0.138)	0.917 (0.138)	0.925 (0.140)
dummy: poor health	0.354*** (0.035)	0.351*** (0.035)	0.355*** (0.036)	0.355*** (0.035)	1.671*** (0.316)	1.658*** (0.312)	1.686*** (0.321)	1.705*** (0.326)
dummy: UK citizen	0.880 (0.069)	0.879* (0.069)	0.773** (0.079)	0.884 (0.070)	0.933 (0.103)	0.937 (0.104)	0.572** (0.137)	0.967 (0.107)
Qualifications (ref. at most secondary) foreign post-secondary qual.	1.677*** (0.191)	1.489*** (0.185)	1.360** (0.198)	0.980 (0.248)	31.269*** (7.640)	29.104*** (7.697)	20.987*** (6.151)	30.324*** (14.624)
UK-based post-secondary qual.	3.069*** (0.398)	2.967*** (0.393)	2.517*** (0.522)	4.115*** (1.690)	18.127*** (4.300)	17.357*** (4.312)	11.650*** (3.949)	13.042*** (7.147)
English problems	0.308*** (0.035)	0.264*** (0.035)	0.307*** (0.035)	0.309*** (0.035)	2.081*** (0.496)	1.721 (0.736)	2.072*** (0.491)	1.913*** (0.452)

Table A6. (Cont.) Binary logistic regression model with sequential interactions of post-secondary qualifications for women.

	Employment				Over-qualification			
	* years of residence	Base	* years of residence	Base	* years of residence	Base	* years of residence	Base
Foreign post-secondary * English problems		1.652** (0.421)				1.456 (0.790)		
UK-based post-secondary * English problems		0.993 (0.793)				0.896 (0.662)		
Years of residence	0.995 (0.005)	0.994 (0.005)	0.996 (0.005)	0.969* (0.017)	0.994 (0.008)	0.994 (0.008)	0.995 (0.008)	0.973 (0.049)
Foreign post-secondary * UK citizen			1.322* (0.199)			1.741** (0.462)		
UK-based post-secondary * UK citizen			1.267 (0.269)			1.812** (0.537)		
Foreign post-secondary * years of residence				1.093*** (0.035)				0.957 (0.058)
UK-based post-secondary * years of residence				0.978 (0.035)			1.004 (0.057)	
Years of residence^2				1.001* (0.000)				1.000 (0.001)
Foreign post-secondary * years of residence^2				0.998*** (0.001)				1.002 (0.002)
UK-based post-secondary * years of residence^2				1.000 (0.001)				1.001 (0.001)
Years of survey dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Government office region dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	0.086*** (0.063)	0.078*** (0.058)	0.097*** (0.071)	0.103*** (0.076)	0.256 (0.359)	0.245 (0.348)	0.366 (0.510)	0.148 (0.218)
Observations	12,790	12,790	12,790	12,790	7,401	7,401	7,401	7,401

Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$; estimated gap by ethnicity and migrant status, by qualification (Post-secondary and tertiary compared to at most upper secondary, foreign and UK) overall, then separate for those with better language skills, and citizenship, and for those who were recent and long in the country for 16–64, not in education/training or retired; weighted and clustered by pid; controlling for age, education, urbanity, cohabiting, dependent child, poor health, f.e. for survey year and region.

Table A7. Binary logistic regression model on matched job and over-qualification, interacting origin with sector of work.

	Matched job men	Over-qualified men	Matched job women	Over-qualified women
Age	1.097*** (0.024)	0.895*** (0.020)	1.125*** (0.023)	0.888*** (0.018)
Age2	0.999*** (0.000)	1.001*** (0.000)	0.999*** (0.000)	1.001*** (0.000)

Table A7. (Cont.) Binary logistic regression model on matched job and over-qualification, interacting origin with sector of work.

	Matched job men	Over-qualified men	Matched job women	Over-qualified women
High qualifications	0.843**	2.063***	1.150**	1.192***
	(0.062)	(0.160)	(0.071)	(0.076)
dummy: urban	0.978	1.013	1.067	1.003
	(0.077)	(0.082)	(0.071)	(0.069)
dummy: cohabit	1.324***	0.736***	1.170***	0.846***
	(0.108)	(0.062)	(0.070)	(0.052)
dummy: dependent child	0.976	1.041	0.927	1.097
	(0.071)	(0.079)	(0.056)	(0.068)
dummy: poor health	0.952	1.073	0.719***	1.474***
	(0.083)	(0.095)	(0.052)	(0.109)
dummy: UK citizen	0.899	1.072	1.075	0.937
	(0.189)	(0.223)	(0.167)	(0.146)
Origin (ref. white British UK-born)				
Western migrant	0.838	1.367	1.160	0.857
	(0.185)	(0.301)	(0.222)	(0.163)
New EU migrant	0.185***	6.832***	0.295***	3.435***
	(0.065)	(2.332)	(0.093)	(1.069)
Other white migrant	1.474	0.879	0.611	1.812*
	(0.874)	(0.543)	(0.222)	(0.641)
Other white UK-born	0.725	1.276	1.119	0.587**
	(0.214)	(0.386)	(0.311)	(0.157)
Indian migrant	0.448***	2.695***	0.351***	3.079***
	(0.093)	(0.567)	(0.096)	(0.847)
Indian UK-born	0.622**	1.775**	0.941	1.073
	(0.148)	(0.430)	(0.229)	(0.265)
Pakistani/Bangladeshi migrant	0.227***	5.283***	0.357**	2.821**
	(0.062)	(1.440)	(0.154)	(1.209)
Pakistani/Bangladeshi UK-born	0.520**	1.238	0.551**	1.795**
	(0.160)	(0.443)	(0.153)	(0.495)
Other Asian migrant	0.296***	4.039***	0.557**	1.990**
	(0.090)	(1.251)	(0.159)	(0.568)
Other Asian UK-born	0.593	0.920	3.392**	0.297**
	(0.276)	(0.409)	(1.908)	(0.163)
Black Caribbean migrant	0.825	1.525	0.851	1.324
	(0.373)	(0.740)	(0.378)	(0.584)
Black Caribbean UK-born	0.656	1.244	0.825	1.345
	(0.258)	(0.451)	(0.227)	(0.359)
Black African migrant	0.166***	8.063***	0.523**	1.907**
	(0.044)	(2.152)	(0.141)	(0.497)
Black African UK-born	0.579	2.131	0.947	0.786
	(0.364)	(1.226)	(0.439)	(0.391)
Other migrant	0.353***	3.376***	0.422**	2.422**
	(0.112)	(1.080)	(0.151)	(0.843)

Table A7. (Cont.) Binary logistic regression model on matched job and over-qualification, interacting origin with sector of work.

	Matched job men	Over-qualified men	Matched job women	Over-qualified women
Other UK-born	1.241	0.914	1.127	0.910
	(0.370)	(0.273)	(0.342)	(0.261)
dummy: public sector	2.132***	0.447***	2.542***	0.332***
	(0.170)	(0.038)	(0.155)	(0.021)
Origin * public				
Western migrant	1.317	0.744	1.147	1.076
	(0.646)	(0.378)	(0.342)	(0.330)
New EU migrant	9.432**	0.115**	1.988	0.619
	(9.310)	(0.107)	(0.940)	(0.290)
Other white migrant	1.710	0.652	0.770	1.085
	(2.260)	(0.846)	(0.514)	(0.749)
Other white UK-born	1.030	1.002	0.916	1.149
	(0.472)	(0.491)	(0.371)	(0.493)
Indian migrant	2.925**	0.382**	2.560**	0.511*
	(1.266)	(0.166)	(0.976)	(0.191)
Indian UK-born	1.696	0.631	0.698	1.700
	(0.769)	(0.291)	(0.254)	(0.627)
Pakistani/Bangladeshi migrant	4.644***	0.214***	2.787*	0.441
	(1.993)	(0.092)	(1.671)	(0.266)
Pakistani/Bangladeshi UK-born	3.171**	0.555	2.091*	0.587
	(1.804)	(0.343)	(0.797)	(0.229)
Other Asian migrant	5.115***	0.193***	2.501**	0.459*
	(3.028)	(0.115)	(1.097)	(0.204)
Other Asian UK-born	3.863*	0.547	0.293	4.738*
	(3.160)	(0.441)	(0.292)	(4.332)
Black Caribbean migrant	2.945	0.348	1.023	1.168
	(3.328)	(0.407)	(0.543)	(0.616)
Black Caribbean UK-born	1.338	1.071	0.721	1.615
	(0.827)	(0.657)	(0.273)	(0.603)
Black African migrant	3.310***	0.299***	1.193	1.047
	(1.508)	(0.139)	(0.502)	(0.448)
Black African UK-born	0.190*	1.930	1.179	1.399
	(0.170)	(1.720)	(0.816)	(0.869)
Other migrant	5.183***	0.207***	1.927	0.659
	(2.915)	(0.118)	(0.959)	(0.328)
Other UK-born	0.493	2.112	0.915	0.808
	(0.264)	(1.150)	(0.389)	(0.320)
Constant	0.114***	9.017***	0.053***	16.119***
	(0.057)	(4.550)	(0.022)	(6.939)
Observations	20,269	20,269	27,939	27,939

Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$; estimated odds ratio of having qualifications matching the job or having higher than average qualifications, interacting origin with working in the public sector for 16–64, not in education/training or retired; weighted logistic regression and clustered by pid; controlling for age, education, urbanity, cohabiting, dependent child, poor health, f.e. for survey year and region.

Table A8. Robustness tests for men: binary logistic regression of being employed rather than unemployed, and under- and over-qualification using mode.

Employed (strict) (N = 69,560)	**Low**	**Middle**	**High**
Western migrant	0.017	−0.033	−0.005
New EU migrant	0.022		0.011
Other white migrant	0.012	0.036***	0.024
Other white UK-born	−0.050**	0.007	−0.026
Indian migrant	0.009	−0.023	0.014*
Indian UK-born	−0.053*	0.034***	−0.011
Pakistani/Bangladeshi migrant	−0.018	−0.015	0.004
Pakistani/Bangladeshi UK-born	−0.010	−0.002	−0.034
Other Asian migrant	0.012	−0.029	0.005
Other Asian UK-born	0.041**	−0.121***	−0.009
Black Caribbean migrant	−0.074*	−0.053	−0.057
Black Caribbean UK-born	−0.065***	−0.144***	−0.097**
Black African migrant	−0.046**	−0.020	−0.068***
Black African UK-born	−0.133	0.007	−0.004
Other migrant	−0.013	0.001	−0.047*
Other UK-born	−0.036*	−0.063	0.001
Under-qualified (N = 56,560)			
Western migrant	−0.041	−0.085*	0.009
New EU migrant	−0.078	−0.119*	
Other white migrant	−0.020	−0.143***	
Other white UK-born	0.043	−0.003	−0.005
Indian migrant	−0.117***		−0.041***
Indian UK-born	−0.091	−0.134***	−0.030
Pakistani/Bangladeshi migrant	−0.193***		−0.038***
Pakistani/Bangladeshi UK-born	−0.263***	−0.093	0.027
Other Asian migrant	−0.182***		−0.039***
Other Asian UK-born	0.041		0.031
Black Caribbean migrant	0.138*		
Black Caribbean UK-born	−0.118**	0.021	−0.046***
Black African migrant	−0.193***	−0.169***	−0.044***
Black African UK-born	0.055		0.034
Other migrant	−0.098		−0.042***
Other UK-born	−0.041	−0.141***	−0.039***
Over-qualified (N = 57,357)			
Western migrant	0.084**	0.086	0.003
New EU migrant	0.169***	0.194	0.490***
Other white migrant	−0.053***	−0.027	0.026
Other white UK-born	0.015	−0.011	0.016
Indian migrant	0.105***	0.160	0.190***
Indian UK-born	−0.013	0.221**	−0.022
Pakistani/Bangladeshi migrant	0.120***	0.418***	0.278***
Pakistani/Bangladeshi UK-born	0.001	0.279**	0.056
Other Asian migrant	0.193***	0.355***	0.161**
Other Asian UK-born	0.094	0.170***	−0.109**
Black Caribbean migrant	−0.012	0.181	0.064
Black Caribbean UK-born	−0.025*	0.086	−0.014
Black African migrant	0.104***	0.428***	0.227***
Black African UK-born	0.040	−0.200	0.190**
Other migrant	0.064	0.386***	0.208***

Table A8. (Cont.) Robustness tests for men: binary logistic regression of being employed rather than unemployed, and under- and over-qualification using mode.

Over-qualified (N = 57,357)	**Low**	**Middle**	**High**
Other UK-born	−0.014	0.065	0.005

Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$; estimated average marginal effects compared to UK-born white British, by qualifications (low: at most upper secondary; middle: post-secondary non-tertiary; high: tertiary), of being employed rather than unemployed; having qualifications under the mode for occupation; and having qualifications over the mode for occupation, for 16–64, not in education/training or retired; weighted logistic regression and clustered by pid; controlling for age, education, urbanity, cohabiting, dependent child, poor health, f.e. for survey year and region.

Table A9. Robustness tests for women: Binary logistic regression of being employed rather than unemployed, and under- and over-qualification using mode.

Employed (strict) (N = 69,560)	**Low**	**Middle**	**High**
Western migrant	0.011	−0.026	−0.022**
New EU migrant	−0.009	0.001	−0.007
Other white migrant	−0.015		−0.105***
Other white UK-born	0.010	0.002	0.015**
Indian migrant	−0.009	0.020**	−0.038***
Indian UK-born	−0.009	0.014	−0.021
Pakistani/Bangladeshi migrant	−0.084***	−0.209***	−0.082***
Pakistani/Bangladeshi UK-born	−0.093*	−0.069**	−0.034**
Other Asian migrant	−0.061	−0.002	−0.028*
Other Asian UK-born	−0.075		−0.055*
Black Caribbean migrant	−0.041*	−0.019	−0.031
Black Caribbean UK-born	−0.031*	−0.025	−0.044**
Black African migrant	−0.068***	−0.010	−0.035***
Black African UK-born	−0.082*	0.023	−0.003
Other migrant	0.001	−0.023	−0.044**
Other UK-born	−0.045**	−0.008	−0.031**
Under-qualified (N = 63,414)			
Western migrant	0.036	−0.025	−0.034**
New EU migrant	−0.059	−0.054***	−0.067***
Other white migrant	−0.034	−0.003	
Other white UK-born	0.117**	0.071	0.002
Indian migrant	−0.087**		−0.039*
Indian UK-born	−0.025	−0.069***	0.012
Pakistani/Bangladeshi migrant	−0.034		
Pakistani/Bangladeshi UK-born	−0.042	−0.064***	−0.020
Other Asian migrant	−0.000		−0.049***
Other Asian UK-born	−0.261***		−0.039
Black Caribbean migrant	−0.077	−0.048*	
Black Caribbean UK-born	−0.066	−0.079***	−0.023
Black African migrant	−0.027	−0.031	−0.057***
Black African UK-born	−0.096		0.018
Other migrant	−0.047	−0.057***	−0.067***
Other UK-born	0.058	0.013	0.072
Over-qualified (N = 64,403)			
Western migrant	0.058**	−0.153**	−0.045
New EU migrant	0.110***	0.296***	0.263***
Other white migrant	0.092	0.107	0.193**
Other white UK-born	−0.022	−0.106	−0.095**
Indian migrant	0.078**	0.028	0.187***

Table A9. Robustness tests for women: Binary logistic regression of being employed rather than unemployed, and under- and over-qualification using mode.

Over-qualified (N = 64,403)	Low	Middle	High
Indian UK-born	−0.019	0.256***	0.034
Pakistani/Bangladeshi migrant	0.021	0.053	0.283***
Pakistani/Bangladeshi UK-born	−0.029**	0.095	0.195***
Other Asian migrant	0.058	0.043	0.110**
Other Asian UK-born	−0.018		0.019
Black Caribbean migrant	0.063	0.008	0.071
Black Caribbean UK-born	−0.016	0.087	0.096*
Black African migrant	0.038	0.027	0.176***
Black African UK-born	0.150*	0.274**	−0.007
Other migrant	0.160**	0.109	0.040
Other UK-born	0.002	−0.125*	0.049

Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$; estimated average marginal effects compared to UK-born white British, by qualifications (low: at most upper secondary; middle: post-secondary non-tertiary; high: tertiary), of being employed rather than unemployed; having qualifications under the mode for occupation; and having qualifications over the mode for occupation; for 16–64, not in education/training or retired; weighted logistic regression and clustered by pid; controlling for age, education, urbanity, cohabiting, dependent child, poor health, f.e. for survey year and region.

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Article

Poor Returns to Origin-Country Education for Non-Western Immigrants in Italy: An Analysis of Occupational Status on Arrival and Mobility

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Abstract
Previous research on the Italian case has shown that non-Western immigrants are very likely to hold low-qualified jobs and that their occupational mobility chances are rather poor, which suggests low returns to education. In this paper, we investigate whether, and to what extent, immigrants' different areas of origin moderate the returns to educational degrees obtained in the origin country. Data from a survey on the immigrant population (carried out in 2011–2012) are used, and, differently from previous studies, we focus on returns to origin-country education with respect to both the socioeconomic status of the first job found on arrival and the subsequent occupational mobility. The results show that almost all non-Western immigrants experience remarkably low returns to post-secondary education on their first job. Contrary to other West-European countries, those returns in Italy are only slightly different by area of origin, which suggests that differences in the transferability and quality of skills are scarcely relevant in a strongly segmented labour market. Rather, the modes of labour market insertion—e.g., formal search methods or relying on contacts with natives—have a sizeable impact on the returns. Origin-country post-secondary degrees are also consistently associated with low returns on subsequent mobility, although highly educated immigrants from new EU member states experience higher chances of upward mobility. In line with some recent findings, recognition of educational credentials seems decisive for the very few non-Western immigrants who are able either to access better-qualified jobs on arrival or to improve their occupational status over time.

Keywords
educational credentials; human capital; immigration; labour market; returns to education

Issue
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1. Introduction

The term ethnic penalty refers to the disadvantage immigrants experience in labour market outcomes when compared to natives with similar personal characteristics, and it is found in all Western European receiving countries (Heath & Cheung, 2007; Kogan, 2006; Reyneri & Fullin, 2011). Among the major sources of this penalty, several studies have identified the lower occupational returns to (higher) education as natives holding the same or similar educational attainment benefit from better occupational outcomes in terms both of employment opportunities and of wages or the quality of jobs. Apart from discrimination, the lower returns to education for immigrants are usually explained by the imperfect transferability of human capital from origin to receiving country. Indeed, pre-migration human capital is considered less valuable and therefore less productive than that acquired in the receiving country, because it is supposed to supply either poorer or less-useful skills (Chiswick, 1978; Chiswick & Miller, 2009a; Friedberg, 2000; Kanas & Van Tubergen, 2009, 2014; Sanromá, Ramos, & Simón, 2015).

More recent studies also emphasize the limited transferability of degrees obtained in different educational systems. Lancee and Bol (2017) show, for instance, that poorer skills explain only one-third of the wage penalty associated with a foreign degree.

A rich body of literature on immigrants' returns to education is available for the US and Canada and a growing body of studies is covering Central and Northern European countries (Basilio, Bauer, & Kramer, 2017; Hardoy & Shøne, 2014; OECD, 2014; Prokic-Breuer & McManus, 2016; Kanas & van Tubergen, 2009, 2014). However, the Southern European countries are still scarcely considered, despite their prominent role as destinations for international migration flows in recent decades, apart from some attention devoted to Spain (Sanromá et al., 2015; Simón, Ramos, & Sanromá, 2014).

Building on this literature and on the rich data from a large survey carried out by the Italian National Institute of Statistics (ISTAT) in 2011–2012, we study the returns to origin-country education for immigrants living and working in Italy. Differently from most contributions, we do not make a comparison of the returns to education for immigrants with those for the population born in the country, whose results are now well established. Instead, we focus on how immigrants' different areas of origin affect the returns to origin-country education. Moreover, our paper innovates in two ways on the existing studies, which usually consider the labour market position at the time of the interview. First, we assess the returns with respect to the socioeconomic status of the first job immigrants found on their arrival. Thus, we can overcome a problematic issue common to most studies, namely, the potential effect of the unobservable—or only roughly measurable—work experience that immigrants might have gained in the receiving country as a form of country-specific human capital other than education. Secondly, we analyse the returns to origin-country education on immigrants' subsequent occupational mobility, not only controlling for available measures of country-specific human capital acquisition but also assessing the specific effect of the *recognition* of the degrees acquired in the origin country, thus contributing to the human capital vs. credentials debate (Lancee & Bol, 2017).

2. Why Are Returns to Education for Immigrants so Poor?

The main explanation for immigrants' poorer returns to education is the limited transferability of the human capital acquired in the origin country (Chiswick, 1978). According to this hypothesis, competencies are country-specific, such that skills acquired by immigrants in the origin-country educational system do not fit the labour demand in the receiving country and are thus less productive and less rewarded. Yet, the cultural and language distance between origin and receiving countries and the degree of similarity between the educational systems can affect the transferability of skills. Furthermore, immigrants' limited returns to origin-country education might also depend on the lower quality of foreign education and on the worse skills acquired. In particular, several studies show that immigrants educated in non-Western countries hold lower skills than natives and immigrants from Western countries (Bratsberg & Terrell, 2002; Ferrer & Riddell, 2008; Kahn, 2004).

A more recent approach, building on the credential theory, also considers the limited transferability of immigrants' educational degrees, net of their skills. Screening theories of education suggest that better-educated individuals perform better in the labour market because employers use education as a signal to proxy workers' unobservable expected productivity (Arrow, 1973; Spence, 1973). According to this perspective, immigrants educated in their origin country hold educational credentials that are poorly valued by employers who are unfamiliar with them. Besides their screening function, educational degrees are formal means to regulate the access to some occupations, especially holding a high socioeconomic status (Collins, 1979). Educational degrees obtained abroad affect immigrants' chances of entering these occupations, because these degrees require formal recognition in the receiving country. Such recognition can entail several long and complex bureaucratic tasks. As a result, immigrants often do not manage to get their credentials recognized, and sometimes they do not even apply for recognition, even when they hold training and skills suitable to enter highly skilled jobs. By preventing immigrants' access to occupations under social closure, the lack of recognition affects the returns to origin-country education. Therefore, both foreign human capital and foreign educational credentials suffer from limited transferability.

As Lancee and Bol (2017) underline, most studies do not distinguish credentialism from the human capital approach. Usually, they only assess the existence of an ethnic penalty, finding that immigrants educated in non-Western countries earn less than natives with the same educational attainment, but they do not explain why (Chiswick & Miller, 2009b; Ferrer & Riddell, 2008; Friedberg, 2000). Only rarely do these studies take into account human capital through measures of individual skills (Ferrer, Green, & Riddell, 2006; Kahn, 2004). Indeed, once the skills are controlled for, the remaining ethnic penalty in returns to origin-country education can be attributed to credentialism. Such is the result of a recent analysis of eleven Western European countries that, accounting for cognitive, non-cognitive and job-specific skills, showed that only approximately one-third of the overall wage penalty associated with a foreign degree can be explained by differences in skills (Lancee & Bol, 2017). We have no direct measures of skills, but differently from other studies, we consider whether origin-country education has been recognized in the destination country. This allows us to contribute to the human capital vs. credentials debate, as we can analyse the ef-

fects of recognized degrees both on immigrants' first job in Italy and on subsequent mobility.

Hypotheses on the limited transferability of human capital and of educational degrees do not exhaust all the reasons why immigrants might experience poorer returns to their foreign education. On the one hand, ethnic discrimination could contribute to immigrants' lower wages and/or less-qualified jobs, even after discounting for the lower transferability of skills and credentials. On the other hand, immigrants' self-selection into higher education varies substantially based on the origin country, depending on the level of socio-economic development and the share of population obtaining tertiary education (Barro & Lee, 2001). Yet, although they are in line with well-established approaches (Heath & Cheung, 2007), our analyses do not enable account to be taken of the possible effects of discrimination and selectivity and of other unobservable factors of heterogeneity differentiating immigrant workers.

3. Non-Western Immigrants in the Italian "Low-Skills Equilibrium" Labour Market

Even more than other Southern European countries, Italy is an interesting case to study the occupational returns to education for highly educated non-Western immigrants because its labour market is characterized by a "low-skills equilibrium" (OECD, 2017), and most of the immigrants who entered the country are poorly educated. This "low-skills equilibrium" results from a labour demand that is greatly skewed towards low-skilled jobs, on the one hand, and from a labour supply where highly educated natives are relatively few, on the other. From the demand side, the reasons are that small firms and family-run businesses dominate the economic fabric and that a "sub-protective" welfare system has produced a large demand for domestic and care work in households (Sciortino, 2004). From the supply side, the reason is an under-financed higher education system, which trains an increasing but still very poor number of highly educated young natives. Such a "low-skills equilibrium", however, is unbalanced, as the demand for poorly skilled jobs largely exceeds the supply of natives prone to enter them. Thus, in line with the cross-national positive correlation between the education of immigrants and that of natives (Banca d'Italia, 2009), Italy is the Western European country that attracts the most poorly educated male and female immigrants from non-Western countries to satisfy its demand for unskilled labour in agriculture, construction, manufacturing and personal services (Kogan, 2014).

The segregation of non-Western immigrants in the secondary labour market of low-skilled jobs is dramatic in Italy (Ballarino & Panichella, 2015; Fellini, 2018; Fellini & Guetto, 2018; Fullin & Reyneri, 2011). The most-recent data from the European Labour Force Survey show that in 2015, above 57% of non-Western immigrant men were holding low-skilled manual or non-manual jobs (against the 33% of men born in the country), a figure that climbs to over 83% for immigrant women (against one out of three for women born in the country).[1] This segregation in low-skilled jobs has remained constant over time, notwithstanding the remarkable changes in the composition of immigrants living in Italy. Indeed, within the framework of a highly fragmented geography of origin countries, starting in the 2000s, the foreign-born from Eastern Europe became the large majority, with a leading presence of women in care and domestic work. According to the most-recent data, Romanians represent the largest share of the foreign-born living in Italy (23%, 57% of whom are women), followed by Albanians (9%). With Ukrainians (79% women) and Moldovans (66% women), they account for more than 40% of the foreign-born population. Outside Europe, foreign-born from Morocco (8,7%), China (5,4%), India (3,3%) and Philippines (3%) are the largest groups.

3.1. The Hypotheses

Given these peculiar circumstances, one might wonder whether the returns to origin-country education are very poor or, rather, whether the relative "scarcity" of highly educated immigrants makes their origin-country education especially rewarding. One might also wonder to what extent both the transferability and quality of skills and the educational credentials play a role in differentiating the returns to education for immigrants originating from different areas.

As recent evidence has shown, the huge segregation of non-Western immigrants in low-skilled jobs is the result of both a massive process of occupational status downgrading on arrival—irrespective of immigrants' qualifications in the origin country and despite a slight positive effect of education—and of extremely poor chances of recovery over time, for which the recognition of the origin-country's educational degrees is crucial (Fellini & Guetto, 2018). In contrast, for immigrants from Western countries, the first job is usually consistent with their qualifications before migration, implying higher returns to education.

If all but Western immigrants experience a strong occupational downgrade with their first job in Italy, irrespective of their occupational attainment in the origin country, we should expect that the returns to origin-country education are rather poor for non-Western immigrants. We should also expect that differences by area of origin, due to differences in transferability and quality of skills, should have little relevance. However, the recognition of educational degrees might be decisive for the very few who access highly skilled jobs already on arrival, in accordance with the credentialism theory. Moreover, if origin-country educational attainment only plays

[1] We consider group 5 "Services and Sales Workers", group 6 "Skilled Agricultural, Forestry and Fishery Workers", group 8 "Plant and Machine Operators and Assemblers", and group 9 "Elementary Occupations" of the International Standard Classification of Occupations (ISCO).

a minor role, we expect that other mechanisms should be relevant for highly educated non-Western immigrants' chances to obtain better jobs on arrival. Better-educated immigrants who rely on co-ethnic contacts for job finding can only access poor job opportunities (bonding social capital). On the contrary, contacts with natives (bridging social capital) or any kind of formal and institutional search method may help them to escape from the "immigrant jobs" trap.

More analytically, focusing on the attainment of a post-secondary degree in the origin country and distinguishing between occupational attainment on arrival and mobility, our first hypothesis and corollaries are as follows:

- *H1. Non-Western immigrants experience very poor returns to post-secondary education on their first job on arrival.*
    - *H1a. Such poor returns to origin-country education differ only slightly by area of origin.*
    - *H1b. Recognition of their degree before arrival increases the returns to post-secondary education on the first job.*
    - *H1c. Returns are higher when post-secondary educated immigrants use contacts with natives and formal and institutional search methods to find their first job.*

Due to the entrapment in low-skilled jobs and to the narrow occupational mobility between the first job and the current job (Fellini & Guetto, 2018), the returns to immigrants' post-secondary education are likely to be very poor also for subsequent mobility. However, we do expect such returns to improve over time, especially for those immigrants holding more-transferable and/or higher-quality human capital, net of the acquisition of other forms of country-specific human capital. More specifically, we expect the returns for immigrants from Western and new EU member countries to be higher than for the rest of non-Western immigrants. In line with credentialism theory, we also expect that non-EU immigrants will benefit the most from recognition of their post-secondary degree.

Thus, as regards subsequent mobility, our second hypothesis and corollaries are as follows:

- *H2. Non-western immigrants experience very low returns to post-secondary education also with respect to subsequent occupational mobility.*
    - *For Western and New-EU immigrants, however, the returns are higher.*
    - *Non-EU immigrants benefit the most from recognition of their post-secondary degree.*

Before shifting to the methodological section, we recall that, consistently with well-established definitions in the sociological literature, we define "returns to education" as the association between educational and occupational attainments (e.g., Shavit & Müller, 1998).[2] Consequently, in the empirical analyses, we refer to "poor returns" in case of a weak association between educational attainment and the socioeconomic status of the job.

4. Data and Methods

4.1. The Data and the Sample Selection

The analysis builds on data from the "Condition and social integration of foreign citizens" survey, carried out by the ISTAT between May 2011 and November 2012 (ISTAT, n.d.). This survey had a target sample of households with at least one immigrant member. These households were located through the municipal registers, with a final sample of 9,553 households and 25,326 interviewees.[3] Our analysis is carried out on a subsample of 13,557 individuals, including the foreign-born who arrived in Italy between 18 and 54 years of age and who were between 18 and 64 years old at the interview. Among these, we selected the large majority of immigrants having acquired their highest educational degree in their country of birth and who migrated directly from the country of birth to Italy. This was done to discard immigrants who might have acquired additional human capital during previous migratory experiences (N = 12,554). This sample is made of people mostly coming from Romania (24.2%), Albania (9.4%) and Morocco (9.4%), followed by Ukraine (5.3%), China (3.6%), Moldova (3.3%) and the Philippines (2.9%). The sample perfectly reflects the composition by country of origin of the foreign-born population in Italy. The average length of stay is 10.2 years, with 24.1% of the sample living in Italy 5 years or less and 9.3% 20 years or more. The final sample, of course, only includes those who have had at least one job in Italy. Thus, our final sample to analyse the returns to education on the first job in Italy is composed of 10,424 foreign-born, while the sample to analyse the returns to education on the occupational mobility of the foreign-born is made of 8,271 individuals who are employed at interview. Descriptive statistics for the two samples are shown in Annex, Table A1 and A3 specifically.

4.2. Variables and Model Specification

We focus on two dependent variables, both based on the 2008 version of the International Socio-Economic Index (ISEI), a well-known standardized score attributed to each occupation combining information on educa-

[2] Thus, our definition differs from the one originally elaborated by Mincer (1974) in his seminal work, which considers the return to one additional year of education on the logarithm of wages.

[3] The response rate was 85.4%. The sampling followed a two-stage procedure. In the first stage, 7,982 Italian municipalities were selected according to the size of their immigrant population. However, to take into account the higher concentration of immigrants in Northern regions, in the second stage, the sampling over-represented those living in the Southern regions. In the analyses that follow, we address this by applying the appropriate weights provided by ISTAT (n.d.).

tional requirements and potential earnings (Ganzeboom & Treiman, 1996). The first dependent variable is the 'ISEI of the first job', and it measures occupational attainment on arrival. The variable has been obtained starting from 3-digit ISCO-08 occupational codes and ranges between 15 and 89. The second dependent variable, measuring occupational mobility, is the 'change in ISEI' that occurred between the first job and the job held at the time of the interview. The choice of ISEI depends on the advantages of using a metric score in terms of statistical modelling and parsimony. However, the metric score avoids the problem of having an arbitrary definition of downgrade and upgrade, which is necessary in case of occupational classes.

The origin-country 'educational attainment' is the main independent variable, operationalized in two versions. The first version is dichotomized into "up to upper-secondary" and "post-secondary", with the latter including both tertiary and post-secondary non-tertiary degrees, regardless of their recognition (*Education*). In the second version, post-secondary degrees are further dichotomized based on their recognition: when looking at the ISEI of the first job, we consider whether or not the post-secondary degree was recognized already before migration (*Recognition_first*), while when looking at the change in ISEI that occurred between the first job and the current job, we include among the recognized degrees recognitions obtained after formal request in Italy (*Recognition_present*). The second independent variable is the 'area of origin', which considers the EU15 countries and other highly developed countries (also referred to as "Western" in what follows and labelled "EU15&HD" in the figures), Romania, other Eastern European new EU member states, former-Yugoslavian countries and Albania, former-USSR countries, Africa and the Middle East, Asia and Latin America (*Origin*).

In all models, 'gender', 'age on arrival' and 'work experience in the origin country' (operationalized as "never worked", "highly-", "medium-", and "low-skilled occupation") are included as control variables. Due to the small number of highly educated immigrants for some areas of origin, we did not implement separate models by gender. However, we tested that the main results are valid for both male and female immigrants.

Regarding the estimates of the ISEI of the first job, the models also control for 'time needed for finding the first job' (job found before migration, 1 month, 1 to 3 months, 4 months and over); the 'job finding method' (co-ethnic contact, Italian contact, institutional and formal methods); the 'region of the first job' (Central/Northern or Southern Italy); two dummies for the 'reason for migrating' (economic or family)[4] and the 'language proficiency on arrival' (not at all, some, good). As regards the estimates of the change in ISEI between the first job and the current job, the models also control for the *area of residence* at the interview (Central/Northern or Southern Italy). Moreover, they control for an additive index of *language proficiency* (measured through four items concerning respondents' ability to read, understand, speak, and write in Italian at interview, ranging from 1, not at all, to 4, very good). Finally, the models control for the *ISEI of the first job* and the *years since migration*, a proxy for potential work experience.

The model specification to estimate the returns to post-secondary education on the ISEI of the first job is as follows:

$$\begin{aligned} ISEI_t = &(Education \times Origin) + \\ &+ Labour\ Market\ Insertion + \\ &+ Migration\ Background + Sociodemo \end{aligned} \quad (1)$$

where t represents the time of the first job after migrating, *Education* × *Origin* represents the interaction between the educational attainment in the origin country and the area of origin, and *Labour Market Insertion* represents the different modes of insertion in the labour market, i.e., the time needed and the method used to find the first job. *Migration Background* represents another set of variables accounting for the characteristics of migration, such as the reason for migrating, the language proficiency on arrival and the work experience in the origin country, while *Sociodemo* includes a set of variables for gender, age on arrival and the region of the first job.

The model is estimated in two additional specifications. One includes the interaction between the origin-country education and the area of origin, also considering the recognition of the post-secondary degree (*Recognition_first* × *Origin*) in order to test our hypothesis H1b. The second is augmented with the interaction between origin-country education and the job finding method in order to test our hypothesis H1c.

As regards the estimates of the returns to post-secondary education on occupational mobility, the model specification is as follows:

$$\begin{aligned} \Delta ISEI_{t+1/t} = &(Education \times Origin) + \\ &+ ISEI_t + YSM + Language_{t+1} + \\ &+ Work\ experience + Sociodemo \end{aligned} \quad (2)$$

where t represents the time of the first job, $t + 1$ is the time of the interview and $\Delta ISEI_{t+1/t}$ is the difference between the current and first job ISEI. *Education* × *Origin* represents the interaction between the educational attainment in the origin country and the area of origin, $ISEI_t$ represents the ISEI of the first job, *YSM* represents the years since migration, $Language_{t+1}$ is the language proficiency at the interview, *Work experience* represents the work experience in the country of origin, and *Sociodemo* is a set of variables for gender, age on arrival and the area of residence at the interview.

[4] Separate dummies identifying the reasons for which immigrants left their origin country were built, with respondents being allowed to choose more than one option. A dummy for those immigrants indicating political and/or religious persecution among the reasons for migrating was not included in the model due to their very poor number in the sample, consistently with the very few refugees living in Italy at the time of the survey.

The model is estimated in an additional specification that includes the interaction between the origin-country education and the area of origin, also considering the recognition of the post-secondary degree (*Recognition_present* × *Origin*) in order to test our hypothesis H2b.

All models are estimated through ordinary least squares (OLS) with robust standard errors.

5. The Returns to Origin-Country Education on the First Job in Italy

The returns to origin-country education on the socio-economic status of the first job for each immigrant group are shown in Figure 1, where the squares represent the coefficients of the interaction between the attainment of post-secondary education and the area of origin from the estimates of Model 1. As from our definition of returns to education, the smaller the difference in first job ISEI between immigrants with different educational qualifications, the lower the returns to origin-country education on first job.

As Figure 1 shows, with the exception of immigrants from Western countries and, partly, of Latin Americans, the effect of a post-secondary degree on first job ISEI is either null or not statistically significant (immigrants from Asia, post-soviet countries, Albania and former Yugoslavian countries) or is quite limited (approximately 4 ISEI points for immigrants from Romania, other Eastern European countries, Africa and the Middle East). Overall, the returns to origin-country education on the socio-economic status of the first job in Italy are rather poor and are only slightly different for immigrants coming from a wide range of areas of origin, which is consistent with our hypotheses H1 and H1a.

In line with other studies, only foreign-born from Western countries ("EU15&HD" in Figure 1) benefit substantially from a post-secondary degree, with an effect on the ISEI score of their first job of approximately 18 points, a figure consistent with the return they experienced in their origin country.[5] Thus, Western/non-Western differences in first job ISEI are much larger among highly educated immigrants, compared to less educated ones.[6]

Latin Americans seem to be a special case, likely because many immigrants from some Latin-American countries have Italian ascendants. Indeed, even though the returns to post-secondary education are notably lower than those they would benefit from in the origin country (8 and 19 ISEI points, respectively), the "loss" is more moderate than that experienced by immigrants from all other areas, with the exception of other Eastern European immigrants from new EU member states. It should be noted, moreover, that all immigrants show quite similar high returns to education in the last occupation in their origin country (diamonds in Figure 1, with the solid line referring to the average return).

Figure 2 shows results from Model 1 under the specification that interacts the recognition of the post-secondary degree already on arrival with the area of ori-

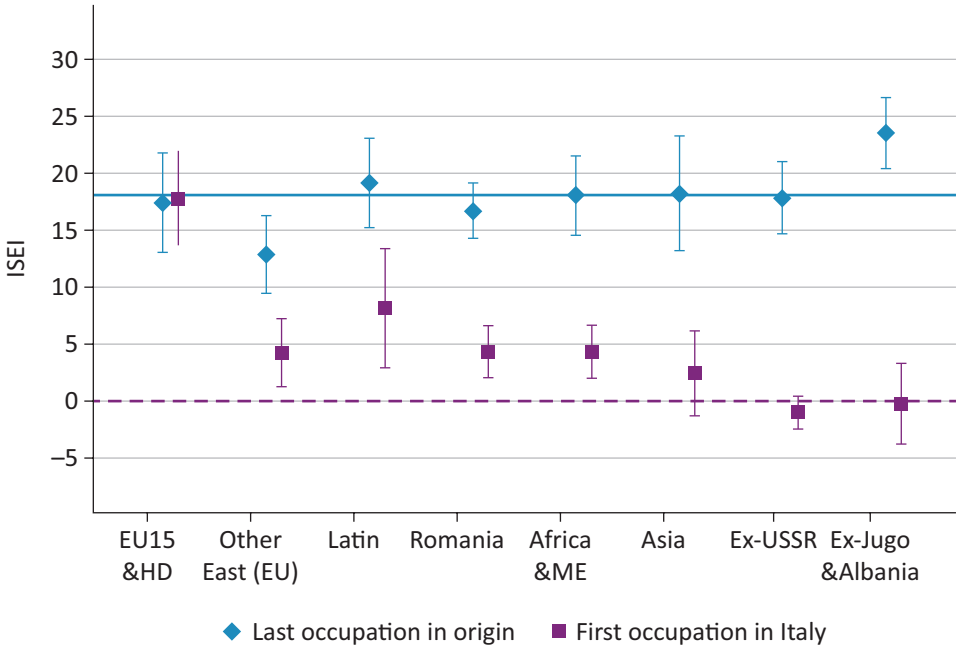

Figure 1. ISEI returns to post-secondary degree by area of origin (controls included, 95% C.I.).

[5] To estimate returns to education in the origin country, the sample includes only immigrants with work experience in the origin country who may or may not have worked in Italy.

[6] The average first job ISEI for Western immigrants with up to upper-secondary education predicted based on Model 1 is approximately 35 points, while the same figure ranges between approximately 25 (Asia) and 29 (Ex-USSR) among all other immigrants (full tables available upon request).

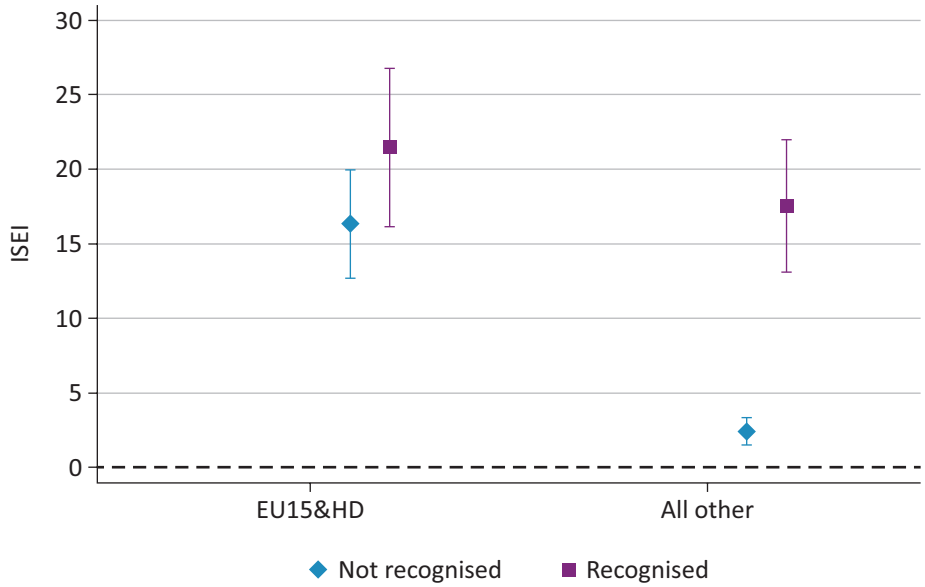

Figure 2. ISEI returns to post-secondary degree on the first job in Italy by origin and recognition (controls included, 90% C.I.).

gin. Due to the small number of immigrants who have their post-secondary degree recognized on arrival (see table A2 in Annex), the areas of origin are simplified in a dichotomous variable distinguishing between immigrants from Western countries and those from all other countries. The choice is justified by the fact that returns to education on the first job are only slightly different by area of origin, apart from the Western/non-Western divide (see Figure 1).

As shown in Figure 2, the recognition of the post-secondary degree on arrival seems to play a much more significant role for non-Western immigrants compared to Western ones, for whom the returns to a recognized or not-recognized degree are both high and not significantly different (approximately 21 and 16 ISEI points, respectively). For non-Western immigrants, a non-recognized degree provides extremely low returns (about 2 ISEI points), but the recognition makes them climb to approximately 18 ISEI points, a figure in line with that estimated for Western immigrants. Although consistent with our hypothesis H1b, it would be hazardous to conclude by this evidence alone that the transferability of credentials is more important than that of skills, let alone that discrimination and other sources of immigrant disadvantage are irrelevant. In fact, we cannot exclude that non-Western immigrants with a degree recognized before arrival differ from other non-Western immigrants on unobservable factors, such as a migratory project that developed in a career perspective more similar to that of many Western foreign-born.

If the returns to immigrants' skills are marginal while the recognition of credentials shows higher returns on the first job, other mechanisms also seem to play a non-negligible role. Figure 3 plots the coefficients of the interaction between educational attainment and the job finding method, given the different returns to education by area of origin. The focus is on how the effect of holding a post-secondary degree on the ISEI of the first job varies based on the different job finding methods. As expected, a post-secondary degree does not provide any return if the first job is found through co-ethnic contacts, possibly due to the bonding effect of the ethnic social capital (Lancee, 2016). On the contrary, Figure 3 shows that if the first job is found through a personal contact with a native or by relying on either institutional or formal channels (such as employment agencies), post-secondary education provides a statistically significant return of approximately 5 and 8 ISEI points, respectively. The returns to education gained through institutional or formal job finding methods are higher than those granted, on average, by post-secondary education for non-Western immigrants, consistent with our hypothesis H1c.

The relevance of the modes of insertion in the labour market also emerges from the estimates of other factors affecting the ISEI of the first job, as shown in Table 1. Indeed, the relation between the time needed to find the first job and its ISEI shows a U-shaped pattern. The returns are significantly higher when the job is found before arrival or when the job search is longer (4 months and over). This means that both the knowledge of specific job opportunities before migrating and a more selective job search (possibly supported by wider social and economic resources) once in Italy positively affect the socioeconomic status of the first job. Also, Table 1 shows that immigrants who reported having good knowledge of Italian on arrival fare significantly better than those who reported no Italian proficiency (approximately 4 points higher ISEI). Such return is definitely higher than that granted by a non-recognized post-secondary degree (see Figure 2).

The quality of job opportunities for immigrants in Italy strongly depends on the characteristics of the local labour market along a North-South axis (Avola, 2015). Indeed, the ISEI of the first job is, on average, 3 points lower

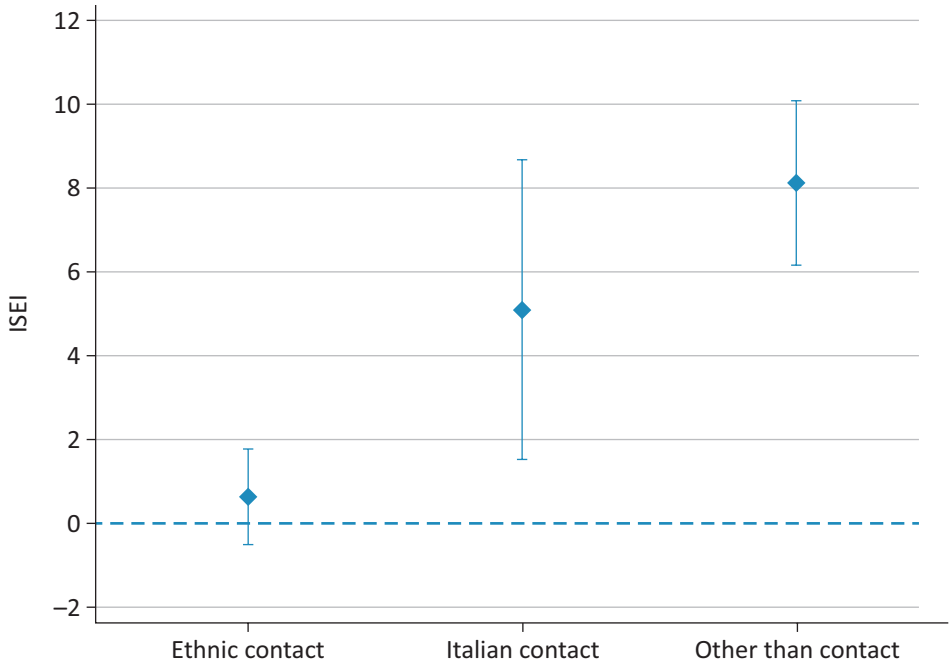

Figure 3. ISEI returns to post-secondary degree on the first job in Italy by job finding method (returns to education by area and other controls included, 95% C.I.).

Table 1. Factors affecting the ISEI of the first job in Italy (returns to education by area and by job finding method included).

	Coeff.
1–3 months of job search (ref. cat.)	—
Job found before arrival	1.124*
1 month of job search	0.323
4+ months of job search	1.169***
Central and Northern Italy (ref. cat.)	—
First job found in Southern Italy	−3.002***
No knowledge of Italian on arrival (ref. cat.)	—
Some knowledge	0.740**
Good knowledge	4.097***
Never worked in origin country (ref.cat.)	—
Manager, professional or technician	2.553***
Clerks, sales and services or skilled manual	0.607**
Agricultural, low- or un-skilled worker	−1.353***
Economic reason	−0.613**
Family reason	−0.0528
Age on arrival	−0.0430***
Woman	−4.852***
Observations	10,424
R-squared	0.310

Note: Robust standard errors *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

in the Southern regions, where immigrants can work almost exclusively in low-skilled jobs in agriculture, construction and personal services.

As regards the role of the *migratory background*, the work experience in the origin country is relevant. Those who held a managerial, professional or technical position in the last job before migrating, net of other factors, have a significantly higher ISEI for the first job, which is consistent with the hypothesis that on-the-job human capital acquisition positively affects occupational outcomes. In contrast, previous experience in agricultural, low- or unskilled jobs significantly and negatively affects the ISEI

of the first job. One can argue that experiences in bad jobs, net of other factors, indicate very poor human capital that lowers the thresholds of reservation in accepting job opportunities. Estimates for the reason for migration have to be taken more cautiously due to the way they were collected (see note 4). However, the choice to migrate for economic reasons slightly and negatively affects the ISEI of the first job, while migration for family reasons is not influential. Even though both reasons for migration show an overall limited effect, we can argue that those who migrate in search of a job are likely to be more in need of money than those who migrate to join the family and, consequently, are more pressured to accept whatever job they can find.

Among socio-demographic characteristics, age on arrival has a negative and significant effect, while the disadvantage of immigrant women is remarkable, as the penalization reaches nearly 5 ISEI points. The well-known strongly gendered structure of job opportunities for immigrants in the Italian labour market is connected to the large demand for care and domestic workers, a field targeted at immigrant women (Sciortino, 2004).

6. The Returns to Origin-Country Education on Occupational Mobility

The returns to origin-country education on occupational mobility are very poor as well, in line with our hypothesis H2. The estimates of Model 2, reported in Table 2, are based on a simplified definition of the area of origin, aggregating all Eastern European new EU member states and all non-EU countries but Latin American ones, due to the smaller sample size.[7] The aggregation is consistent with the low differences in returns to education by area of origin shown in Figure 1. Non-EU immigrants holding a post-secondary degree only gain 1.6 ISEI points between the first job and the job held at the interview, net of all other factors. Thus, the Western/non-Western divide holds as well for the chances of upward mobility, with the immigrants from Western countries showing the highest returns. To a lesser extent, immigrants from New-EU countries and Latin Americans also benefit from returns that are higher than those of other non-EU immigrants, but the difference is significant only for the immigrants from new-EU countries. These results are consistent with our hypothesis H2a.

Table 2. Factors affecting upward mobility in Italy ($\Delta ISEI_{t+1/t}$).

	Coeff.
Post-secondary	1.630***
Non-EU (ref. cat.)	—
EU15&HD	4.202***
New-EU	0.124
Latin	−0.0575
Post-secondary*EU15&HD	3.772**
Post-secondary*New-EU	1.901**
Post-secondary*Latin	1.691
Knowledge of Italian at interview (index)	0.672***
YSM	0.195***
YSM^2	−0.00394**
Residence in Centre-North at interview (ref. cat.)	—
Residence in the South at interview	−1.097***
ISEI of 1st job	−0.349***
Never worked in origin country (ref.cat.)	—
Manager, professional or technician	2.107***
Clerks, sales and services or skilled manual worker	0.517*
Agricultural, low- or un-skilled worker	0.0779
Age on arrival	−0.0689***
Woman	−2.770***
Observations	8,721
R-squared	0.186

Note: Robust standard errors *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

[7] In this model, only immigrants employed at the time of the interview are included.

For non-EU immigrants, recognition of the post-secondary degree is also decisive for their mobility chances, as predicted by our hypothesis H2b. Figure 4 plots the returns to a post-secondary degree on the change of ISEI between the first job and the current job by origin area and whether or not the degree was recognized at the time of the interview. While having the degree recognized does not make a significant difference for the mobility of immigrants from EU15 or other developed countries and has some significant effects for those from new EU countries, non-EU immigrants experience upward mobility only if their degree is recognized. With recognition of the degree, the returns to education on occupational mobility for non-EU immigrants become as high as those of immigrants from Western and new-EU countries. We have to recall, however, that the share of new-EU and non-EU immigrants in our data with a recognized post-secondary degree at interview is very low (2.7% and 1.7%, respectively) in comparison with Western immigrants (32.7%) so that, even if the effect of recognition is important, non-Western immigrants who benefit from it are very few (see table A3 in Annex).

7. Conclusions

The analysis has shown not only that non-Western immigrants encounter extremely poor returns to post-secondary education acquired in the origin country on the first job in Italy but also that these returns are only slightly different by area of origin. This evidence suggests that differences in the transferability and quality of skills—one of the leading hypotheses to account for immigrants' poor returns to education—are scarcely relevant in a strongly segmented labour market such as the Italian one. Returns are actually poor for occupational mobility as well because in this kind of labour market, non-Western immigrants are trapped in low-skilled jobs, regardless of their human capital. Yet, highly educated immigrants from Eastern European new EU member states experience returns to education on arrival that are closer to those they would have obtained in the origin country. They have especially higher chances of upward mobility between the first job and the current job compared to non-EU immigrants. This may be due to the convergence of the educational systems and the higher mobility of students brought about by the European integration process, which may have increased the transferability of skills and credentials for new EU immigrants.

As regards the first job, managing to find a job through contacts with natives and even more through formal methods proved to be important for highly educated immigrants in order to avoid being channelled into the secondary segment of the labour market. Moreover, recognition of the post-secondary degree already on arrival seems to play a substantial role for the very few non-Western immigrants having that degree recognized. In line with recent findings, the recognition of educational credentials seems decisive as well for the very few non-EU immigrants who can improve their occupational status over time. Hence, even if we cannot properly measure skills, our results seem to be in line with the credential theory, which argues that educational credentials (sheepskin effects) are more important than skills for occupational outcomes.

Our study shows that recognition matters at all stages of the labour market experience of immigrants. Consequently, policies targeted at the recognition of foreign degrees could be as important as training policies addressing immigrants' skills. Nevertheless, other factors have proved to play a significant role in non-EU immigrants' outcomes, net of education and recognition of credentials. The penalization of immigrant women is

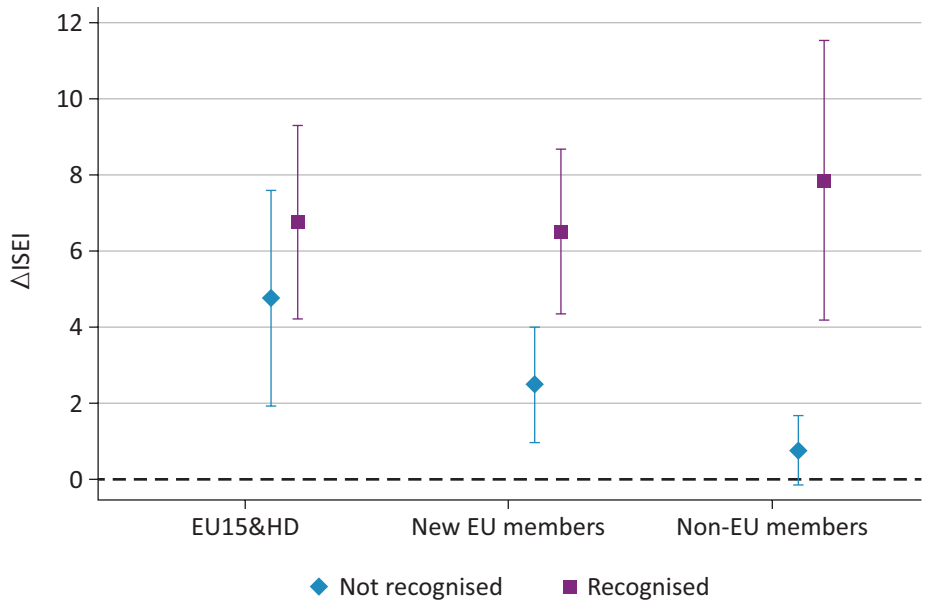

Figure 4. Returns to post-secondary degree by origin and recognition on $\Delta ISEI_{t+1/t}$ in Italy (Controls included, 90% C.I.).

high both on the first job and on subsequent mobility, due to the strongly gendered pattern of immigrants' insertion in the Italian labour market. The structure of opportunities in the local labour market also plays a role, with immigrants in the Southern regions being more penalized. Pre-migration human capital and language proficiency also play a non-negligible role, both for the first job and for mobility opportunities.

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Conflict of Interests

The authors declare no conflict of interests.

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Annex

Table A1. Descriptive statistics of samples for Model 1 (ISEI first job) and Model 2 (Change in ISEI).

	First job	Transition from first to present job
Sample size	***10 424***	***8 721***
Sex		
Male	49.8	52.4
Female	50.2	47.7
Mean age on arrival	29.1	29.3
Area of origin		
EU15 & other highly developed countries	3.6	3.7
New-EU		31.3
Romania	25.9	
Other East	5.2	
Non-EU		56.2
Ex-Jugo & Albania	12.2	
Ex-USSR	11.0	
Africa & ME	20.4	
Asia	12.9	
Latin	8.8	8.7
Education	*(on arrival)*	*(at interview)*
No title	6.9	7.0
Upper-secondary not recognised	79.4	75.3
Upper-secondary recognised	1.5	5.3
Post-secondary not recognised	11.3	9.1
Post-secondary recognised	1.0	3.4
Labour market condition in origin country		
Never worked	35.0	34.7
Highly-skilled worker	14.6	14.8
Middle-skilled worker	34.3	33.7
Low-skilled worker	16.2	16.8
Proficiency in Italian	*(on arrival)*	*(at interview)*
Not at all	69.2	—
Some	27.2	—
Good	3.7	—
Average additive score (1–4)	—	3.3
Job finding method		
Ethnic contact	60.3	—
Contact with an Italian	11.3	—
Other formal/institutional methods	28.4	—
Time needed to find job		
Job found before arrival	6.5	—
1 month of job search	38.1	—
1–3 month of job search	26.9	—
4+ months of job search	24.6	—
Missing	3.8	—
Migrating for economic reasons	64.1	—
Migrating for family reasons	20.5	—
Territorial area	*(of first job)*	*(residence)*
Centre-North	80.9	85.1
South	19.1	14.9
Years Since Migration (mean)	—	10.7

Table A2. Descriptive statistics for the interaction term in Figure 2 (area of origin ## education at origin).

	Up to Upper-secondary	Post-secondary not recognised	Post-secondary recognised	Total
EU15&HD	46.6	37.4	15.9	100.0
All other	89.3	10.3	0.4	100.0
Total	87.8	11.3	1.0	100.0

Table A3. Descriptive statistics for the interaction term in Figure 4 (area of origin ## education at interview).

	Up to Upper-secondary	Post-secondary not recognised	Post-secondary recognised	Total
EU15&HD	42.3	25.0	32.7	100.0
New-EU	91.3	5.9	2.7	100.0
Non-EU	88.4	10.0	1.7	100.0
Latin	87.4	8.5	4.1	100.0
Total	87.5	9.1	3.4	100.0

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Article

Employment Outcomes of Ethnic Minorities in Spain: Towards Increasing Economic Incorporation among Immigrants and the Second Generation?

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Abstract
This article examines the labour market outcomes of immigrants in Spain, a country that has become a migration destination only since the end of the 1990s. Differentiating between first and second generation of immigrant descent, we compare the labour market involvement of the main ethnic groups with the majority group. One particular focus is to understand which minorities have been hit the hardest by the Great Recession. To this end, we use data from the European Union Labour Force Survey for the years 2008 and 2014, and more specifically the two ad-hoc modules on the labour market situation of migrants. Analysing men and women separately, we run a set of multivariate logistic regression models to control for compositional differences. In this way, we examine ethnic gaps not only in labour force participation but also in the degree of underutilisation of human capital, measured as workers' level of over-education as well as the incidence of involuntary part-time employment. Our results show that while most origin groups do not show significantly lower employment participation than the majority group, the employment quality of immigrants in terms of involuntary part-time work and over-education is substantially worse, especially since the crisis.

Keywords
employment participation; ethnic inequality; involuntary part-time; migrant assimilation; over-education

Issue
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1. Introduction

Over the last two decades, Spain has received an unprecedented inflow of migrants, particularly from Latin America and Eastern Europe. However, the existing evidence on the labour market integration of these migrants, and especially the economic well-being of their descendants, is still limited. Moreover, the Great Recession brought a sudden and profound change to people's economic circumstances, which calls for an updated analysis of immigrants' situation. This article examines how the main origin groups fare in the labour market in comparison to the majority group and to each other. Using data from two special modules of the European Union Labour Force Survey (Eurostat, 2018), we show descriptive evidence about ethnic gaps in the Spanish labour market. We then use multivariate statistical analyses to find out to what extent these changing gaps are attributable to different socio-demographic characteristics. All analyses in this article are carried out for men and women separately and we distinguish between the first and second generation. In examining data from 2008 and 2014 respectively, we compare immigrants' economic performance before and after the Great Recession that shook the Spanish labour market to its foundations.

We focus on three outcome measures: (1) participation in paid employment, (2) in involuntary part-time

work, and (3) level of over-education.[1] Together with earnings, having a paid job is the standard measure of economic incorporation. Being part of the workforce is essential to social integration and the prime source of income for most immigrants and the majority group. However, as argued in the introduction to this thematic issue, the themes of economic integration and returns to human capital have been discussed to understand the socioeconomic situation of immigrants. In this regard, we also consider measures of employment quality that speak to the degree of integration of immigrants beyond the minimum threshold of holding a paid job.

In this vein, the second labour market outcome examined in this article is involuntary part-time work, that is, working under a part-time contract due to the impossibility of finding a full-time job. It is crucial to acknowledge the duality among part-time workers by distinguishing those who are voluntary part-timers from those who are involuntary because they could not find a full-time job. In fact, involuntary part-timers perceive the quality of their job to be lower (Kauhanen & Nätti, 2015), and they are also more likely to experience depression and low self-esteem (Dooley, Prause, & Ham-Rowbottom, 2000) than those working in a voluntary employment arrangement. In Spain, the proportion of individuals that would like to work more hours than they currently do has increased dramatically during the Great Recession (Torre Fernández, 2017), particularly among immigrant women.

Our third outcome of interest is over-education. It is well documented that immigrants in most countries are more likely to be over-educated than similar members of the majority group (see, for example: Leuven & Oosterbeek, 2011; Quintini, 2011). Such educational mismatch between workers´ human capital and employers´ demands can be explained either because immigrants have less specific human capital (supply side), or because employers might lack information about potential productivity or skills of new immigrants (demand side). Either way, the study of over-education of immigrants has a special relevance in Spain, an economy characterized by pronounced labour market segmentation, the extension of low productivity jobs, and an oversupply of highly educated young people.

In Section 2, we provide a succinct description of Spain's recent history as immigration country and the economic integration patterns of the main immigrant minorities. Then, in Section 2.2., we present a brief overview of the state of the Spanish labour market before and after the Great Recession. In Sections 3 and 4 we document the data and methods used in the empirical part, which starts with descriptive results and culminates in a set of logistic regressions comparing how immigrants perform in the Spanish labour market relative to the majority group. Section 5 concludes.

2. The Contextual Framework: Immigrants in the Spanish Labour Market

2.1. Spain as a Recent Migration Destination

Spain did not receive significant migration inflows until the end of the 1990s and was, in fact, a sending country during much of the twentieth century. This situation changed during the 2000s, when Spain became a top destination country for international migrants and started receiving inflows from Latin America, Eastern Europe and North Africa. The foreign-born population increased from 2.9% in 1998 to 13.1% in 2007 (authors' calculations using official data from the Spanish Statistical Office[2]), becoming in 2007 the second-largest receiver of immigrants in absolute terms among the OECD countries (OECD, 2018). The exceptionality of the Spanish migration inflows during this period was mainly driven by Latin Americans, particularly from Ecuador (Pellegrino, 2004). The volume and intensity of the inflows could be attributed to the tourist visa exemption arrangements that were in place until the mid-2000s with many Latin American countries.

The government's tolerance towards the shadow economy, which represented around 22% of the GDP in 2007 (Williams, 2014), along with the weak enforcement of internal controls resulted in a rapid increase in immigrants working illegally during the early 2000s. As it occurred in other European countries, most immigrant men and women in Spain had high employment rates before the crisis, though they concentrated in unskilled and low paid jobs (Bernardi, Garrido, & Miyar, 2011; Kogan, 2006). Immigrant women, particularly those from Latin America and Romania, satisfied the demand for domestic workers driven by the labour market incorporation of women from the majority group (Da Roit, González-Ferrer, & Moreno-Fuentes, 2013). In this regard, 45% of female immigrants in the work force were employed in the care and cleaning sectors in 2013, most of them as domestic workers in the shadow economy (Sánchez-Domínguez & Fahlén, 2017). Immigrant men from non-EU-15 countries were also attracted by the high demand for unskilled labour in the booming construction sector during the early 2000s. In consequence, many immigrant men became unemployed with the burst of the real-estate bubble in 2008 (Stanek & Veira, 2012). As expected, the economic recession slowed down the migration inflows and stimulated the outflows to the point that the net migration rate turned negative from 2012 to 2014 (Izquierdo, Jimeno, & Lacuesta, 2016). The outflows were mainly formed by immigrants who had arrived during the economic boom of the early 2000s and who were returning to their origin countries or migrating to another European country.

[1] Another widespread indicator such as the proportion fixed-term contracts is not a proper measure to account for crisis effects given its pro-cyclical nature. In 2014 the proportion of fixed-term contracts was reduced in greater proportion for immigrants not as a result of a reduction in the ethnic penalties but rather as a composition effect: the destruction of employment was more intense for workers without indefinite contract.

[2] Instituto Nacional de Estadística (www.ine.es).

The ethnic composition of the migrant population in Spain is different to that in other European countries, principally due to the presence of Latin American immigrants. Latin Americans made up 30.7% of the foreign-born population in 2016, the main origin countries being Ecuador, Colombia and Argentina. Migration flows from Eastern Europe, particularly from Romania, started later but continued growing even during the economic crisis, representing the 14.2% of the foreign-born population in 2016. Immigrants from Middle East and North African countries (MENA), most of whom are Moroccans, made up 15.8% of the foreign-born population in 2016, while EU-15 immigrants comprise the 16.4% of the foreign-born in the same year. The second generation in Spain is still coming of age and thus, there is no empirical evidence on the labour market integration of the children immigrants born in Spain. We aim to partially filling this gap in the article, though we group together the 1.5 and the second generation in the same analytical category due to the low number of cases relative to the first generation.

2.2. The Spanish Labour Market: Economic Crisis, Labour Market Reform, and Duality

The Spanish labour market is conventionally associated with high unemployment rates, especially among young people, as well as a marked insider-outsider divide (Bentolila, Dolado, & Jimeno, 2012). Since the liberalization of the labour market in 1984, Spain is also known for the high incidence of temporal employment (Polavieja, 2005). While this general characterization is still by and large accurate (Domínguez, 2015), the last decade has seen two major shifts that have altered the structural conditions of immigrants' labour market participation in significant ways: the Great Recession, beginning in 2008, and the labour market reform of 2012.

The financial and economic crisis hit Spain exceptionally hard. Between 2008 and 2013, the GDP contracted by an aggregate of almost 9%, and the unemployment rate rose from 8% in 2007 to 26% in 2013 (The World Bank, 2017). Consequently, Spain exhibits one of worst profiles in terms of quality of employment within the EU-15. The phenomenon that perhaps captures the devastating impact of the Great Recession more clearly is long-term unemployment (i.e., lasting more than 12 months). In 2008, when the economy was still humming, this was a marginal phenomenon that affected less than 3% of any social group.[3] The percentage was even lower among immigrants than the majority group, with second-generation of MENA immigrant descent being the only outlier in this regard. In 2014, one out of ten Spanish born (majority group) was long-term unemployed, and this percentage reached 15.1% among male first-generation immigrants from Latin America and as high as 26.5% among those from MENA countries.

The 2012 labour market reform introduced a great deal of added flexibility for employers to hire and fire workers, particularly through diminished employment protection and the use of part-time employment contracts. The purpose of the reform, which can be described as "broad-brush liberalization" (Picot & Tassinari, 2014) was to inject new dynamism into the stagnant labour market (cf. Domínguez, 2015) and to break up the duality and segmentation.

As Fernández and Heras (2015) show, the incidence of part-time employment has increased during recent years partly as a result of the 2012 labour market reform. However, in contrast with the spirit of the new legislation, this uptick in the use of part-time arrangements has been largely involuntary, i.e., by workers who would rather work full-time but accepted a part-time arrangement after being unemployed for some time (cf. Torre Fernández, 2017). In this regard, the incidence of involuntary part-time work could in fact be considered an indicator of the quality of employment in this context of recession. In this regard, Spain had the second highest rate of involuntary fixed-term contracts in the European Union in 2013 (López-Mourelo & Malo, 2014). Aguirregabiria and Alonso-Borrego (2014, p. 952) conclude that:

> the duality of the Spanish labour market has been strengthened in the last two decades, so that 30% of the working people, those with temporary contracts, bear most of employment turnover, to the extent that all the flexibility of the labour market is provided by them.

3. Data and Operationalisation of Variables

We use the 2008 and 2014 ad-hoc modules of the EU-Labour Force Survey for Spain, which feature a set of items on the labour market situation of migrants and their descendants. The variables that have been included in the two ad-hoc modules are mostly identical, so we can compare the labour market integration of immigrants in Spain right at the beginning of the 2007–2008 financial crisis and after six years of economic recession. It is relevant to note that all immigrants living in Spain, irrespective of whether they have legal residence permit or not, could be sampled in the LFS. Our analytical sample includes only individuals between age 16 and 64 and it excludes retirees and individuals in education.

We distinguish between majority group, first- and second-generation immigrant descent. The majority group comprises respondents born in Spain with both parents also born in Spain. Foreign-born individuals who migrated to Spain after age 14 are considered the first generation. Finally, the 1.5 and second generation have been grouped together due to the small number of observations. Consequently, when using the term second generation, we refer to respondents born in Spain with at least one parent born abroad and to those born abroad and migrating to Spain before age 14.

[3] Authors' calculations based on EU-LFS (Eurostat, 2018).

We use information on the individual, the father and the mother's country of birth to identify immigrants' national origin. Since the data does not give disaggregated information on country of birth but only on the geographical region of birth, we have grouped immigrants into the following categories: Latinos or Latin Americans, Eastern Europeans, Middle East and North Africans (MENA), and Western Europeans (EU-15 and EFTA). Respondents born in other regions of the world (e.g., East Asia) are excluded due to the small number of observations. For the same reason, we also disregard second generation respondents from Eastern Europe.

Regarding the dependent variables, the first outcome measures whether workers are in paid employment (vs. unemployed or inactive). The second outcome indicates whether workers are in an involuntary part-time job, which refers to individuals who are working part-time because they report that they could not find a full-time job. This definition excludes part-timers due to other reasons such as having an illness or looking after children or incapacitated adults. In the empirical analysis, involuntary part-timers are compared to workers in voluntary arrangements, who are employed either full-time or part-time.

Qualification mismatch is usually measured empirically by comparing individuals' education with the educational requirements of their jobs or occupations. Thus, workers are considered over-educated if they have a higher educational level compared to the education required by their jobs. Different operationalisations have been proposed in the literature to measure required qualifications (for a review, see: Leuven & Oosterbeek, 2011). In this article, we use the statistical definition of over-education based on the mean (Verdugo & Verdugo, 1989). According to this definition, workers are considered over-educated if their level of education (expressed in years of schooling) is above the mean plus one standard deviation within their occupation (expressed at the 2-digit level).[4]

In addition to ethnicity and generation, the following control variables are included in the analyses: respondents' age (in 5-year age bands), educational level and civil status (which distinguishes between being married, cohabiting or in a registered union, and single, never married, separated, divorced or widowed). We also include an indicator of the presence of dependent children in the household, as well as the degree of urbanisation of the area where respondents live, which distinguishes between cities, towns/suburbs and rural areas.

The educational level is operationalised in four different categories based on the ISCED 2011 classification, that is, primary or no formal education (ISCED 0 and 1); lower secondary education (ISCED 2); upper secondary education (ISCED 3 and 4); and tertiary education (ISCED 5 and above). Social class is operationalised with a 4-class version of the European Socio-economic Classification (Rose & Harrison, 2007), a further development of the class scheme developed bay Erikson and Goldthorpe (1992); ISCO-08 codes from the 2014 survey were transposed into ISCO-88 codes for this purpose.

4. Results

4.1. Descriptive Results

Tables 1 and 2 presents descriptive statistics for all the control and outcome variables in terms of respondents' migrant origins and generation.[5] The demographic profile shows that immigrants in Spain (except Western Europeans) tend to be younger than the majority population, although the gap has shrunk with time. While there is a female majority among Latinos, the sex-ratio for MENA immigrants has been biased towards males. For the first generation, the percentage of respondents living with their partners is higher for Eastern European and MENA migrants than for the majority population, Western Europeans and Latinos. The percentage of respondents with dependent children is higher than among the majority group, reflecting well-known fertility patterns (Castro-Martín & Martín-García, 2013).

In terms of educational attainment, all ethnic minorities have lower levels than the majority group, except for Western Europeans, who are more highly educated than Spaniards. Because of the late educational expansion in Spain, the academic qualifications among older workers is still substantially lower than in other developed countries. Immigrants from MENA countries have by far the lowest level of education, with around half not even reaching lower secondary education. Between 2008 and 2014, educational attainment has generally improved for both the majority group and immigrants. The exception is the second generation of immigrant descent from Latin American and MENA countries, who have even worsened their educational profiles. In the case of Latinos, this may be due to the somewhat lower average age of second-generation of immigrant descent.

Looking at the degree of urbanization of the areas where immigrants and the majority group live, in 2008 there was hardly any difference between both groups (about half living in urban areas and the other half in smaller towns or the countryside), except for Latin Americans who are far more often living in cities. By 2014, the share of immigrants living in larger cities notably decreased, now all except Latinos are just as likely to live in smaller towns.

Turning to our three dependent variables, Tables 3 and 4 show the labour market outcomes of immigrants

[4] Sometimes it is possible to use a subjective measure by asking workers about the schooling requirements for their job and then comparing those to the education of the worker; or by directly asking workers if they feel over-qualified or over-educated. A question of this kind is included in the ad hoc module of the 2014 LFS to subjectively assess over-education among immigrant workers. Unfortunately we cannot use such self-assessment measure because it is only included in 2014 and the majority group are not asked about it. Nor is it possible to measure over-education based on the so-called "job analysis" or "objective" measure because there is no equivalent to the American Dictionary of Occupational Titles (DOT) in the European context.

[5] Additional descriptive tables are available upon request.

Table 1. Sociodemographic and control variables by gender, ethnicity and generation (%) in 2008.

	Majority group	Latinos		East EU	MENA		West Europeans	
		1st gen.	2nd gen.	1st gen.	1st gen.	2nd gen.	1st gen.	2nd gen.
Gender (% female)	49.5	54.8	48.0	52.9	39.7	42.8	49.4	41.0
Age	41.2	36.1	31.0	34.7	35.7	29.4	44.8	34.3
Married/In a civil union/ Cohabiting	58.3	49.0	28.8	65.9	71.5	35.2	58.1	33.5
Have dependent children living at home	31.2	56.7	31.0	44.5	58.4	47.5	39.3	28.4
Educational attainment								
No formal education (or ISCED 1 and below)	18.8	18.9	15.4	10.5	55.0	22.1	12.5	15.4
Lower secondary education	30.7	20.8	33.9	17.7	15.3	34.0	12.8	38.0
Upper secondary education	20.0	40.8	24.8	48.6	20.6	26.0	26.9	21.8
Tertiary education	30.5	19.5	25.8	23.2	9.1	18.0	47.8	24.9
Degree of urbanisation								
Densely-populated are (cities)	50.1	67.1	74.2	47.4	47.8	57.6	47.6	49.9
Intermediate density area (towns and suburbs)	24.7	18.7	13.3	27.0	25.8	26.5	27.4	27.7
Thinly-populated area (rural)	25.2	14.2	12.5	25.6	26.3	15.9	24.9	22.4
(N)	52,726	2,090	252	792	662	200	411	366

Table 2. Sociodemographic and control variables by gender, ethnicity and generation (%) in 2014.

	Majority group	Latinos		East EU	MENA		West Europeans	
		1st gen.	2nd gen.	1st gen.	1st gen.	2nd gen.	1st gen.	2nd gen.
Gender (% female)	49.7	59.3	53.5	52.8	46.6	49.1	49.1	46.0
Age	42.5	40.5	29.1	39.9	40.5	28.9	46.1	34.6
Married/In a civil union/ Cohabiting	54.1	51.6	20.6	63.9	82.0	30.0	53.8	30.7
Have dependent children living at home	32.6	54.0	38.2	45.2	73.4	48.1	39.4	28.4
Educational attainment								
No formal education (or ISCED 1 and below)	9.9	14.6	10.1	9.3	50.4	22.3	8.1	10.5
Lower secondary education	33.2	22.8	39.0	17.2	21.2	39.0	15.8	30.8
Upper secondary education	21.0	37.1	29.5	42.7	17.3	20.5	25.0	26.0
Tertiary education	35.9	25.5	21.4	30.9	11.0	18.3	51.1	32.7
Degree of urbanisation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Densely-populated are (cities)	47.2	63.0	51.8	36.9	37.8	49.5	39.3	41.8
Intermediate density area (towns and suburbs)	26.8	18.7	30.1	36.8	36.2	35.0	37.0	34.6
Thinly-populated area (rural)	26.1	18.3	18.0	26.3	26.0	15.5	23.7	23.5
(N)	52,449	1,925	397	815	750	236	429	456

and the majority group in 2008 and 2014, distinguishing between ethnicity, generation as well as gender.

Having a paid job is essential to economic well-being, and we can see that although male first-generation immigrants did worse than the majority group in 2008, differences are small (we do not pay much attention to the larger gaps among the second-generation gaps which are partly attributable to lower ages and people still finishing their education). In 2014, however, we observe much more pronounced interethnic disparities. The employment rates of the majority group decreased significantly due to the Great Recession, but even more starkly among immigrants. For example, the proportion of paid employees among first generation immigrants from MENA

Table 3. Labour market outcomes by ethnicity and generation in 2008 and 2014 (males).

	Have job		Involuntary part time		Over-education	
	2008	2014	2008	2014	2008	2014
Majority group	84.7	71.1	1.4	4.7	30.4	28.3
Latinos — 1st gen	82.5	64.9	4.2	10.5	49.6	46.0
Latinos — 2nd gen	59.5	47.7	2.1	18.5	28.5	32.2
East EU — 1st gen	80.3	63.1	2.3	12.8	70.0	69.0
MENA — 1st gen	68.6	42.0	6.6	13.4	29.7	25.6
MENA — 2nd gen	76.9	42.2	0.3	13.8	27.7	23.9
West Europeans — 1st gen	78.1	71.8	0.1	3.4	43.4	38.9
West Europeans — 2nd gen	75.8	62.8	0.5	7.7	29.2	29.2
(N)	28,591	28,300	24,125	19,568	27,456	26,317

Table 4. Labour market outcomes by ethnicity and generation in 2008 and 2014 (females).

	Have job		Involuntary part time		Over-education	
	2008	2014	2008	2014	2008	2014
Majority group	62.2	58.5	6.5	13.9	29.5	34.1
Latinos — 1st gen	73.8	62.7	15.0	29.8	41.5	50.0
Latinos — 2nd gen	63.8	46.7	6.0	20.7	18.7	37.0
East EU — 1st gen	65.4	56.7	12.6	34.7	55.0	61.9
MENA — 1st gen	32.2	22.5	17.8	27.2	32.7	27.6
MENA — 2nd gen	54.7	35.3	10.6	17.8	25.7	26.0
West Europeans — 1st gen	50.2	54.5	10.9	11.5	45.3	37.6
West Europeans — 2nd gen	68.4	53.5	5.6	13.6	20.4	37.9
(N)	29,887	30,340	18,114	17,084	23,311	24,460

origins dropped from 68.9% to 41.1%. The comparison with women shows that while female employment rates in 2008 were much lower to begin with, they also decreased to a smaller extent. This is true for both the majority group and immigrants and confirms that the recent economic crisis in Spain hit male-dominated segments of the labour market, particularly construction, especially hard. Nevertheless, women of all origins remain clearly disadvantaged compared to men in terms of participation in paid work, with the sole exception of Latin American women who are almost on par with their male counter-parts. Although female immigrants from MENA countries already had markedly low levels of employment before the crisis—which may be due to traditional gender roles among religious Muslims (Guetto & Fellini, 2017)—the most striking number may be that only 22% of them had a paid job in 2014.

Let us turn our attention next to the issue of involuntary part-time work. The data show very neatly that this is a markedly female problem, with women's incidence rates more than doubling that of men's across the board. Moreover, we find sizeable ethnic gaps, especially regarding the first generation: one seventh of employed Latin American women involuntarily worked only part-time in 2008, and this proportion spiked to almost one third in 2014. Again, immigrants with MENA origins are even worse off. The most drastic increase was experienced by Eastern European women among whom the share of involuntary part-timers skyrocketed from 12.6% in 2008 to 34.7%. Notably, among male second-generation Latin Americans, the proportion reached 18.25% in 2014, about four times the share among country-born men. In 2008, first-generation men from MENA countries were the only clearly distinguishable risk group, though on much lower levels.

Finally, we examine the incidence of over-education across ethnic groups. As the baseline numbers for the majority group highlight, this is a notorious problem in Spain, where ever more college graduates enter labour market with few high-skilled vacancies. According to our calculation, around 30% of the majority group were over-educated in 2008. Until 2014, this number went down slightly for country-born men, mostly due to the recession-induced loss of many jobs in the low-skill sector. For women, it went up, and their higher risk of over-education also reflects the fact that women by now have outpaced men in educational attainment rates.

Moreover, the analysis by ethnic origins reveals hefty rates of over-education, particularly among first generation Latin Americans (almost half) and Eastern Europeans. Among the latter, we register more than two out of three male workers as being over-educated, and by 2014 women only barely fare better. Interestingly, immigrants from MENA countries are largely sheltered from

this particular risk, albeit mostly by virtue of lower educational attainment levels. Vice versa, Western Europe cannot be regarded as privileged on this account as they exhibit significantly higher rates of over-education than the majority group. Second generation of immigrant descent largely have moderate incidence rates, arguably partly because they have not all finished their education when surveyed.

4.2. Multivariate Statistical Analyses

In order to find out whether the descriptive findings so far are robust to compositional effects, we now turn to the multivariate analysis. We will present a series of logit models that control for age, civil status, dependent children, education, language skills and area of residence. For easier interpretation, we will show results in terms of predicted probabilities rather than logit coefficients.

4.2.1. Paid Employment

We begin again by considering ethnic gaps in paid employment and differentiate by both gender and year of observation. Figure 1 shows the probabilities of holding a paid job as predicted by our models according to ethnic origin and generation of immigrant descent. In the left panel, it becomes apparent that although the (composition-adjusted) employment rate of country-born men was the highest in 2008, there are only three ethnic groups for whom we find significantly lower rates among males. This is the case for second generation immigrant descent from Latin America, as well as first generation East Europeans and immigrants from MENA countries. For the other groups our estimates are not precise enough to make definitive statements (note that the bars in the graph denote 90% confidence intervals).

The juxtaposition with women's employment situation in 2008 exposes the profound gender divide on the Spanish labour market that affects all ethnic origins. Interestingly, instead of country-born women, it is first generation Latinas (closely followed by second generation West Europeans) who fare best in terms of their labour market participation. The only origin groups for which we register significantly lower employment shares than among female country-born are first generation immigrants from MENA and West European countries.

Due to the crisis in 2014, we again observe a marked drop in employment levels among men. While the uncertainty around several of our estimates is considerable, the predicted probabilities of having a paid job are similar for the majority group, West Europeans as well as the second generation with origin in Latin America and MENA countries. By contrast, first generation Latinos and Eastern Europeans evidently struggle to find employ-

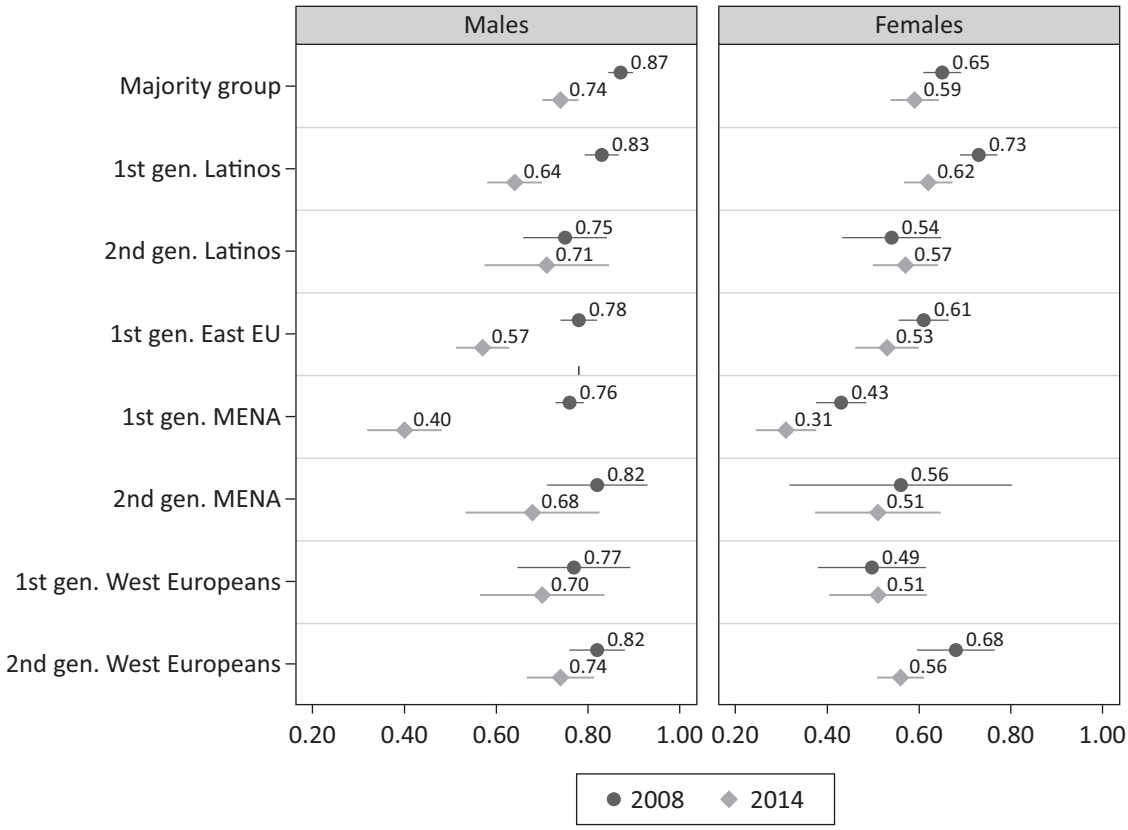

Figure 1. Predicted probabilities of paid employment for immigrants and the majority group in 2008 and 2014. Notes: Controls for age, education, civil status, dependent children and degree of urbanization; N = 114,956; age 16–64, not in education/training or retired (Full sample); bars represent 90% confidence intervals. Weighted and clustered by region.

ment. However, first generation immigrants from MENA origins are by far in the worst situation. Even after adjusting for socio-economic characteristics, their degree of economic incorporation remains strikingly poor. Also, among women, immigrants from the Middle East and North Africa are the clear outlier in this analysis and have to be regarded as the most vulnerable minority group. Otherwise, we observe only moderate differences across ethnic origins among women in 2014. The recession seems to have led to a certain convergence of female employment rates in Spain.

4.2.2. Involuntary Part-Time Work

In the US, almost all the increase in part time work since the 1970s has been driven by those who would prefer to work full time (Farber, 1999); that has been particularly the case during the last economic recession (Valletta & Van der List, 2015).

Regardless of workers' preferences, non-standard employment arrangements such as part-time and temporary work have become more widespread over the last decades (Kalleberg, 2000). Part-time jobs have been promoted by employers because they can be created and eliminated more easily and the hourly wages are lower than in fulltime jobs, even after controlling for workers' education, experience, and other relevant variables (Ferber & Waldfogel, 1998; Tilly, 1996).

Part-time workers, irrespective of their preferences for that type of contract, notably increased from the 1970s onwards, when the structural changes in the global economy started requiring more flexibility in employment (Kalleberg, 2000). Prior research has shown hourly wages are lower than in full time jobs, even after controlling for workers' education, experience, and other relevant variables (Ferber & Waldfogel, 1998; Tilly, 1996). In addition, part-timers also obtain lower wage returns to experience and seniority (Farber, 1999). It is also important to remark that part-time work is, to a certain extent, a female phenomenon, as in all industrial economies, most part-time workers are women (Blossfeld & Hakim, 1997).

The empirical analyses for this section do not estimate the prevalence of part-time work for the second and the first generation within each ethnicity. The main reason to do so is that the number of second generation respondents who are involuntary part-timers is very small for Eastern Europeans and MENA immigrants when we run separate analyses for each gender and year. Therefore, we only include a control for generation of immigrant descent and estimate the results for each ethnicity. We control for social class to account for the stark stratification of the Spanish labour market.

In Spain, involuntary part-time work is a phenomenon that has historically affected the female working population. Before the crisis, the predicted percentage of male part-timers was similar and relatively low for all ethnicities (between 1 and 5%), while the predicted percentage among females was between 6 and 9% for the majority group and West Europeans, and between 13 and 16% for Latinas, Eastern EU and female immigrants from MENA countries. As expected, the (composition-adjusted) incidence of involuntary part-time work increases substantially for all the working population during the Great Recession, particularly for Latino and Eastern European females. Latino, Eastern Europeans and MENA males and females tend to work in different sectors (males in construction and service, females in cleaning and catering), though they are both over-represented in routine and low-skilled occupations. Crucially, involuntary part-time work notably increased from 2008 to 2014 among females in routine occupations—most likely, those working in the cleaning and caring sectors and, to a lesser extent, females in low-skilled service/sales/clerical occupations (see Figure A1 in Annex). It is thus not surprising that female immigrants are the most affected group in terms of involuntary part-time work during the crisis.

With regard to female workers (right panel in Figure 2), we no longer find significant differences across ethnicities in the probability of working part-time involuntarily once we control for relevant demographic and socioeconomic variables, both before (2008) and during the economic crisis (2014). Most likely, this is because we are controlling for education and social class. This is indeed a relevant finding, as it shows that the increase in involuntary part-timers among Latinas and Eastern European females during the crisis can be almost entirely attributed to a compositional effect. Immigrant women are overrepresented in low skilled occupations in the cleaning and caring sectors, where the incidence of involuntary part-time work has increased the most during the recession (see Figure A1 in the Annex). Thus, once we estimate the ethnic gaps including the control variables in the models, the probability of being an involuntary part-timer compared to country-born women is no longer higher for immigrant women.

At face value, involuntary part-time work increased more during the crisis among Latinos, Eastern Europeans and MENA immigrant males than among Spanish country-born men. However, after controlling for compositional effects, the probability of being an involuntary part-timer for immigrants is not significantly different to that for the majority group (left panel in Figure 2).

4.2.3. Over-Education

Prior research has shown that the return to immigrants' human capital is lower (Hardoy & Schøne, 2014) and, on top of that, their labour market outcomes are more strongly affected by economic downturns. In Spain, the importance of education in preventing unemployment increased when the economy went into recession, but this change was more intense for the majority group than for immigrant workers. In other words, the crisis made education a more important asset to pre-

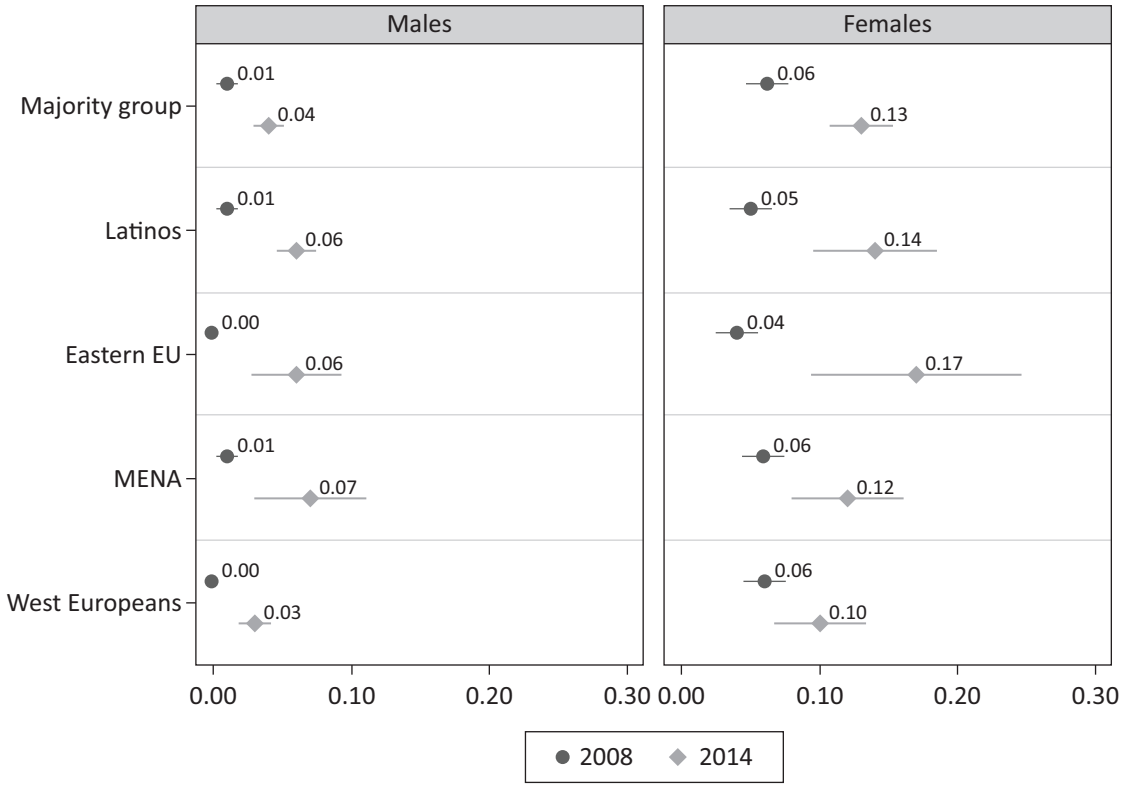

Figure 2. Predicted probabilities for involuntary part-time work across ethnicities in 2008 and 2014. Notes: Controls for first generation, age, education, social class, civil status, dependent children and degree of urbanisation; N = 77,284 (only working sample); age 16–64, not in education/training or retired; bars represent 90% confidence intervals; weighted and clustered by region.

vent unemployment, but the majority group have benefited more from the higher market value of their educational credentials than immigrants. Consequently, the economic crisis has amplified the labour market inequality between migrants and country-born workers in terms of employment (Cebolla-Boado, Miyar-Busto, & Muñoz-Comet, 2015). In this vein, it is expected that immigrant workers face on average a higher risk of over-education compared to the majority group, and that the shrink in employment as a consequence of the economic crisis in the country has magnified these gaps.

To address this issue, we ran different models on the probability of being over-qualified for highly educated immigrants taking into account not only the region of origin but also the immigrant generation and the time of residence.[6] Figure 3 shows the main results for different groups of migrants separated by gender. A first relevant result worthy to be highlighted are the marked differences between first and second generation. With the exception of female second generation Latinas—who even have a lower risk of over-education compared to the majority group -the risk of over-education for second generation of migrant descent is not significantly different to that of the majority group. The first generation, however, does have a greater risk of over-education compared to the majority group. Yet, there are marked differences between ethnic groups: the largest gap is observed among first generation male migrants from Eastern Europe (almost twice as much over-educated as the majority group), followed by immigrants from MENA countries and Latinos. On the contrary, immigrants from EU-15/EFTA are indistinguishable from the majority group in terms of over-education. This first results points to the difficulties of making transferable the educational credentials that face first generation immigrants from more linguistic and cultural distant countries and confirms that foreign human capital earns lower returns than domestic human capital (Friedberg, 2000; Sanromá, Ramos, & Simón, 2015).

Different reasons related both to the demand and supply side of the labour market explain that the first-generation immigrants experience educational mismatch upon arrival. Yet it is expected that gaps between immigrants and the majority group in terms of earnings (Chiswick, 1978) or over-education (Chiswick & Miller, 2009) decrease or even fade away with years of residence. In this regard, more years of residence in the host country represent more time to acquire specific human capital (both education or job experience), to improve their command of the language and ultimately to acquire

[6] Note that unlike previous economic outcomes in these models, we restricted the analyses to highly educated immigrants, referring to those with upper secondary and tertiary education. The reason is that in the statistical measure of over-qualification those individuals with lower levels of education cannot be classified as over-qualified by definition.

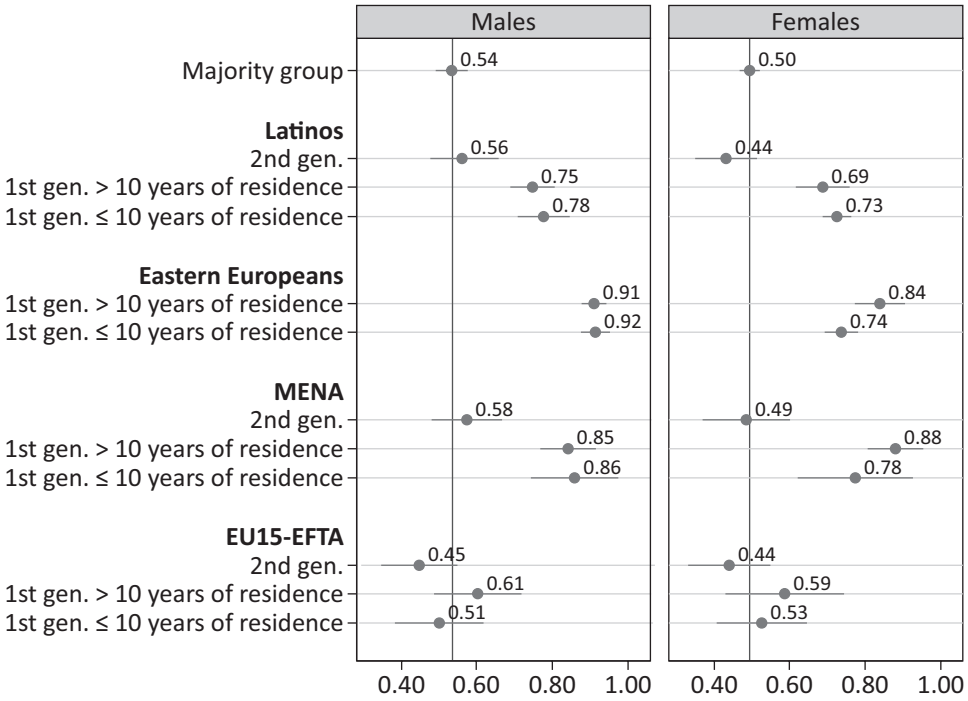

Figure 3. Predicted probabilities of over-education for first- and second-generation, by gender (pooled data). Notes: Controls for age, year, civil status, dependent children and degree of urbanisation; the category "Eastern Europeans second generation" is omitted given its small size; N = 56,514; only high-skilled migrants aged 16–64, not in education/training or retired; weighted and clustered by region.

relevant knowledge in the labour market, which would in turn increase the probability of improving their position in the job market. However, contrary to the theoretical expectations, in Spain there is not a clear convergence between immigrants and the majority group in their risk of over-education as time of residence in the host country increases. As Figure 3 shows, although in general the risk of over-education seems to be somewhat reduced for the first generation immigrants with more than 10 years of residence in the country compared to more recent migrants, differences between both groups are not statistically significant in virtually all groups of immigrants.[7] This suggests that immigrants in Spain seem stuck in jobs for which they are over-educated many years after their arrival with virtually no improvement in the adjustment of their qualifications and those required by the jobs.

All in all, there is not a clear crisis effect, since there are not marked variations in predicted probabilities as a result of the changes in macroeconomic conditions between 2008 and 2014. As can be seen in Table A1 in Appendix, a slight increase in the probability of being over-educated is observed for most groups. In fact, Fernández and Ortega (2008) find the same ethnic gaps in the probability of being over-educated for Eastern Europeans and Latin Americans in a context of economic growth.

Factoring in migrant generation, region of origin and time of residence and economic context in the host country is of utmost importance to explain the differences in the risk of over-education of immigrants. However, there are at least two other relevant determinants to fully understand both the transferability of qualifications and assimilation processes for highly educated immigrants: the command of the host language and the recognition of their foreign qualifications. Fortunately, we can evaluate the effect of these aspects because the LFS ad hoc module in 2008 contains information on both issues. On the one hand, it is asked whether the immigrant consider that their lack of host-country language skills constitutes a barrier to finding a job matches their qualifications. On the other hand, it is asked the place where the highest level of education was acquired and, in the case of qualifications acquired abroad, if their degrees have a formal recognition in the host country.

As can be seen in Figure 4, there are differences in the risk of over-education among immigrants with and without language difficulties. Following our expectations immigrants with language difficulties have a significant higher probability of over-education than immigrants with a good command of the Spanish language. However, it is important to note that regardless their language skills, all immigrants in Spain have a significant higher risk of being over-qualified than the majority group. As regards to the transferability of qualifications, the most remarkable result is that only those immigrants without the recognition of their foreign qualifi-

[7] To verify the robustness of this result, other specifications (available upon request) have been run with different thresholds and the results do not vary substantially.

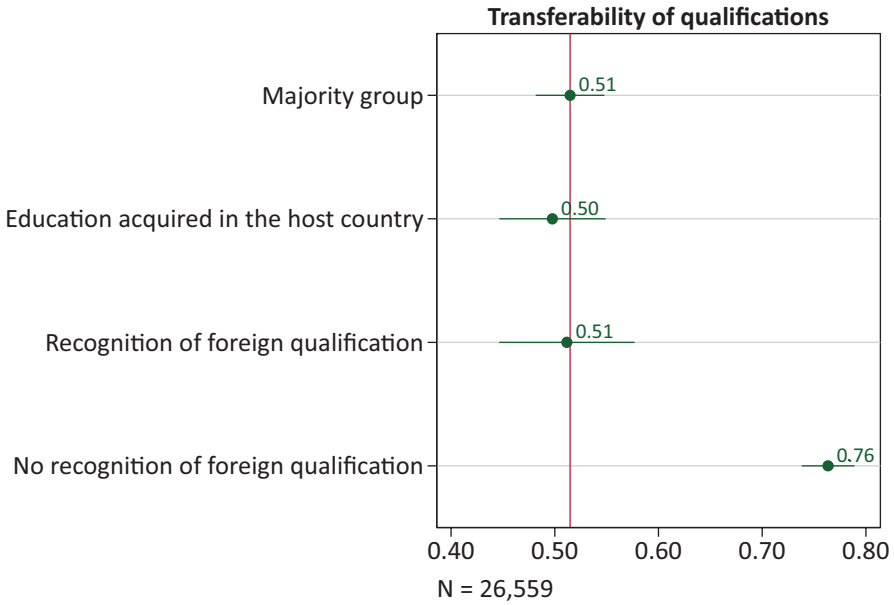

Figure 4. Predicted probabilities of over-education by language skills and transferability of qualifications. Notes: Controls for age, civil status, dependent children and degree of urbanisation; only high-skilled migrants aged 16–64, not in education/training or retired in 2008; weighted and clustered by region.

cations seem to be significantly penalised. Interestingly, compared to the majority group we do not find significant differences in the risk of over-education among immigrants who acquire their highest educational degree in Spain or those who managed to recognize their foreign degree. Therefore, it seems that in Spain, contrary to other countries (for an analysis for several European countries, see: Damas de Matos & Liebig, 2014), the origin of human capital and specifically the recognition of the foreign qualification is the most prominent determinant of over-education and has a larger impact than language difficulties.

Taken together, these results suggest that the difficulties that immigrants face to use their human capital acquired abroad in the Spanish labour market are not only attributable to the crisis but rather a structural problem. Neither the changes in the macroeconomic situation nor the acquisition of experience in the destination country seem to substantially change the risk of over-education for first generation migrants. There only seems to be assimilation with second generation immigrant of descent, whose education and work experience has been acquired in the country of destination.

5. Discussion and Conclusions

This article has provided fresh evidence on ethnic stratification of the Spanish labour market. From a descriptive point of view, we have shown that Latinos, Eastern Europeans and, particularly, MENA immigrant males have been hit harder by the Great Recession than Spanish country-born men in terms of employment. As in other Mediterranean countries (Reyneri & Fullin, 2011), immigrants enjoyed high employment levels before the recession, but the economic crisis in Spain was devastating, particularly for male-dominated segments of the labour market such as the construction sector, where many immigrants were employed. However, even after controlling for compositional effects, first generation men from these three minorities are significantly less likely to be employed than the majority group. This is not the case for females, as we find no significant differences in the probability of being in paid employment across groups once we control for compositional effects. Yet, it is important to acknowledge that some of the immigrants who became unemployed during the economic crisis have returned to their origin countries. Considering that, the ethnic gaps described in the article are likely to be lower bound estimates of the gaps that would exist without return migration.

There is a clear gender divide among immigrants in the Spanish labour market, most likely due to the different sectors where males and females work. While unemployment has hit particularly immigrant men from Latino, Eastern European and MENA origins, female migrants have been more affected by involuntary part-time work. In fact, involuntary part-time work is, above all, a female phenomenon, as women are more likely to be in involuntary part time at all times. Latinas, Eastern Europeans and MENA immigrant women were more likely to be involuntary part-timers than country-born in 2008, and they also experience a higher increase in involuntary part-time work during the crisis. Interestingly, this seems to be entirely a compositional effect driven by the labour market sector where the majority of immigrant women from these three minorities work (i.e., low-skilled jobs in the service, cleaning and caring sectors). Selective return migration may also have affected our findings, although

the existent theoretical accounts are not univocal about the attendant patterns of selection to be expected (Borjas & Bratsberg, 1996; Van Hook & Zhang, 2011), nor is there clear empirical evidence on Spain on the educational profiles of leavers versus stayers (Cebolla-Boado & González, 2013).

With regard to over-education, there are no marked variations in predicted probabilities across ethnicities and generations as a result of the changes in macroeconomic conditions between 2008 and 2014. Besides, we found that second generations are not clearly distinct from the majority group, a sign of successful economic incorporation. On the contrary, the first generation has a greater risk of over-education than the majority group before and during the crisis. In particular, we have shown that in contrast to other labour market outcomes, the largest gap is observed among first generation migrants from Eastern Europe, followed by Latinos and Western Europeans. This reinforces the idea that foreign human capital is less valued than human capital acquired at destination, and it also shows the difficulties of making the educational credentials of first generation immigrants in Spain transferable.

Acknowledgments

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Conflict of Interests

The authors declare no conflict of interests.

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Annex

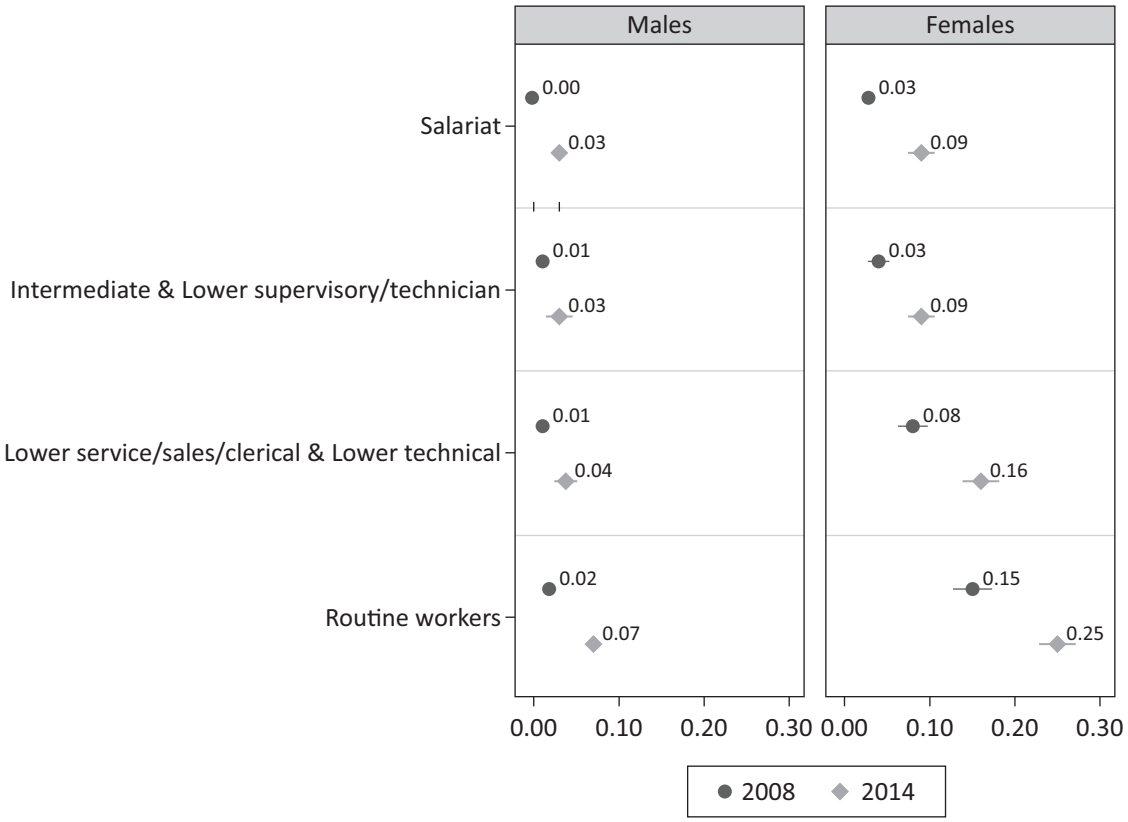

Figure A1. Predicted probabilities of involuntary part-time work across social classes in 2008 and 2014. Notes: Controls for ethnicity, first generation, age, education, civil status, dependent children and degree of urbanisation. Notes: N = 77,284 (only working sample); age 16–64, not in education/training or retired; self-employed/small employers excluded due to low number of cases (160); bars represent 90% confidence intervals; weighted and clustered by region.

Table A1. Determinants of over-education of immigrants in Spain. Odds ratio.

		Years		Gender	
	Pooled	2008	2014	Males	Females
Ethnicity, generation and time of residence1 (ref: Majority group)					
Latinos 2nd gen	0.934	0.784	1.018	1.125	0.787
	[0.126]	[0.168]	[0.130]	[0.172]	[0.122]
Latinos 1st gen — long (>10 years)	2.450***	1.364	2.970***	2.600***	2.286***
	[0.300]	[0.386]	[0.456]	[0.289]	[0.430]
Latinos 1st gen — recent (≤10 years)	2.846***	2.636***	3.499***	3.047***	2.740***
	[0.315]	[0.356]	[0.463]	[0.596]	[0.352]
Eastern Europeans 1st gen — long (>10 years)	6.911***	3.204***	8.305***	9.161***	5.409***
	[1.192]	[0.661]	[1.988]	[1.810]	[1.503]
Eastern Europeans 1st gen - recent (≤10 years)	4.249***	4.029***	4.877***	9.475***	2.913***
	[0.723]	[0.667]	[1.284]	[2.796]	[0.414]
MENA 2nd gen	1.086	1.252	0.883	1.186	0.967
	[0.185]	[0.357]	[0.206]	[0.212]	[0.240]
MENA 1st gen — long (>10 years)	4.908***	3.516***	6.257***	4.754***	7.567***
	[1.346]	[1.414]	[1.703]	[1.438]	[2.635]
MENA 1st gen — recent (≤10 years)	4.489***	6.034***	2.320	5.405***	3.538***
	[1.116]	[1.132]	[1.256]	[2.717]	[1.424]
EU-15/EFTA 2nd gen	0.772*	0.637***	0.814	0.713**	0.810
	[0.109]	[0.112]	[0.196]	[0.106]	[0.143]
EU-15/EFTA 1st gen — long (>10 years)	1.372	1.320	1.409	1.333	1.470
	[0.299]	[0.281]	[0.376]	[0.271]	[0.429]
EU-15/EFTA 1st gen — recent (≤10 years)	0.982	1.464	0.551***	0.887	1.144
	[0.183]	[0.401]	[0.0957]	[0.208]	[0.247]
Constant	0	0.707*	1.941***	0***	0***
	[0]	[0.144]	[0.380]	[0]	[0]
Controls					
Year	Yes	No	No	Yes	Yes
Gender	Yes	Yes	Yes	No	No
Age, degree of urbanisation, cohabiting and dependent children	Yes	Yes	Yes	Yes	Yes
Number of observations	56,514	27,022	29,491	27,576	28,935

Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$; only high-skilled migrants aged 16–64, not in education/training or retired. Weighted and clustered by region; the category "Eastern Europeans second generation" is omitted given its small size.

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Article

Employment Returns to Tertiary Education for Immigrants in Western Europe: Cross-Country Differences Before and After the Economic Crisis

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Abstract
This article contributes to the literature on the models of immigrants' labour market incorporation in Western Europe by analysing the employment returns to tertiary education for both natives and immigrants. By using yearly EU-LFS data (2005–2013) for a selection of Western European countries, cross-country differences in the employment returns to tertiary education are analysed separately by immigrant status and gender. In Continental Europe, where immigrant-native employment gaps before the crisis were much larger than in Southern Europe, immigrants are found to benefit more from tertiary education, and their returns are also higher than for natives, while the opposite holds in Southern European countries. The same pattern is found irrespective of gender, but cross-country differences are more pronounced among women. The article also documents that the crisis contributed to a cross-country convergence, although limited to men, in the degree of immigrant employment disadvantage, which increased substantially in Southern Europe while remaining unchanged or slightly declining in all other countries. Nevertheless, although immigrant-native employment gaps grew as high as in Continental Europe, immigrant men in Southern Europe are still found to benefit from lower returns to tertiary education than their native counterparts.

Keywords
economic crisis; education; ethnic inequality; labour market; migration; Western Europe

Issue
This article is part of the issue "The Race for Highly-Skilled Workers", edited by Neli Demireva (University of Essex, UK) and Ivana Fellini (University of Milano Bicocca, Italy).

1. Introduction

The existence of substantial heterogeneity in immigrants' labour market outcomes across Western European countries is well known. More precisely, the literature has outlined the existence of two main models of immigrants' incorporation (Reyneri & Fullin, 2011a, 2011b). In Central and Northern European countries (referred to as Continental countries henceforth), immigrants face a strong disadvantage compared to their native counterparts in employment probability but are less harshly penalised in terms of job quality. On the other hand, in Southern European countries, immigrants are significantly less harshly penalised in terms of employment opportunities, but they most often hold low-skilled jobs and face high risks of remaining entrapped in the secondary segment of the labour market (Fellini & Guetto, 2018).

However, the recent economic crisis has reshaped, to some extent, the cross-country pattern of immigrants' penalisation that was outlined above. In Southern European countries, the crisis has been harsher than in other European areas, and its more adverse effects have been on workers who are more weakly attached to the labour market, i.e., those employed in low-skilled occupations and in cyclical industries such as construction and manufacturing (OECD, 2009). Since male immigrants in Southern European countries are largely overrepresented in those occupations, their employment chances sharply deteriorated (Fellini, 2017). This contributed to a convergence in immigrant-native employment gaps between

the Southern and Continental models, at least among men. The convergence has been limited, however, because immigrants, conditional on remaining employed, have not become more likely to hold high-skilled jobs in Southern Europe (Panichella, 2017)

This article contributes to the literature on the different models of immigrants' labour market incorporation in Western Europe by looking at the cross-country pattern of the employment returns to education. Immigrants are usually found to benefit from lower returns to education compared to natives, both in terms of job quality and wages (Chiswick, 1978; Chiswick & Miller, 2009; Friedberg, 2000; Kanas & Van Tubergen, 2009). However, while the limited transferability of the human capital (Chiswick, 1978; Chiswick & Miller, 2009) and educational credentials (Lancee & Bol, 2017) acquired in the country of origin may limit access to highly-skilled jobs, the consequences on the employment returns to education are less straightforward and debated. Moreover, the different models of immigrants' labour market incorporation are expected to moderate the extent to which the returns to education differ between immigrants and natives.

By using data from the European Union Labour Force Survey from 2005–2013 (Eurostat, 2013), the article tests whether, how and to what extent the association between the attainment of a tertiary degree and employment status varies by immigrant status and gender in a selection of Western European countries. Based on human capital and credential theories, the employment returns to education should be lower for immigrants compared to natives. However, tertiary education is expected to yield higher returns for immigrants in Continental countries, i.e., where they face greater difficulties in finding a job. In fact, the high demand for highly-skilled jobs in these countries should make the possession of higher education more valuable (Brodmann & Polavieja, 2011; Kogan, 2006). On the contrary, in Southern Europe, where immigrants have easier access to low-skilled jobs, the employment returns should be lower. In the second step, the way in which employment returns to education have been affected by the crisis is explored, focusing on men only. This article analyses whether the convergence of the Continental and Southern European models of male immigrants' labour market incorporation that has been found in the literature (Panichella, 2017) also concerns employment returns to education. Since male immigrants are generally more affected than natives by negative economic conjunctures (Guzi, Kahanec, & Kureková, 2015b), the salience of higher education for their labour market attachment is expected to increase in the years following the onset of the crisis. This may hold especially true in Southern Europe, where employment returns for immigrants are expected to be particularly low before the crisis and the latter has hit more severely.

2. Theoretical Background

2.1. Models of Immigrants' Labour Market Incorporation in Western Europe

Several institutional and labour market characteristics of Western European countries have been posited as influencing the extent to which immigrants are more likely than natives to be not employed or hold a low-skilled job. Starting from institutional settings and focusing on employment probability, a significant emphasis has been placed on the type and degree of labour market regulations in considering the Employment Protection Legislation (EPL), the weight of unions and the level of unemployment benefits. Overall, several studies suggest that a less regulated labour market—i.e., one characterised by lower union density and coverage, looser EPL and less generous unemployment benefits—should reduce the degree of immigrant disadvantage (Causa & Jean, 2007; Guzi et al., 2015a, 2015b; Huber, 2015; Kogan, 2006, 2007; Markaki, 2014).

The role of the EPL has been highly debated in the literature, however, because theoretical expectations concerning its effects are not straightforward (Reyneri & Fullin, 2011a; Sá, 2011). The prevailing argument is that immigrants would benefit from looser EPL because lower firing costs would reduce employers' perceived risks associated with hiring immigrant workers who might be "less productive" (Kogan, 2006, 2007). Several studies support this view, although some authors found the strictness of the EPL for permanent and temporary contracts to have opposite effects on immigrants' employment chances (Markaki, 2014; Sá, 2011). As far as the role of unions, since natives are usually over-represented among their members in all Western societies (Visser, 2015), a high rate of union density is expected to increase immigrant disadvantage. The available empirical evidence supports the thesis that the higher the union density is, the worse the immigrants' labour market outcomes are compared to those of natives (Guzi et al., 2015a; Huber, 2015; Markaki, 2014). In fact, the institutional feature of receiving countries that, at least from a theoretical point of view, has been almost unanimously associated with higher ethnic penalties is the generosity of welfare benefits for the unemployed. Empirical evidence suggests that since immigrants tend to have lower reservation wages than natives, high unemployment benefits may be conducive to a "welfare trap", which might increase the immigrant disadvantage in employment opportunities (Causa & Jean, 2007; Guzi et al., 2015b; Reyneri & Fullin, 2011a), especially among more vulnerable groups such as refugees and asylum seekers (Hansen & Lofstrom, 2009).

Shifting to more structural features of receiving societies, the characteristics of labour demand have received significant attention in the literature. Due to the limited transferability of the human capital (Chiswick, 1978) and educational credentials (Lancee & Bol, 2017) acquired

abroad, immigrants—especially those newly arrived in the destination country—are generally found to be more likely than comparable natives to hold low-skilled occupations in all Western countries (Heath & Cheung, 2007). Therefore, it is not surprising that countries with a higher and unsatisfied demand for low-skilled jobs may offer greater employment opportunities for immigrants (Kogan, 2006, 2007; Reyneri & Fullin, 2011a, 2011b).

By jointly considering the degree of labour market regulations and the demand for low-skilled jobs, Western European countries can be positioned in a two-dimensional space as shown in Figure 1. Even if Continental European countries constitute a rather heterogeneous group, they tend to occupy the top-left quadrant of Figure 1, which predicts wide immigrant-native employment gaps. Scandinavian countries represent the most emblematic case because they share a so-called "flexicurity" model of labour market regulation (Madsen, 2006) characterised by moderate levels of EPL, very generous unemployment benefits and high levels of union density (Visser, 2015), together with a relatively high level of qualification of labour demand (Brodmann & Polavieja, 2011).

Southern European countries share an almost opposite labour market configuration. In these countries, welfare benefits are the least generous in Western Europe (OECD, 2017), and union density levels are lower than the European average (Visser, 2015). Although Southern European labour markets have long been considered the most "rigid" among OECD countries (Nickell, 1997; Siebert, 1997), since the first inflows of the 1980s and 1990s, immigrants have often worked either in the underground economy or in small firms. Thus, immigrants in Southern European countries have always been included in a specific segment of the labour market where regulation is de facto very low (Reyneri, 1998, 2004). The lack of public services for the care of children and elderly people has generated a demand for (cheap) household and personal services specifically targeting immigrant women (Sciortino, 2004). Furthermore, the prevalence of small firms operating in low human capital intensity sectors has contributed to a high demand for manual workers, usually immigrant men, who are willing to accept more demanding and less protected working conditions (Reyneri & Fullin, 2011b). Thus, immigrants in Southern Europe are much more likely than natives to be employed in the secondary segment of the labour market characterised by a particularly low degree of unionisation and overall low levels of social protection (Fellini, Ferro, & Fullin, 2007; Reyneri & Fullin, 2011b). The high demand for low-skilled jobs combined with the de facto low degree of labour market regulations should produce low levels of immigrant employment disadvantage, as predicted by the bottom-right quadrant of Figure 1. However, the same features of the model of immigrants' labour market incorporation that contributed to their lower disadvantage up to the onset of the Great Recession may be related to worsening immigrant unemployment risks relative to those of natives since then. In fact, the crisis has been particularly harsh in Southern European countries, especially in cyclical industries such as construction and manufacturing (OECD, 2009), where most immigrant men work. Thus, the economic crisis may have increased immigrant-native gaps in Southern Europe to levels closer to those found in Continental Europe, at least among men.

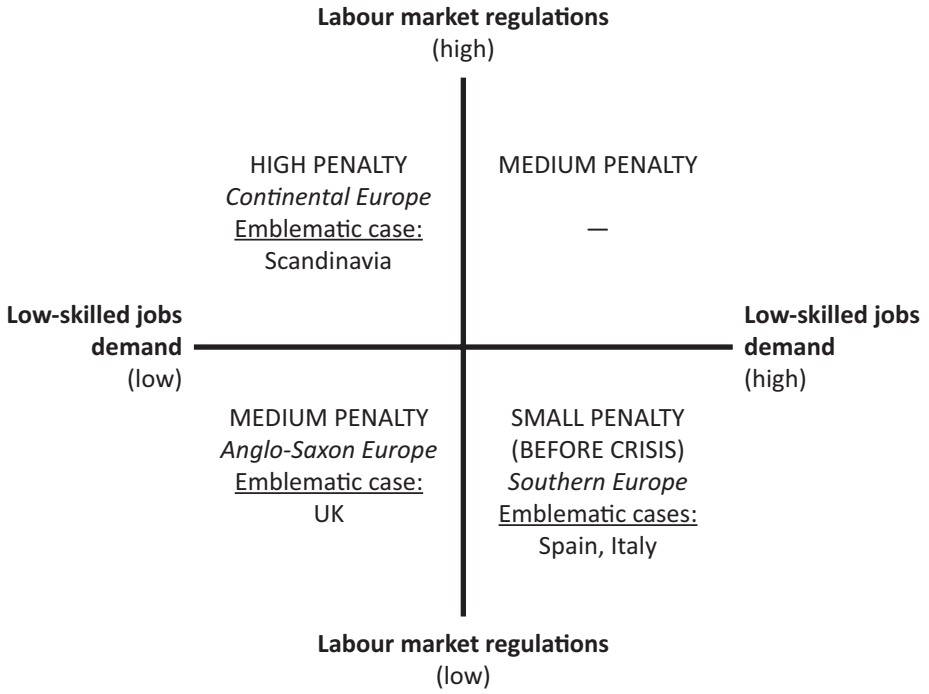

Figure 1. A typology of immigrant employment disadvantage in Western Europe.

The UK should occupy an intermediate position between the first two groups of countries. On the one hand, UK is well-known as the most unregulated labour market in Western Europe, which should foster better immigrants' employment outcomes. Notwithstanding a labour demand biased towards highly-skilled occupations, which justifies the positioning in the bottom-left quadrant of Figure 1, the immigrant employment disadvantage could be limited by the strictly selective immigration policy that favours the entry of highly-educated workers, especially in the health sector (Hardill & Macdonald, 2000).

As mentioned in the introduction, the limited available empirical evidence is consistent with the predictions of Figure 1 (Fellini, 2017; Panichella, 2017). That is, in Continental Europe immigrant-native employment gaps were higher than in Southern Europe and the UK before the crisis, but with the onset of the crisis immigrant disadvantage increased substantially in Southern Europe. While additional empirical evidence for a selection of Western European destination countries will be provided in the empirical section, in the following section how the different models of labour market incorporation shape immigrants' employment returns to education will be discussed.

2.2. What Are the Employment Returns to Tertiary Education for Immigrants across Western European Countries and Economic Conjunctures?

The bulk of evidence shows that immigrants enjoy lower returns to education compared to natives when access to more skilled occupations and higher wages are considered. However, regarding employment probability, the predictions are more blurred. In what follows, the employment returns to education for immigrants, relative to those for natives, and their differences across countries are deemed to depend not only on the transferability of human capital and educational credentials, but also on the above-mentioned characteristics of the receiving labour markets which influence the degree of immigrant employment disadvantage. Thus, while immigrants should experience lower employment returns to education compared to natives, due to the limited transferability of human capital and educational credentials acquired in the origin country, a high immigrant-native employment gap should make immigrants' possession of higher education more relevant.

In fact, when selecting individuals aged 25 to 54 who are likely to have finished their schooling and are far from retirement age, employment rates among native men tend to be similar and are very high across all Western European countries. In the selection of countries considered in this article and in the period before the crisis (2005–2007), the employment rates of native men ranged from approximately 87% (Italy) to approximately 93% (Netherlands), which leaves limited "room" for large employment returns to education. On the other hand, employment rates among immigrant men were significantly lower before the crisis in Continental Europe, which could make higher education more relevant for their employment probability, notwithstanding the lower transferability of the human capital and educational credentials. This should not occur in Southern Europe, where immigrants' employment rates, fostered by the high demand for low-skilled jobs, were as high as those of natives before the crisis (Panichella, 2017). Thus, it can be hypothesised that in Southern European countries before the crisis, the employment returns to tertiary education were higher among native men compared to their immigrant counterparts, due to the limited transferability of immigrants' skills and credentials.

The Western European pattern of immigrant disadvantage changed dramatically after the onset of the crisis. The increasing difficulties for male immigrants in remaining employed in Southern European countries may have increased the relevance of education so that their employment returns to tertiary education, as well as their differences with natives, may have become more similar to those observed among male immigrants in Continental Europe. However, such a reversal of the gap between immigrants and natives in the employment returns to tertiary education cannot be taken for granted. In fact, although to a more limited extent, employment rates decreased substantially also among native men in Southern Europe. For instance, in Spain their employment rate shifted from approximately 87% in the pre-crisis period to approximately 74% in the 2011–2013 period. Thus, increasing employment returns to tertiary education can also be expected from native men in Southern Europe, likely offsetting the concurrent increase among immigrants. In fact, most male immigrants in Southern Europe generally work in manual occupations that are highly sensitive to the economic cycle, regardless of their educational attainment and other personal characteristics (Fellini & Guetto, 2018). This may have significantly reduced the "protective" function of education. Overall, because of the crisis, male immigrants in Southern Europe may experience a "double penalty" in that their increasing disadvantage in employment probability may go hand in hand with persistently lower employment returns to tertiary education.

When shifting to women, similar results can be expected when comparing cross-country differences in the employment returns to tertiary education for natives and immigrants. As shown in Panichella (2017), the differences in immigrant disadvantage between Continental (and UK) and Southern European countries are larger than among men and those less affected by the crisis. Thus, for immigrant women, even more than for men, the employment returns to tertiary education should be higher in Continental Europe. Regarding the differences between immigrant and native women in the returns, the latter should be positive in Continental and negative in Southern Europe, similarly to the hypothesised figures for men. In fact, the differences between the two

European areas should be even wider. First, it is well-known that education is much more important for the labour market participation of women (Steiber & Haas, 2012), and this may be especially true for immigrant women in Continental Europe, since many of them originate from countries where female employment is not culturally and institutionally promoted, as it will be further discussed. For the same reason, since native women's employment rates are much higher in Continental Europe (and especially in Scandinavia, where they are close to those of men; see Table A1 in Annex), in Southern European countries, education should make a substantial difference for native women's labour market participation (Scherer & Reyneri, 2008).

Table 1 summarises all the expectations concerning how the employment returns to tertiary education among immigrants and natives should vary across Western European countries before and after the crisis by gender. Among women, the effect of the crisis is not explored since the convergence between the Continental (and UK) and the Southern European models is expected to be much more limited (Panichella, 2017).

Before proceeding with the empirical test of the hypotheses shown in Table 1, the possibility that differences in the composition of the immigrant populations influence the cross-country patterns outlined above needs to be discussed. Gorodzeisky and Semyonov (2017) found patterns of immigrants' labour market incorporation not to vary much across countries, despite differences in the composition of migration flows. However, their study did not include Southern European countries in the comparison. Three sources of heterogeneity are potentially relevant in determining the higher immigrant disadvantage and the higher returns to education for immigrants in Continental compared to Southern Europe: differences by area of origin, by reason for migration and in the proportion of immigrants who obtained their education in the country of destination.

Immigrants from MENA and sub-Saharan Africa, who have been found to have the lowest employment rates and the highest unemployment rates in Western Europe (Koopmans, 2016; Lancee, 2016), are substantially over-represented in Continental Europe. Such compositional difference is likely to contribute to both the greater disadvantage and the higher returns to tertiary education for immigrants in Continental countries, especially among women. In fact, the incidence of immigrant women originating from predominantly Muslim countries is much higher in Continental Europe, and, apart from possible discrimination, belonging to Islam and other non-Christian religions, such as Hinduism and Sikhism, has been found to be associated with lower female labour market participation (Guetto & Fellini, 2017; Heath & Martin, 2013). This may explain why immigrant-native employment gaps among women are higher in Belgium and France than in Scandinavian countries (see Figure 3 below). Belgium and France indeed have the highest incidence of immigrant women from MENA and sub-Saharan Africa. On the contrary, Southern European countries have received highly feminised migration inflows from Eastern European new EU member, post-Soviet and Latin American countries in the last 20 years, among which the employment rates tend to be higher in all destination countries.[1] Compositional differences in terms of areas of origin are unlikely to determine the overall cross-country patterns, however. For instance, approximately 72% of male non-Western immigrants in France originate from MENA and sub-Saharan Africa, but the immigrant-native employment gaps are substantially lower than in Denmark or Sweden (see Figure 2 below), where the share is approximately 32% and 45% respectively. Thus, institutional differences, particularly the generosity of the welfare system and the structure of labour demand, are likely to play the most important role, especially among men.

As far as differences in the reasons for migration, the incidence of refugees is substantially higher in Continental Europe, and especially in Scandinavian countries, a factor which may contribute to both worse immigrants' employment outcomes and a more pronounced educa-

Table 1. Expected intensity of immigrants' employment returns to tertiary education (and differences with natives) across Western European countries.

	MEN					
	Continental Europe		UK		Southern Europe	
	Immigrants	*Diff. with natives*	*Immigrants*	*Diff. with natives*	*Immigrants*	*Diff. with natives*
Before the crisis	+ + +	+	++	+/−	+	−
After the crisis	+ + +	+	++	+/−	++	+/−
	WOMEN					
	Continental Europe + UK		Southern Europe			
	Immigrants	*Diff. with natives*	*Immigrants*	*Diff. with natives*		
	+ + ++	++	+	—		

[1] These results are available upon request.

tional gradient in employment (Luik, Emilsson, & Bevelander, 2016). On the contrary, refugees have always represented a negligible proportion of the immigrant populations in Southern Europe, at least before the recent refugee crisis. Finally, in Southern European countries the percentage of immigrants obtaining their highest level of education in the destination country has been estimated to be particularly small (Fellini & Guetto, 2018), which could contribute to the lower immigrants' returns to education through lower transferability of human capital and educational credentials. Unfortunately, the data used in this article do not contain information concerning immigrants' reason for migration and place where the highest level of education has been obtained.

3. Data and Methods

For the analysis of the employment returns to tertiary education, I rely on EU-LFS data (2005–2013) and focus on natives and first-generation immigrants originating from less economically-developed countries aged between 25 and 54. Given the aims of empirical analyses, immigrant status is thus defined considering the country of birth rather than nationality. Second-generation individuals of immigrant descent are included among natives as EU-LFS data do not contain information on parents' country of birth. Immigrants from EU-15 countries, EFTA, North America, Australia and Oceania are excluded, since they share peculiar characteristics and their employment outcomes are usually similar to those of natives. As far as the countries of residence, 10 Western European countries (Belgium, Denmark, Spain, France, Greece, Italy, the Netherlands, Norway, Sweden and the UK) have been selected. Ireland has been excluded because the sample size is too small for non-Western immigrants, thus the UK is the only representative of the Anglo-Saxon cluster. For the same reason, Finland has been excluded from the Continental cluster. Germany has also been excluded as, due to data limitations, immigrant status can only be defined through nationality. This poses severe problems for the cross-country comparison of the returns to education for immigrants, as German citizens would include foreign-born individuals who obtained their education in the country of origin. Portugal has been excluded from the Southern European cluster because of the very peculiar characteristics of its non-Western immigrant population, made up to a large extent by descendants of expatriates from former colonies.[2]

The dependent variable is a dummy taking value 1 if the respondent worked in the reference week, while the independent variable is a dummy taking value 1 if the respondent attained tertiary education.[3] Educational attainment has been dichotomised because tertiary degrees are specifically exposed to problems of transferability of country-specific human capital and educational credentials, as well as for reasons of parsimony.[4]

The first step of the empirical analysis measures the employment returns to tertiary education by means of linear probability models implemented in each of the 10 selected countries separately by immigrant status and gender. The models are specified as follows:

$$E(Y|X) = b_0 + b_1\ Tertiary + XB + e_i \quad (1)$$

$$E(Y|X) = b_0 + b_1\ Tertiary + \Gamma(Origin) + \Delta(YSM) + \\ + XB + e_i \quad (2)$$

Models implemented in the sub-samples of natives (1) include a vector of coefficients (*XB*) for the following control variables: six 5-year age dummies, a dummy taking value 1 if the respondent was in formal education in the previous four weeks, three dummies for the degree of urbanisation of the city of residence (densely, intermediate or thinly populated), region (NUTS-2) and year dummies and their interactions.[5] The models for immigrants (2) include the same variables with the addition of two vectors of dummies ($\Gamma(Origin)$ and $\Delta(YSM)$) for each area of origin (new Eastern European EU member states, other non-EU European countries, MENA, the rest of Africa, Asia and Latin America) and for years since migration in three categories (1–5, 6–10, >10).[6] All models are estimated applying EU-LFS weights and with robust standard errors.

In the second step, empirical analyses test possible changes in the employment returns to tertiary education across economic conjunctures, focusing on immigrant and native men. Models are implemented with the same specifications as above but with the addition of an interaction term between the possession of a tertiary degree and period (2005–2007, 2008–2010 and 2011–2013).

4. Results

4.1. Immigrant-Native Employment Gaps in Western Europe before and after the Economic Crisis

Hypotheses on the cross-country differences in immigrants' employment returns to tertiary education (Table 1) rest on the existence of different models of immigrants' labour market incorporation. Thus, before presenting the results of the analysis of the employment returns to tertiary education, Figures 2 and 3 show adjusted immigrant-native employment gaps across the selected Western European countries for men and women,

[2] In my analytical sample, 86% of non-Western immigrants originate from Sub-Saharan and Latin American countries.
[3] See Table A1 in Annex for sample sizes and descriptive statistics for the dependent and independent variables.
[4] It should be noted that such dichotomisation may hide possible non-linear effects of education on immigrants' employment chances. For instance, Luik et al. (2016) found higher employment rates in Sweden for non-EU immigrants with secondary education, compared to those with tertiary education.
[5] Region of residence is not available for the Netherlands in all years and for Denmark in 2005 and 2006, while the degree of urbanisation of the city of residence is not available for Norway between 2006 and 2009.
[6] Information on the years since migration is missing for many respondents in Spain (2005 and 2006) and especially in Denmark. However, model (2) specified without this variable provided very similar results for both countries.

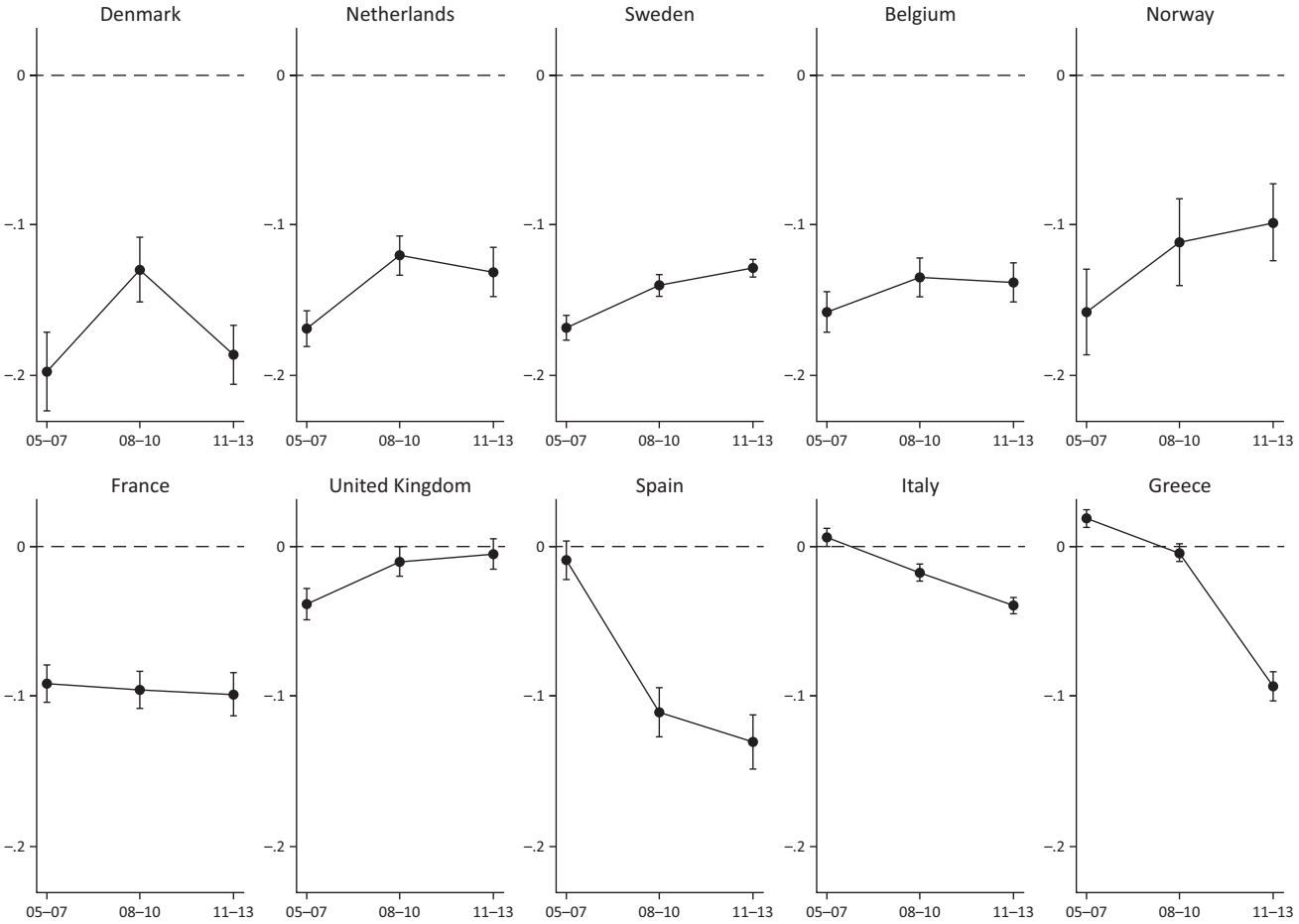

Figure 2. Immigrant-native employment probability gaps by country and period (MEN). Notes: Author's elaborations on EU-LFS data (2005–2013); points represent the beta coefficients (with 95% c.i.) associated with the immigrant dummy (2005–2007) plus the interaction coefficients with period dummies (2008–2010, 2011–2013); countries are ordered by the decreasing size of the gap in the 2005–2007 period (see footnote 7 for additional details about the estimation).

respectively. Estimates are obtained using the same EU-LFS data and analytical samples described above.[7]

The empirical evidence is broadly consistent with the predictions of Figure 1. Starting with men, immigrant disadvantage in the pre-crisis period was on average much stronger in Continental Europe, and especially in Scandinavian countries, ranging from as much as a 20 p.p. lower employment probability in Denmark to approximately 10 p.p. in France. In the UK, the gap was significantly lower at approximately 4 p.p. At the other end, the gap was not statistically different from zero in Spain and was even marginally positive in Italy and Greece. After the onset of the crisis, however, a process of convergence occurred. In fact, while the gaps tend to remain stable or even slightly decline in all Continental countries and the UK, in Southern Europe, the gaps increase significantly, especially in Spain and Greece, where the share of immigrants who are employed in low-skilled jobs within small firms and hold fixed-term contracts is very high and where the crisis has been particularly severe.[8]

Among women, the cross-country pattern shows three remarkable differences. First, before the crisis, the intensity of the employment gaps was substantially higher throughout Continental Europe, ranging from approximately 25 p.p. in Belgium to approximately 16 p.p. in Norway. Second, the UK is now much more similar to the other Continental countries, with a gap of approximately 16 p.p. Third, while Southern European countries again show the lowest levels of immigrant disadvantage, the crisis has had substantially smaller negative effects among women compared to men, so the convergence across countries is also rather limited. This is likely due to the fact that manual jobs in construction and manufacturing, in which male immigrants are usually concen-

[7] Each figure plots interaction effects between immigrant status and period on employment probability derived from linear probability models controlling for 5-year age intervals, education (primary, low-secondary, tertiary), whether the respondent was in formal education in the previous month, the degree of urbanisation of the city of residence (densely, intermediate or thinly populated) and region (NUTS-2). All control variables are interacted with immigrant status. The models are implemented using EU-LFS weights and with robust standard errors.

[8] I estimate that in the selected time-window, non-Western immigrants have a 10 and 28 p.p. greater risk of holding a temporary job or work contract than natives in Greece and Spain, respectively. In the same countries, immigrants also have a 30 and 12 p.p. greater risk than natives of working in a firm with fewer than 11 employees.

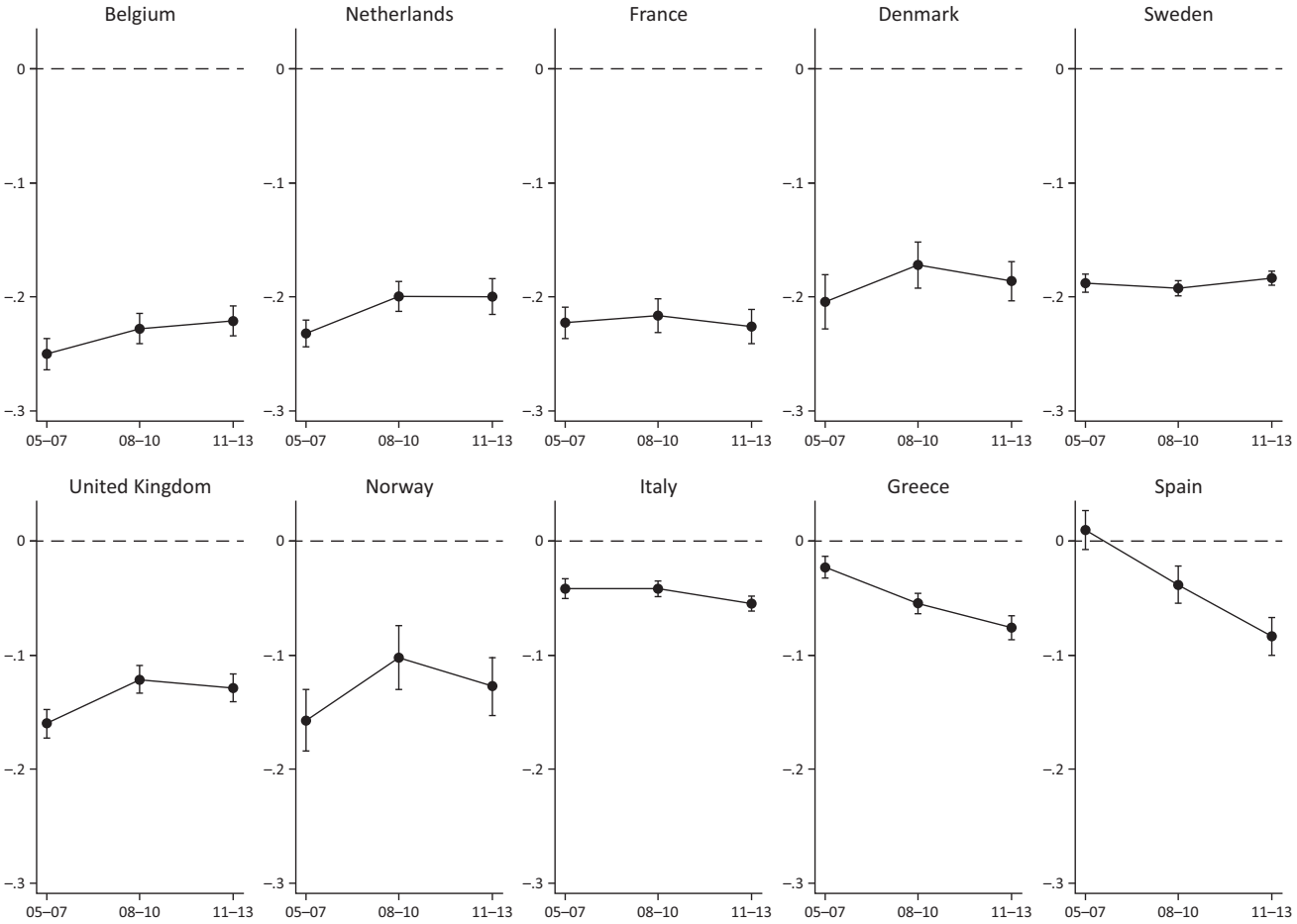

Figure 3. Immigrant-native employment probability gaps by country and period (WOMEN). Notes: Author's elaborations on EU-LFS data (2005–2013); points represent the beta coefficients (with 95% c.i.) associated with the immigrant dummy (2005–2007) plus the interaction coefficients with period dummies (2008–2010, 2011–2013); countries are ordered by the decreasing size of the gap in the 2005–2007 period (see footnote 7 for additional details about the estimation).

trated, tend to be more sensitive to the economic cycle compared to jobs in personal services, in which most immigrant women work (Panichella, 2017).

4.2. Employment Returns to Tertiary Education among Immigrants and Natives in Western Europe

In Figures 4 and 5, employment returns to tertiary education are presented for immigrant men and women, respectively, together with the immigrant-native differences in the returns.[9] Starting from men, the hypothesis that the returns should be higher for immigrants in Continental Europe is confirmed, where the possession of a tertiary degree is associated with a net increase of approximately 10 p.p. in employment probability. In Southern European countries, the returns are substantially lower, particularly in Greece, where they are not statistically different from zero. While the returns are higher for immigrants than natives in Continental Europe (approximately 4–5 p.p. higher employment probability in the Netherlands, Sweden and Belgium; the differences are statistically significant at the 0.000 level) or virtually identical (as in France, where the difference is not statistically significant), in Southern Europe, the returns are higher for natives (approximately 5 p.p. higher employment probability in Spain and Greece; the differences are statistically significant at the 0.000 level). The differences are not trivial given the high employment rates among prime-age men. The UK, consistent with the positioning of this country in the typology shown in Figure 1, occupies an intermediate position because the absolute returns among immigrants are in line with Continental countries, while the difference from the natives is slightly negative (approximately 1.5 p.p.; the difference is statistically significant at the 0.000 level).

Figure 5 presents the results for women. As hypothesised, while the overall pattern is very similar to the one found among men, some important differences need to be underlined. First, absolute returns are higher for immigrant women compared to immigrant men in all countries, but only marginally so in Italy and Greece. In fact, in Spain, the returns are slightly lower for immigrant

[9] Full tables are available upon request.

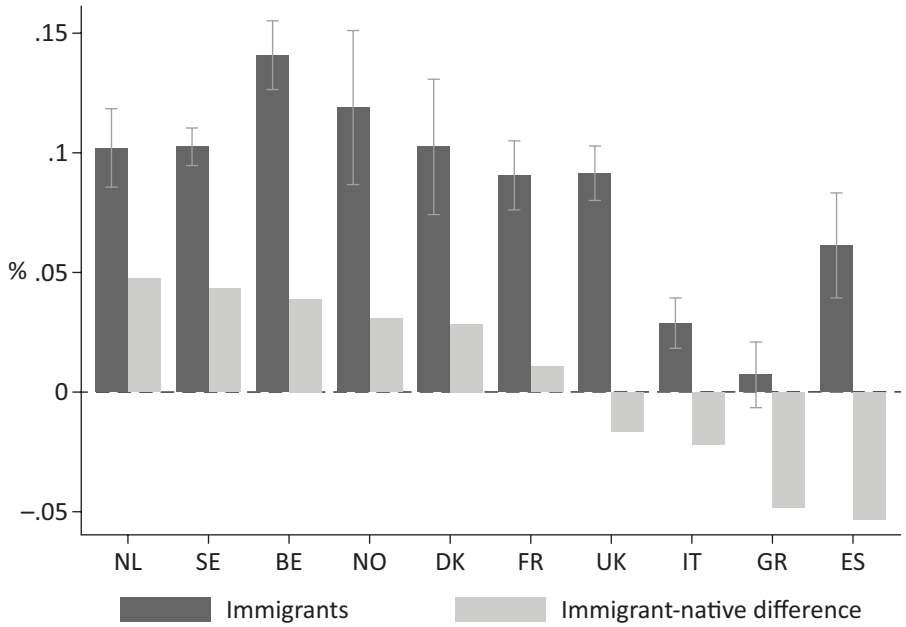

Figure 4. Employment returns to tertiary education among immigrants and differences with natives (MEN). Notes: Author's elaborations on EU-LFS data (2005–2013); dark bars represent beta coefficients (with 95% c.i.) associated with the possession of a tertiary degree for the sub-samples of immigrants, based on equation (2), while grey bars represent differences from the same coefficients obtained for natives, based on equation (1).

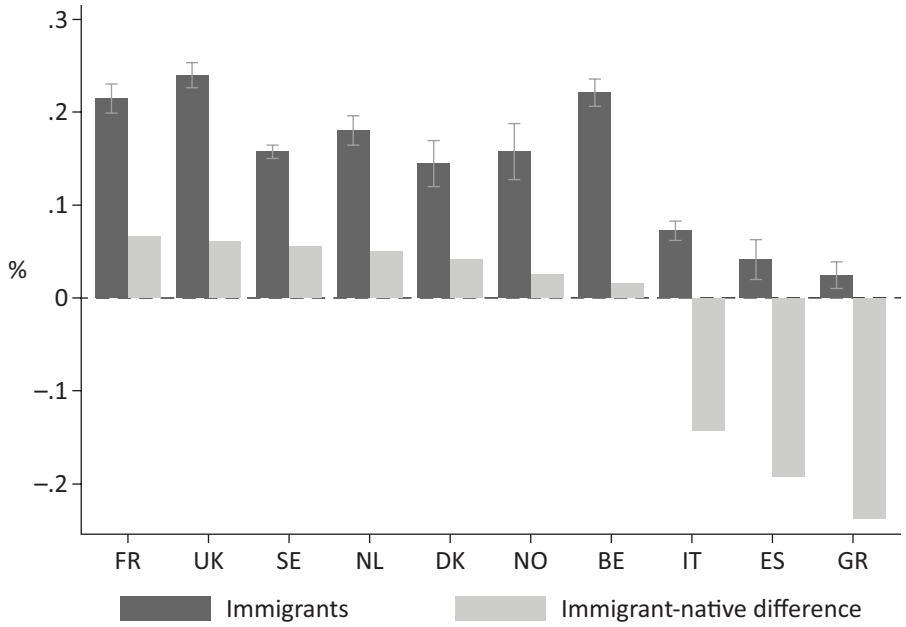

Figure 5. Employment returns to tertiary education among immigrants and differences with natives (WOMEN). Notes: Author's elaborations on EU-LFS data (2005–2013); dark bars represent beta coefficients (with 95% c.i.) associated with the possession of a tertiary degree for the sub-samples of immigrants, based on equation (2), while grey bars represent differences from the same coefficients obtained for natives, based on equation (1).

women. This means that the differences between the Continental (UK included) and the Southern European models in the employment returns to tertiary education are larger among immigrant women (ranging between 10 and 15 p.p.), consistent with the hypothesis of Table 1. Second, in Southern Europe, the returns for immigrant women are substantially lower than those found for their native counterparts (approximately 20 p.p. in Spain and Greece; the differences are statistically significant at the 0.000 level). As discussed in Section 2.2, this is likely the combined effect of the low employment rates among native women and the high employment rates of immigrant women originating from new Eastern European EU member, post-Soviet and Latin American countries in Southern Europe.

4.3. The Effect of the Crisis on the Cross-Country Pattern of Employment Returns to Tertiary Education

In Figure 6, the results of the second step of the analysis, which focuses on how the returns have been affected by the crisis, are shown. As discussed in Section 2.2 and in light of the results shown in Figures 2 and 3, this is especially relevant for immigrant and native men. The results show that in the Netherlands, Belgium and Sweden, not much has taken place across economic conjunctures, so the returns are always higher among immigrants. In Norway and Denmark, the results for the immigrant populations, given their smaller sample sizes, are affected by high estimation uncertainty. However, in Denmark, as well as in France and Sweden, a significant increase in the returns for immigrants relative to natives after the onset of the crisis can be observed, consistent with the hypothesis that education becomes more salient for immigrants during negative economic conjunctures. In the UK, employment returns to tertiary education were identical for immigrants and natives between 2005 and 2010, while in the last period, returns for immigrants reduced substantially. This may be explained by the increasing capability of the British labour market to employ immigrant workers, which may have come at the price of poorer job matches for immigrants.[10]

In Southern European countries, the employment returns to tertiary education among immigrants are found to increase. However, the returns also increase among natives after the onset of the crisis, as a response of their increasing difficulties in remaining employed (see Section 2.2). In fact, in Italy, the returns increase marginally among immigrants and slightly more so among natives such that, in the last period, the returns are significantly higher among natives. In Spain and Greece, countries where the immigrant-native employment gap increased the most (see Figure 2), the returns increased substantially for both immigrants and natives. Thus, although im-

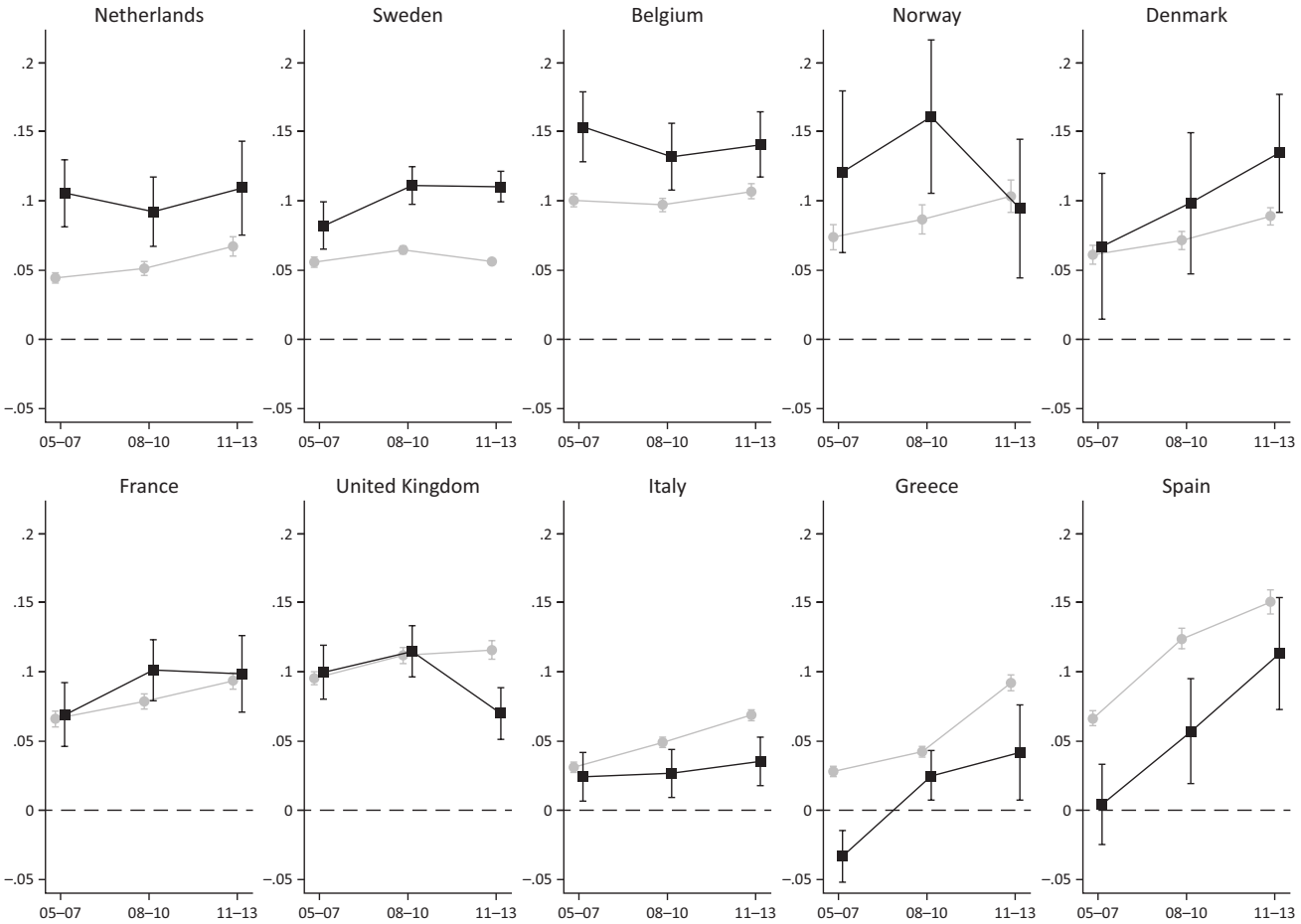

Figure 6. Employment returns to tertiary education among immigrant (dark lines) and native (grey lines) men. Notes: Author's elaborations on EU-LFS data (2005–2013); points represent the beta coefficients (with 95% c.i.) associated with the possession of a tertiary degree (2005–2007) plus the interaction coefficients with period dummies (2008–2010, 2011–2013).

[10] In the 2011–2013 period, no immigrant employment disadvantage among men was found (see Figure 2). However, the result may also be due to the sudden increase in the share of tertiary education among the sampled non-Western immigrants in the UK, which shifted between 2010 and 2011 from 35% to 47%.

migrants were hit much more heavily, their returns to tertiary education remain lower than those found for natives even after the crisis.

5. Conclusion and Discussion

This article argued and empirically showed that different models of immigrants' labour market incorporation contribute to cross-country differences in the employment returns to tertiary education in Western Europe. In Continental Europe, the immigrant employment disadvantage tends to be much larger than in the UK and Southern Europe. Apart from the different composition of the immigrant populations by area of origin and other migratory characteristics, I argued that the generosity of the welfare system for the unemployed and the labour demand bias towards high-skilled jobs are likely to play the most important role. In such a setting, higher educational attainment is likely to have a strong pay off for immigrants' employment probability, possibly offsetting the well-known problems of transferability of human capital and educational credentials acquired in the origin country. That is, I have hypothesised that tertiary education should matter more for immigrants' employment probability in Continental European countries and that returns to education could be higher for immigrants compared to natives in these countries. On the contrary, in Southern Europe, the very small immigrant employment disadvantage fostered by the high demand for low-skilled jobs, at least before the recent economic crisis, should make education less relevant for immigrants' employment chances above and beyond the limited transferability of human capital and credentials. In the UK, the returns for immigrants could be as high as in other Continental European countries given the similar characteristics of the labour demand, but their returns should not be higher compared to those of natives, given that the very selective immigration policy favouring the entry of highly-educated workers limits the immigrant employment disadvantage. The empirical results are consistent with these expectations, with larger cross-country differences found among women, although the substantially higher incidence of immigrants from predominantly Muslim countries in Continental Europe is likely a confounding factor.

Western European models of immigrants' labour market incorporation have been partly reshaped, however, following the Great Recession. Empirical evidence shows that while immigrant-native employment gaps remained unchanged or even decreased in all other countries, in Southern Europe, the immigrant disadvantage increased substantially, especially among men. Thus, one could have expected a convergence between the selected European countries regarding immigrant men's employment returns to tertiary education. The results show that the latter did increase in Southern European countries since the onset of the crisis, although at a different rate. In fact, in the 2011–2013 period, the absolute "employment premium" of a tertiary degree for immigrants in Spain is as high as in Continental countries. However, the returns to education also increased for native men in these countries as a response to their increasing difficulties in remaining employed. Thus, due to the crisis, non-Western immigrants in Southern European countries experience what could be defined as a "double penalty": not only is their employment gap with natives as high as in Continental countries after the crisis, but they also receive lower returns to tertiary education than their native counterparts. This is especially true in Italy and Greece, where the absolute returns to tertiary education for immigrants remain half of those of immigrants in Continental Europe, even after the crisis. This result is consistent with the very poor job matches for non-Western immigrants in these countries, whose levels of segregation in the secondary segment of low- and unskilled jobs before the crisis were the highest in Western Europe (Panichella, 2017), irrespective of education and other individual characteristics (Fellini & Guetto, 2018).

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Conflict of Interests

The author declares no conflict of interests.

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Annex

Table A1. Sample sizes and proportions of tertiary educated and employed, by sex, immigrant status and country of residence. Analytical samples used for the analyses of Figures 4, 5 and 6.

	Men		Women	
	Immigrants	Natives	Immigrants	Natives
Belgium	20,864	165,062	23,554	168,259
% tertiary	26.56	33.61	27.90	40.73
% emp	65.97	88.23	44.03	76.90
Denmark	5,833	136,156	8,193	155,794
% tertiary	30.52	33.90	30.21	44.04
% emp	70.44	89.98	57.28	86.05
Spain	18,746	284,749	21,401	293,961
% tertiary	20.45	31.28	23.62	35.21
% emp	74.56	83.01	60.12	61.71
France	66,907	611,122	78,573	647,918
% tertiary	27.37	28.73	26.33	33.96
% emp	74.99	87.93	51.08	78.21
Greece	45,984	455,239	45,284	470,700
% tertiary	8.27	24.04	15.16	24.73
% emp	84.41	85.38	53.36	58.53
Italy	89,638	1,019,100	107,813	1,057,260
% tertiary	7.49	13.23	13.30	16.83
% emp	84.32	84.14	53.09	58.92
Netherlands	19,661	246,675	25,164	254,568
% tertiary	24.11	34.95	23.24	32.16
% emp	77.70	93.83	56.89	81.19
Norway	4,240	60,453	5,113	59,810
% tertiary	28.25	32.10	34.34	42.16
% emp	76.26	90.60	66.07	85.02
Sweden	55,284	467,992	67,696	471,437
% tertiary	31.67	28.23	35.64	41.34
% emp	72.62	90.18	62.28	87.15
UK	20,277	155,039	23,174	172,737
% tertiary	35.87	32.59	34.69	34.64
% emp	83.77	87.31	58.62	76.85

Notes: Author's elaborations on EU-LFS data (2005–2013), no weights applied; respondents aged 25 to 54; immigrants include first-generation immigrants originating from non-Western countries, while second-generation individuals of immigrant descent are included among natives.

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Article

Perfect for the Job? Overqualification of Immigrants and their Descendants in the Norwegian Labor Market

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Abstract
Compared to the majority population, studies have shown that non-western immigrants are more likely to work in jobs for which they are overqualified. These findings are based on coarse measures of jobs, and an important question is how sensitive these findings are to the definition of jobs. By using detailed information from Norwegian register data 2014, we provide a methodological innovation in comparing individuals working in the same occupation, industry, sector, firm, and municipality. In this way, we measure the degree of overqualification among workers within more than 653,000 jobs. We differentiate between immigrants and their descendants originating from Western Europe, the New EU countries, other Western countries, the Middle East and North Africa (MENA), Africa and Asia (except MENA countries), and South and Central America, and compare their outcomes with the majority population holding the same jobs. We find that immigrants from all country of origin groups are more likely to be overqualified compared to the majority population and to descendants of immigrants. However, the prevalence of overqualification decreases with time since immigration.

Keywords
inequality; integration; labor markets; migration; overqualification

Issue
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1. Introduction

Overqualification refers to a mismatch between the required qualifications for a given job, or the general educational level of individuals holding a job, and the qualifications held by the individual job occupant. Economies characterized by mismatches in the labor market are less efficient and productive, as human capital is underutilized. In addition to being harmful from a macroeconomic perspective, overqualification is associated with lower economic returns to human capital for the individuals in question. The successful utilization of human capital is perhaps of particular interest in the context of migration: compared to the majority population, immigrants in Western countries are not only more likely to be unemployed, but also more likely to hold jobs for which they are overqualified (Green, Kler, & Leeves, 2007; Lindley, 2009; OECD, 2008). Such systematic differences in overqualification between immigrants and the majority may result from various mechanisms, such as discrimination, lack of recognition of qualifications obtained in foreign countries, or differences in access to informal networks and employment opportunities.

In this study, we provide a thorough analysis of overqualification among immigrants and descendants of immigrants in Norway. By using Norwegian registry data from 2014, we provide a fine-grained overview of relative overqualification among immigrants and descendants from different regions of origin. We use different measurements of relative overqualification (the mean,

modal, and median approach) at different levels of detail ranging from coarse job definitions (commonly used in the literature), to very detailed job categories. This is motivated by the possibility that coarse job definitions, such as simple ISCO-codes, may bias estimates of overqualification due to heterogeneous occupational positions being treated as identical. We compare people working in the same occupation, sector, industry, firm, and municipality, resulting in more than 653,000 unique jobs. To the best of our knowledge, an approach with this level of detail has never been used before. The methodological contribution of this article is thus twofold: we investigate whether group differences in relative overqualification persist when comparing individuals in nearly identical occupational positions, and whether the results are influenced by the choice of measurement.

We seek to investigate three main research questions: are immigrants and descendants from different countries of origin more or less likely to be overqualified, compared to majority Norwegians? How do these differences vary with method for assessing overqualification or definition of jobs? How do these differences vary between gender, sectors, time since immigration, and educational level?

2. Background

There is a growing strand of literature showing that the marginal returns to education tend to be lower for immigrants than the majority (Bratsberg & Terrell, 2002; Chiswick & Miller, 2008; Lindley, 2009). A potential mechanism explaining these differences might be that immigrants are more likely to be overqualified for their jobs. This is indeed the partial conclusion of studies conducted in Norway: Hardoy and Schøne (2014) find that a substantial part of the difference in returns to education among non-western immigrants and the majority can be attributed to a higher prevalence of overqualification among immigrants. Villund (2010, 2014) has also documented a higher prevalence of overqualification among immigrants than the majority in Norway, and several studies have documented that immigrants in Norway are more likely than the majority population to be unemployed, in particular immigrants from non-Western countries (e.g., Bratsberg, Raaum, & Røed, 2014).

Potential causes of overqualification among immigrants could be related to lack of relevant work experience in the host country, problems with recognition of skills obtained before migration, and language proficiency issues (Duvander, 2001). Even when formally recognized, immigrants' pre-immigration education and work experience might be less valued in their new country of residence (Zeng & Xie, 2004), particularly if employers are queuing the job applicants by their potential productivity (Weiss, 1980). Immigrants might also lack country-specific skills that could affect their employment opportunities and their likelihood to get jobs they are formally qualified for. An Australian study showed that immigrants who have been overqualified in their country of origin were more likely to be overqualified in their new country of residence (Piracha, Tani, & Vadean, 2012). Additionally, immigrants with different reasons for migration might have strongly differing opportunities regarding employment: those who potentially face remigration might not be able to turn down jobs for which they are overqualified, in contrast to majority candidates. None of the mechanisms discussed so far, however, apply to descendants of immigrants, who, for the most part, have domestic education and work experience.

A group of mechanisms that may explain relative overqualification revolve around employer preferences and behavior. Ethnic discrimination, both of first- and second-generation of immigrant descent, has been documented through experimental studies (for overviews see OECD, 2013; Zschirnt & Ruedin, 2016; for Norwegian studies see Birkelund, Chan, Ugreninov, Midtbøen, & Rogstad, 2018; Birkelund, Heggebø, & Rogstad, 2017; Midtbøen, 2016). When hired, minority candidates might need stronger qualifications to be considered on an equal footing with majority candidates, resulting in overqualification. Conversely, anticipating discrimination, ethnic minorities might seek jobs with lower formal requirements. Finally, network effects, information channels, and local labor market differences could also produce gaps in the incidence of overqualification between immigrants and the majority population.

There are potentially severe consequences of systematic overqualification. As mentioned, overqualification implies lower returns to education. In addition, the returns to excess education are lower than the returns to required education (i.e., Alba-Ramirez, 1993; Duncan & Hoffman, 1981; Lindley, 2009; Nielsen, 2011; Rumberger, 1987). However, less is known about the long-term effects of initial labor market overqualification: having held positions beneath their skill level might present an employee as lacking in motivation or ambition to prospective employers, even if the initial overqualification was the result of external obstacles such as ethnic discrimination. Following this logic, systematic overqualification might lead to long-term stigma or cumulative disadvantage. Finally, it is in the interest of policy makers to limit overqualification because it leads to less effective use of skills, and a "productivity shortfall" (i.e., Barrett, Bergin, & Duffy, 2006; Green et al., 2007). Highly educated individuals employed in positions where their human capital goes underutilized thus leads to a net loss of overall potential productivity. This topic is of particular relevance for policy makers in the context of immigration, where the utilization of immigrants' skills is considered to be crucial.

In this article, we aim to provide a thorough and detailed descriptive overview of relative overqualification in Norway that can serve as comparison for studies in other national contexts, as well as a basis for further studies, by assessing the relevance of methods, heterogeneity between immigrant groups, and heterogeneity within jobs.

3. Data and Methods

3.1. Data

We rely on high-quality register data from Norwegian administrative registers, provided by Statistics Norway. These data contain demographic information on individuals (age, gender, country of origin, immigrant background etc.), as well as information on education and employment relations. The employment data provide information on every individual registered as working at least one hour in the reference week (in November), or who were temporarily absent from work.

The Norwegian-born majority is our reference group. Immigrants are defined as those who are born with two foreign-born parents to a mother not registered as resident in Norway at the time of birth. Descendants are defined as Norwegian-born with two foreign-born parents, the majority being those born in Norway with two Norwegian-born parents. We differentiate between immigrants and second-generation descendants originating from Western Europe, the New EU countries, other Western countries, MENA, South and Central America, Africa and Asia (except MENA countries). All others are placed in a residual category of "others" (e.g., individuals born abroad to two Norwegian-born parents). For descendants, the mother's country background is used if the parents have different country backgrounds.

The Norwegian educational registers include information on all education undertaken in Norway and formally approved education from abroad. However, for immigrants, the register information might be incomplete. For instance, immigrants with higher education may have stronger incentives to apply to get their foreign education approved by the Norwegian authorities and are thus more likely to register their educational level than immigrants with lower education are. If this is the case, our estimates of overqualification among immigrants might be upward-biased due to listwise deletion of individuals with no recorded educational level. The opposite would be true in the inverse case. To investigate this, we ran our main models twice, first we listwise deleted all individuals with missing educational information; second, we grouped these individuals with those who have no education or pre-school education (see Table A1 in the Annex). The latter approach should yield a conservative estimate of overqualification in groups where many individuals lack educational information, and large differences in the results from the two approaches would indicate that our data are biased due to a skewed distribution of missing educational levels. The results from the two approaches were almost identical. Thus, we are confident that this potential bias is not a major issue. However, the analyses in this article build on the second, more conservative approach.

Our sample includes all individuals between 25 and 64 years of age registered as resident in Norway in 2014, with a valid immigrant background indicator. From the employment data, we condition on having a non-missing indicator of whether the employment relation is the main employment relation, and having a non-missing occupational code, sector code, firm/organizational identification code ("business number"), and municipality of employment. To determine the modal, median, and mean education within each job (see Section 3.2 below), we use the education of all individuals who hold that job. Thus, individuals with multiple employment relations are included in the measurement of educational levels in all of their jobs. However, when assessing the relative overqualification of each individual, we use the main employment relation for these individuals. Finally, we condition on a successful merging of the data on demographics, education and employment, and not being currently enrolled in education. By conditioning on a successful merge with the employment data, we condition on being employed in the reference week. Our final samples differ somewhat between job definitions when using the modal approach. Table 2 shows descriptive statistics for the mean approach at the most detailed job definition. Descriptive statistics for the other samples are provided in Table A2.

3.2. Measuring Overqualification

There are at least three commonly used methods of operationalizing and measuring overqualification: job analysis, worker self-assessment, and realized matches (for an overview see Hartog, 2000). We have opted for the latter approach for this study. We use occupational data to map the distribution of qualifications among all individuals holding the same job as the individual in question. Using realized matches allows us to look at relative differences between groups even in cases where jobs have little or no formal requirements, or in cases where the same position in different sectors, industries, or firms have different actual skill distributions. In occupations where almost all employees exceed the formal requirements, there might still be systematic group differences in the de facto qualification distributions, which would not be identifiable with an approach based on job analysis. Thus, we argue that realized matches provide the best grounds for comparing inequalities in overqualification as an outcome. This strategy is, however, unsuited as an overall evaluation of the degree of qualification mismatch in the Norwegian labor market. Therefore, our results should be interpreted as measurements of relative, rather than absolute overqualification. Previous studies of overqualification using Norwegian data have employed all three measurements: Villund (2014) using job analysis, Støren & Wiers-Jenssen (2010) and Brynin & Longhi (2009) using worker self-assessment, and Hardoy & Schøne (2014) using realized matches. Our results are thus only comparable with the latter.

We employ three methods to measure relative overqualification. First, we calculate the *modal level* of education for employees in each job using five ordinal

educational levels (see Table A1 in the Annex). We define individuals as overqualified if their educational level is one or more levels higher than the modal education among individuals in the same job.[1] Second, we use the *mean length* of education (in years) held by individuals in the same job (Verdugo & Verdugo, 1989). Length of education (based on educational level, not actual time spent in education) approximately corresponds to the standard grade level of the NUS2000 educational codes. In this approach, an individual is overqualified if his/her education is more than one standard deviation above the job mean. As noted by Dolton & Vignoles (2000, p. 180) the cutoff of one standard deviation is entirely arbitrary, yet we are primarily interested in the relative positions of different groups in the skill distributions of jobs, and do not see this as a problem, as we apply the same cutoff to all groups. The cutoff at one standard deviation above the mean is generally wider than the cutoff at one level above the mode or median, implying that the mean approach provides a more conservative estimate of the prevalence of relative overqualification. Third, we also measure the *median level* of education within each job, based on the same 5-level classification as the modal level. We define individuals as overqualified if their educational level is one or more levels higher than the median education among individuals in the same job.[2]

3.3. Defining a "Job"

How a "job" is defined is of major importance for the assessment of relative overqualification. A coarse job definition, using heterogeneous jobs such as "teacher" or "secretary" may lead to an overestimation of the level of overqualification if there is heterogeneity in the educational requirements within the job. For instance, "teacher" may encompass a variety of occupations such as "preschool teacher", "adjunct", and "lector" associated with different levels of education. In this case, if most teachers were adjuncts, all lectors would be overqualified as teachers. If immigrant groups are unequally distributed on detailed occupational classifications, this may bias our estimates of relative overqualification between these groups. In addition, despite having the same occupational code, jobs may be heterogeneous in a number of other ways. First, firms in different industries or sectors hiring people for the same occupations may select candidates differently or hire from different pools of applicants. Thus, we measure overqualification *within* industries and sectors. Second, individual firms within the same sector and industry may regard the educational demands or the respective pools of applicants differently, also for jobs in the same occupation. To avoid this issue, we also measure overqualification *within* firms in the same industry and sector. Third, there may be regional differences in hiring practices or applicant pools, even within the same firm. For instance, if a fast-food chain has two restaurants, one in a city, and one in a rural area, the educational level and immigrant group composition of individuals applying for similar jobs at the two restaurants may vary greatly. To overcome this, we also measure overqualification *within firms within the same municipalities*.

In sum, differences in local labor markets, job requirements, the educational level of job applicants, hiring practices, rules and norms for advancement and promotion, and numerous other sources of occupational heterogeneity may bias estimates of the total prevalence of overqualification. If such systematic differences also correlate with the proportion of individuals from different immigrant groups within occupations, estimates of group differences in relative overqualification will be biased. A key contribution of the present study is the use of detailed information on occupations, which enables us to define a "job" as a set of relatively homogenous employment relations. To ensure that jobs are as homogenous as possible, we narrow down the definition of jobs in a stepwise fashion. This allows us to assess overqualification by comparing the education of each individual to the educational composition of others in jobs that are as similar as possible to their own while also exploring at which level (occupation, industry, sector, firm, and municipality) biases might occur due to occupational heterogeneity. It is important to acknowledge, however, that increasing the occupational detail in measuring overqualification potentially obscures important sources of ethnic disadvantage caused by occupational segregation. Immigrants and majority employees with equal qualifications might for instance hold substantially similar but formally distinct job titles, where the latter group is advantaged due to e.g., ethnic discrimination. In the same way, equally qualified immigrants might be stationed in certain branches of firms, thus not appearing to be relatively overqualified in our analysis. Such differences are effectively eliminated with our approach but remain potentially important sources of inequality in reality.

The Norwegian register data contains 452 unique broad *occupational codes* (4-digit) and 7073 unique narrow occupational codes (7-digit). We first utilize the entire list of broad and narrow occupational codes and regard each occupation as a unique job. Second, we utilize the entire list of industries in the Norwegian register data (780 industries) and define a job as the combination of occupational code and industry code. Third, to account for job heterogeneity between sectors and industries we define jobs as a combination of occupation, industry, and sector (24 institutional sectors). Fourth, to compare individuals within firms we use firm identification codes (there are 191,260 unique firms in our data).

[1] If there is no modal level of education within a job, but two adjacent modal levels, we set the modal to the midpoint between the two. If the two or more modal levels are not adjacent, we are unable to define a modal level and exclude the jobs from the analysis.

[2] Some jobs have median levels of education that fall between two categories. In such cases, we require that individuals exceed the median by one level or more to be considered as overqualified.

This should root out any firm-level differences in, for instance, hiring practices. Finally, to account for any geographic differences in hiring practices and recruitment pools within firms we use data on the municipality of employment and define a job as the combination of occupational code, industry, sector, firm, and municipality.

The total number of unique jobs according to these job definitions is slightly lower for the modal than the median and mean approach (see Table 1). At the most detailed level, we operate with more than 653 thousand unique jobs. This level of detail may appear excessive, yet we want to ensure that we compare individuals working in jobs that are as similar as possible. Otherwise, we may run the risk of misinterpreting within-job heterogeneity as representing relative overqualification. If, however, group differences in overqualification are not sensitive to the level of detail in job definitions, this finding has implications for studies investigating relative overqualification in general. Detailed descriptive statistics on the number of people holding "identical" jobs by each method and job definition are provided in the Annex, Table A3.

3.4. Predicting Overqualification

To assess differences in relative overqualification, we need to account for differences in age structure between the groups. Since our analyses of relative overqualification are conditioned on access to employment, we also include an analysis of the probability of being employed. We do this by way of simple linear regressions with fixed effects for age and dummies for immigrant groups (with separate groups for first and second-generation immigrants), where the outcome is a dummy indicating whether the individual is employed (Equation 1) or overqualified (Equation 2). Apart from this, we take a parsimonious approach to modeling, for two reasons. First, we want to describe the prevalence of overqualification in a transparent fashion, so we do not wish to clutter our models with control variables. Second, we do not want to run the risk of controlling for intermediate outcomes ("bad controls") which might bias our estimates. Immigrants are less likely to have higher educational levels, such as a PhD or a master's degree, which implies that those who do are more strongly selected within their group than the majority with similar educational levels is. We do however not introduce any group specific weighting procedures, yet in some of our analyses we introduce controls for educational level (see below). Our models are run separately for men and women, for each method (modal, median, and mean), for each job definition, and for different subgroups, such as sectors, where this is relevant. Note that running models separately by subgroups allows the age fixed effects to vary between subgroups. Results presented in graphs are predicted probabilities for 25-year-olds, with 95% confidence intervals from robust standard errors.

$$\widehat{p(employed)}_i = \alpha + \beta_1 \times \boldsymbol{age}_i + \beta_2 \times \boldsymbol{immigrant\ background\ group}_i \quad (1)$$

$$\widehat{p(over\ qualified)}_i = \alpha + \beta_1 \times \boldsymbol{age}_i + \beta_2 \times \boldsymbol{immigrant\ background\ group}_i \quad (2)$$

Note that the method for assessing overqualification and the definition of jobs is not part of the models by way of fixed effects or similar approaches. They are only used to code the outcome variable in Equation 2. We also provide models including information on time since immigration for the immigrant groups. These models are based on Equation 2 but split the indicator dummies for immigrants from each group into three dummies each, indicating a *time since immigration* of 0–5, 6–10, and 11+ years, respectively. Similarly, we provide models where each immigrant group is split by educational level. In the Annex we also include models controlling for educational level, educational level by field, and reason for immigration (see Tables A5 and A6).

3.5. Descriptive statistics

Table 2 shows descriptive statistics for our main sample, when defining a job as the combination of occupation, industry, sector, firm, and municipality, and using the mean approach. For a full table of descriptive statistics for all samples, see the Annex, Table A2. Our sample of people aged 25–64 has a slight majority of women. The mean age is about 44 years. At this detailed job definition, about 7% of our sample is considered overqualified. Immigrants make up about 12% of the sample, while descendants of immigrants make up less than a half percent of the total sample. Relative to the total population in the age group, immigrants are underrepresented in our sample, mainly due to lower employment rates. It is worth noting that very few individuals have no edu-

Table 1. Number of unique jobs by job definition and method for assessing overqualification.

Job definition	Abbreviation	Modal	Median and mean
Occupation (broad, 4-digit)	Oc. (broad)	425	426
Occupation (narrow, 7-digit)	Oc.	6 638	6 772
Occupation x Industry	Oc.xIn	114 290	118 604
Occupation x Industry x Sector	Oc.xIn.xSe.	128 158	132 830
Occupation x Industry x Sector x Firm	Oc.xIn.xSe.xFi.	628 924	641 710
Occupation x Industry x Sector x Firm x Municipality	Oc.xIn.xSe.xFi.xMu	640 234	653 129

Table 2. Descriptive statistics.

		Mean approach OcXInXSeXFiXMu
Sample size		1 782 867
Women (%)		48,06
Mean age		43,82
Public sector employees (%)		34,67
Overqualified (%)		6,89
Immigrant background (%)		
Norwegian-born majority		82,70
Immigrants total		12,24
Western Europe (old EU + EFTA)	Western	3,10
New EU countries	Western	3,05
Canada, USA, Australia and New Zealand	Western	0,23
MENA *	Non-western	1,45
Asia ++ **	Non-western	3,37
Africa, excluding MENA	Non-western	0,60
South and Central America	Non-western	0,44
Second generation total		0,46
Western Europe (old EU + EFTA)	Western	0,10
New EU countries	Western	0,03
Canada, USA, Australia and New Zealand	Western	0,01
MENA*	Non-western	0,16
Asia ++ **	Non-western	0,14
Africa, excluding MENA	Non-western	0,01
South and Central America	Non-western	0,01
Others		4,60
Educational level (%)		
No education, pre-school or missing		0,30
Primary		0,27
Lower secondary		14,56
Upper secondary basic		8,10
Upper secondary, final year		30,90
Post-secondary, non-tertiary		3,85
First stage of tertiary, undergraduate		29,52
First stage of tertiary, graduate		11,24
Second stage of tertiary, postgraduate		1,25

Notes: * Includes Afghanistan, Algeria, Bahrain, Djibouti, Egypt, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Libya, Mauritania, Morocco, Oman, Pakistan, Palestine, Qatar, Saudi Arabia, Somalia, Sudan, Syria, Tunisia, United Arab Emirates and Yemen; ** Includes Asia (excluding MENA countries), Eastern European non-EU countries, and Oceania (excluding Australia and New Zealand)

cation, only pre-school education, or missing education, whereas more than 40% of the sample have tertiary education or higher. Comparing Table 2 with Table A2, we note that the mean approach is the most conservative, providing the lowest levels of overqualification. Descriptive statistics by immigrant background groups are provided in the Annex (Table A4).

4. Results

Before we address overqualification, we look at differences in employment for different immigrant and descendant groups, compared to the majority. This analysis is carried out in part to provide an overview of the selection into employment, which we condition on in our main analyses. Table 3 contains the results from estimating the probability of being employed (Equation 1) by gender, using linear probability models with age fixed effects. As can be seen, all immigrant groups have a lower probability of being employed than the majority (our reference group) in the reference week. For immigrant men, the difference varies between 3% (Western Europe) to 29% (MENA countries). For women, the largest differences are found for immigrants from MENA countries (46%) and Africa (27%). For most second-generation descendants, the employment gaps are smaller than for im-

Table 3. Differences in employment by immigrant background group and gender. OLS with age fixed effects.

		Men Coefficient	P	Women Coefficient	P
Immigrant group [ref: Norwegian-born majority]					
Immigrants	Western Europe (old EU + EFTA)	−0,0280	*0,0000*	−0,0113	*0,0000*
Second generation	Western Europe (old EU + EFTA)	−0,0186	*0,0606*	−0,0456	*0,0001*
Immigrants	New EU countries	−0,0878	*0,0000*	−0,1006	*0,0000*
Second generation	New EU countries	−0,0562	*0,0019*	−0,0617	*0,0019*
Immigrants	Canada, USA, Australia, NZ	−0,0584	*0,0000*	−0,1201	*0,0000*
Second generation	Canada, USA, Australia, NZ	−0,0333	*0,3957*	−0,0415	*0,3407*
Immigrants	MENA	−0,2929	*0,0000*	−0,4618	*0,0000*
Second generation	MENA	−0,1262	*0,0000*	−0,1424	*0,0000*
Immigrants	Asia	−0,1291	*0,0000*	−0,1680	*0,0000*
Second generation	Asia	−0,0617	*0,0000*	−0,0484	*0,0000*
Immigrants	Africa, excluding MENA	−0,2419	*0,0000*	−0,2714	*0,0000*
Second generation	Africa, excluding MENA	−0,1184	*0,0002*	−0,0754	*0,0222*
Immigrants	South and Central America	−0,1122	*0,0000*	−0,1775	*0,0000*
Second generation	South and Central America	−0,1658	*0,0000*	−0,1349	*0,0001*
Others		−0,0375	*0,0000*	−0,0282	*0,0000*
Constant		0,8181	*0,0000*	0,7944	*0,0000*
Age FE		yes		yes	
R2		0,0519		0,0830	
N		1358362		1296589	

migrants, whereas we find no significant gaps in employment probabilities for descendants from Western Europe (men only) and Canada, USA, Australia, and New Zealand. These findings are in line with earlier studies (Bratsberg, Raaum, & Røed, 2014, 2018), and may be driven by a number of factors, such as variation in educational systems and the recognition of foreign degrees, cultural distances and language skills, reasons for migration, and the fact that immigrants from many countries have relatively low education.

We now turn to our analysis of overqualification by estimating Equation 2, separately for men and women. In Table 4, we show results for the mean approach applied at the most detailed job definition. As can be seen, all immigrants are more likely to be overqualified than the majority, whereas the differences are not statistically significant for the descendants. These findings are in line with previous studies using less detailed job classifications (E.g., Villund, 2014; Hardoy & Schøne, 2014).

4.1. Predicted Overqualification by Method and Job Definition

In order to assess the sensitivity of our estimates of the prevalence of overqualification to the choice of method (modal, median, and mean) and to assess the impact of our detailed job definition, we estimate 36 models separately—one for each combination of method, job definition, and gender. In order to ease presentation, we categorize immigrants and descendants into western/non-western origin groups. The results are provided in Figure 1. As expected, the more detailed definition of jobs provides the lowest estimates of the overall prevalence of overqualification. We also note, as expected, that the mean approach is more conservative than the modal and median approaches. Yet, all models show the same overall pattern: regardless of job definition and method,[3] immigrants are consistently more likely to be overqualified than the majority and second-generation descendants. In the following, we use our most conservative estimates of the prevalence of overqualification, namely the mean approach at the most detailed job definition.

4.2. Differences Between Countries of Origin and Sectors

To provide a more detailed assessment of overqualification, we divide our sample into 16 groups consisting of immigrants from seven countries/regions of origin, descendants of immigrants from these same groups, Norwegian-born majority, and a heterogeneous group of "others". All analyses are shown separately by gender and public/private sector. We use a strict definition of public sector, implying that government or municipality-owned enterprises are counted in the private sector. Due to more formalized hiring processes and a higher degree of legal requirements in the public sector, we expect a lower prevalence of overqualification in this sector compared to the private sector (Heath & Yu, 2005). If the sheltering hypothesis in public sector holds, we should

[3] This is in line with Hardoy and Schøne (2014), who, using the mean and modal approach, find that the choice of measurement has little impact on the overall results.

Table 4. Differences in overqualification by immigrant background group and gender. Jobs are defined as the combination of occupation, industry, sector, firm and municipality. Overqualification is defined by the mean approach. OLS with age fixed effects.

		Men		Women	
		Coefficient	P	Coefficient	P
Immigrant group [ref: Norwegian-born majority]					
Immigrants	Western Europe (old EU + EFTA)	0,0689	*0,0000*	0,0630	*0,0000*
Second generation	Western Europe (old EU + EFTA)	0,0071	*0,5117*	0,0214	*0,0594*
Immigrants	New EU countries	0,1041	*0,0000*	0,1969	*0,0000*
Second generation	New EU countries	0,0014	*0,9375*	0,0223	*0,2514*
Immigrants	Canada, USA, Australia, NZ	0,1115	*0,0000*	0,1439	*0,0000*
Second generation	Canada, USA, Australia, NZ	−0,0072	*0,8226*	0,0568	*0,2096*
Immigrants	MENA	0,0651	*0,0000*	0,0266	*0,0000*
Second generation	MENA	0,0037	*0,6659*	0,0012	*0,8916*
Immigrants	Asia	0,0778	*0,0000*	0,1138	*0,0000*
Second generation	Asia	0,0067	*0,4613*	0,0172	*0,0852*
Immigrants	Africa, excluding MENA	0,0984	*0,0000*	0,0270	*0,0000*
Second generation	Africa, excluding MENA	0,0766	*0,0599*	0,0656	*0,0910*
Immigrants	South and Central America	0,1156	*0,0000*	0,1311	*0,0000*
Second generation	South and Central America	−0,0187	*0,4900*	−0,0042	*0,8968*
Others		0,0125	*0,0000*	0,0122	*0,0000*
Constant		0,0814	*0,0000*	0,1004	*0,0000*
Age FE		yes		yes	
R2	0,0133		0,0300		
N		704 450		693 901	

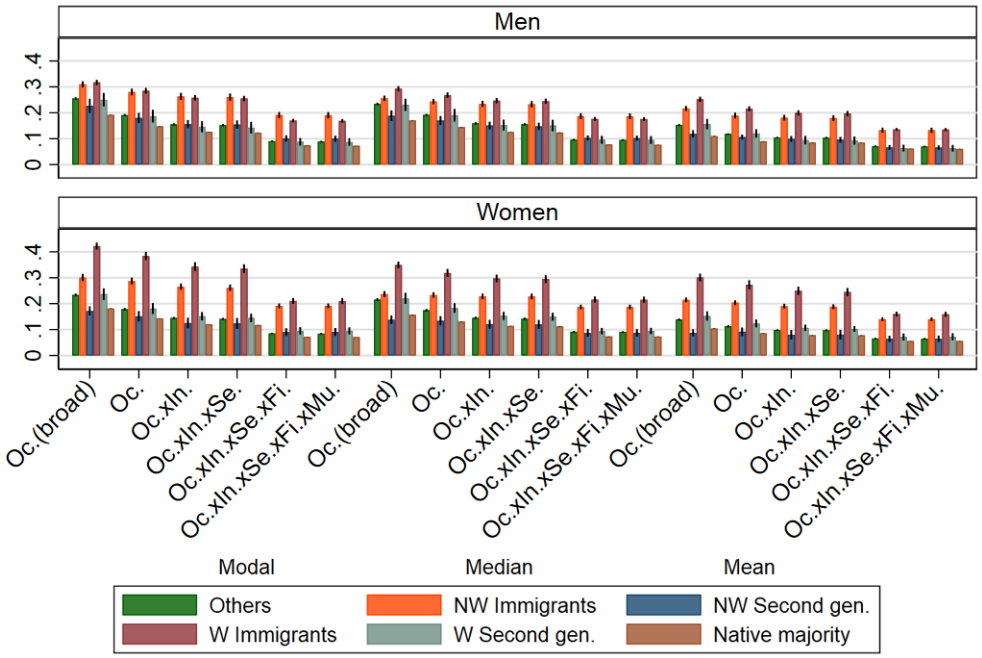

Figure 1. Predicted overqualification among non-western immigrants, non-western second generation, western immigrants, western second generation, others, and the majority. 36 models estimated with age fixed effects. Note: Non-western (NW) countries include the country groups MENA, Asia ++, Africa excluding MENA and South and Central America.

also expect to find smaller gaps in overqualification between the majority and immigrant population in the public sector.

Figure 2 shows results based on the mean approach at the most detailed job definition. Each box in this figure presents results from a separate model, based on equation 2. To ease comparison, a horizontal line represents the predicted values for the majority. Overall, levels of overqualification do not differ dramatically between the majority and second-generation descendants

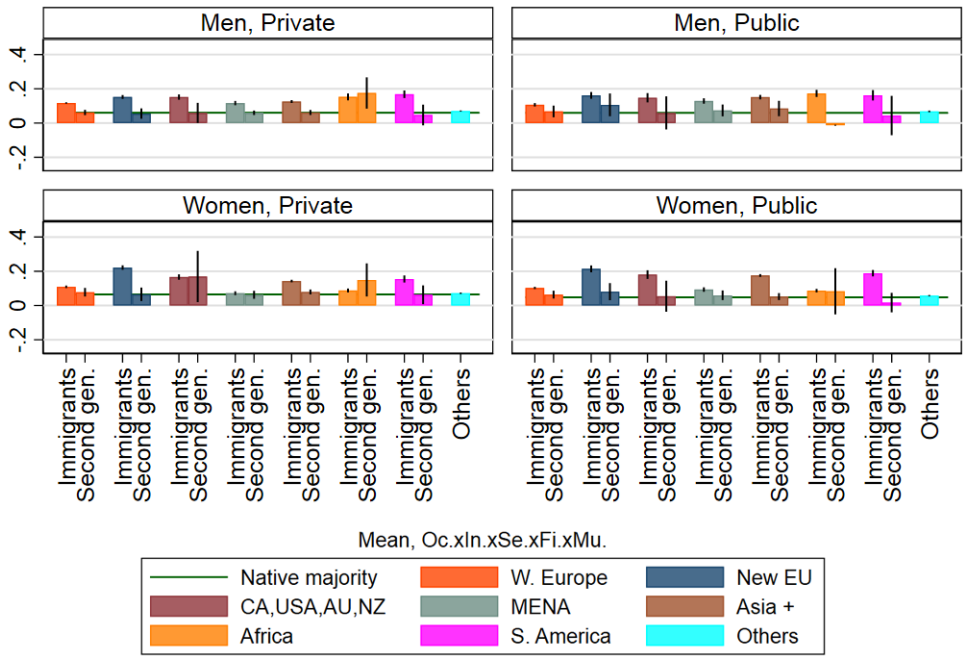

Figure 2. Predicted overqualification among immigrants and the second generation from seven country-of-origin groups and others, compared to the majority, by sector. Note: 4 models estimated with age fixed effects.

of immigrants and in the cases where such differences are marked, the confidence intervals are wide. However, immigrants from all countries of origin are more likely to be overqualified than the majority in both the public and the private sector. The only exceptions are for women from MENA-countries and Africa. The fact that it is difficult to discern any substantial differences between sectors suggests that when it comes to overqualification, the public sector does not play a sheltering role. The comparatively low prevalence of overqualification among immigrant women from MENA countries and Africa may be related to the relatively low levels of education in these groups, and/or their lower employment rates.

4.3. Overqualification by Time Since Immigration

By further subdividing the groups of immigrants by number of years since they immigrated, a clear pattern emerges. Figure 3 displays results for the most detailed job definition by immigrant background, where immigrants are divided into groups by time since their (first) immigration; 0–5, 6–10, and 11+ years. Overall, employed immigrants who have lived in the country for a shorter time are most likely to be overqualified, and, with a few exceptions, the prevalence of overqualification monotonically falls with time since immigration, nearly closing the gap to the descendants and the majority. Differences between public and private sectors are not large, and the main patterns are roughly similar for men and women. The main finding here is also in line with previous empirical studies in several Western European labor markets (i.e., Nielsen, 2011).

4.4. Overqualification by Educational Levels

As discussed above, differences in predicted overqualification between immigrant groups might be related to differences in education. We therefore re-ran the previous models—see Figure 3—with each group subdivided by educational level. We present the results by educational level within each gender and sector group. More precisely, the first and second box of each row displays estimates from the same model, whereas the third and fourth box displays estimates from a second model. Since, by definition, no individuals at the lowest educational level (no schooling, primary or lower secondary schooling, or missing information) can be overqualified, and since very few individuals with only secondary schooling were overqualified, the results for these groups are omitted in the figures (although they are included in the models). Since very few individuals have completed postgraduate education, and we risk identifying individuals in small immigrant groups, the postgraduate group is merged with the graduates (this choice has little impact on the results). Thus, Figure 4 shows results for the two highest educational groups (graduate and postgraduate). Note that the procedure for assigning overqualification to each individual still distinguishes between all educational levels.

As shown in these graphs, immigrants are more often overqualified than the majority at both graduate and postgraduate levels. We also note than the general prevalence of overqualification is higher at the postgraduate level. The gaps are more pronounced for immigrants from the new EU countries in the private sector, and for immigrants from Asia, Africa, and South and Central

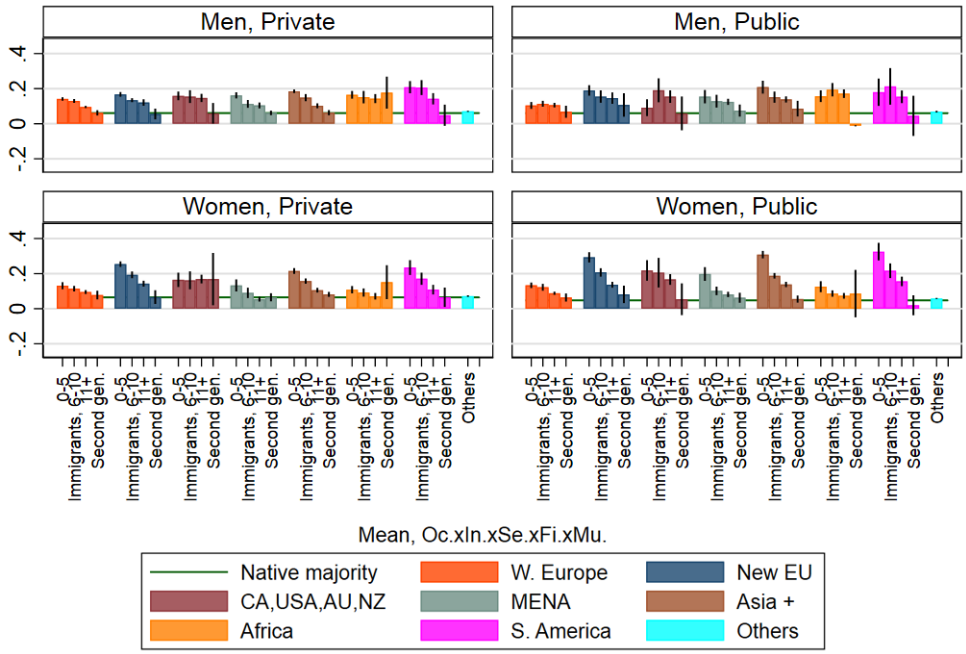

Figure 3. Predicted overqualification among immigrants, by time since immigration and seven country-of-origin groups, the second generation from seven country-of-origin groups, and others, compared to the majority. Note: 4 models estimated with age fixed effects.

America in the public sector (with high numbers also evident for female graduates from new EU countries). However, it is worth noting the wide confidence intervals for some of the descendant groups, and that the high predicted prevalence of overqualification among male African descendant graduates and postgraduates in the private sector represents a small number of individuals.

4.5. Robustness Checks and Additional Analyses

Since we compare individuals within jobs, an individual cannot be overqualified if he or she is the only individual holding that job. This especially becomes an issue when we compare individuals working in the same occupation, industry, sector, firm, and municipality. To test the sensitivity of our approach, we have run the models shown in Figure 2 again, this time excluding all individuals working in jobs with fewer than 10 people. Results from these analyses are included as Annex (Figure A1). The results are roughly similar to those in Figure 2, implying that this is not a major concern.

Our results may be particularly sensitive to group differences in educational levels and fields of education. Although the aim of this study is to describe, rather than explain group differences in the prevalence of overqualification, an analysis including controls for educational level would be informative regarding such differences among people with similar educational levels. As such, we have included analyses identical to those presented in Tables 3 and 4 and Figures 1, 2 and 3, but with control for educational level (5 groups) and educational level x field (286 groups) in the Annex, Tables A5 and A6, Figures A2 to A7. While the figures with educational controls only plot regression coefficients, not predicted values, the overall patterns tell the same story as our main results, though with smaller coefficients: even when comparing people with similar education, overqualification is more common among most immigrant groups, and it falls with time since immigration. The exceptions are immigrants from Western Europe and Canada, USA, Australia and New Zealand when we control for educational level x field. We have also done similar analyses where individuals' stated reason for immigration (work, family, refugee, education, other reasons, a missing category, and a "not relevant" category) are included as control variables (Tables A5 and A6, and Figures A8 to A11). These analyses produced similar results.

5. Conclusions

The main objective of this study has been to provide a thorough, descriptive overview of overqualification among immigrants and their descendants in the Norwegian labor market. The Norwegian welfare state is characterized by relatively high employment protection, which compared to more liberal or conservative welfare states could make it more difficult for immigrants to find jobs, and possibly also more difficult to find relevant jobs, given their qualifications. On the other hand, mismatch in the labor market in terms of overqualification harms firms, individuals and society at large, and these productivity considerations would be similar across most countries. Thus, we would expect that the main trends in this article might be applicable to countries with relatively

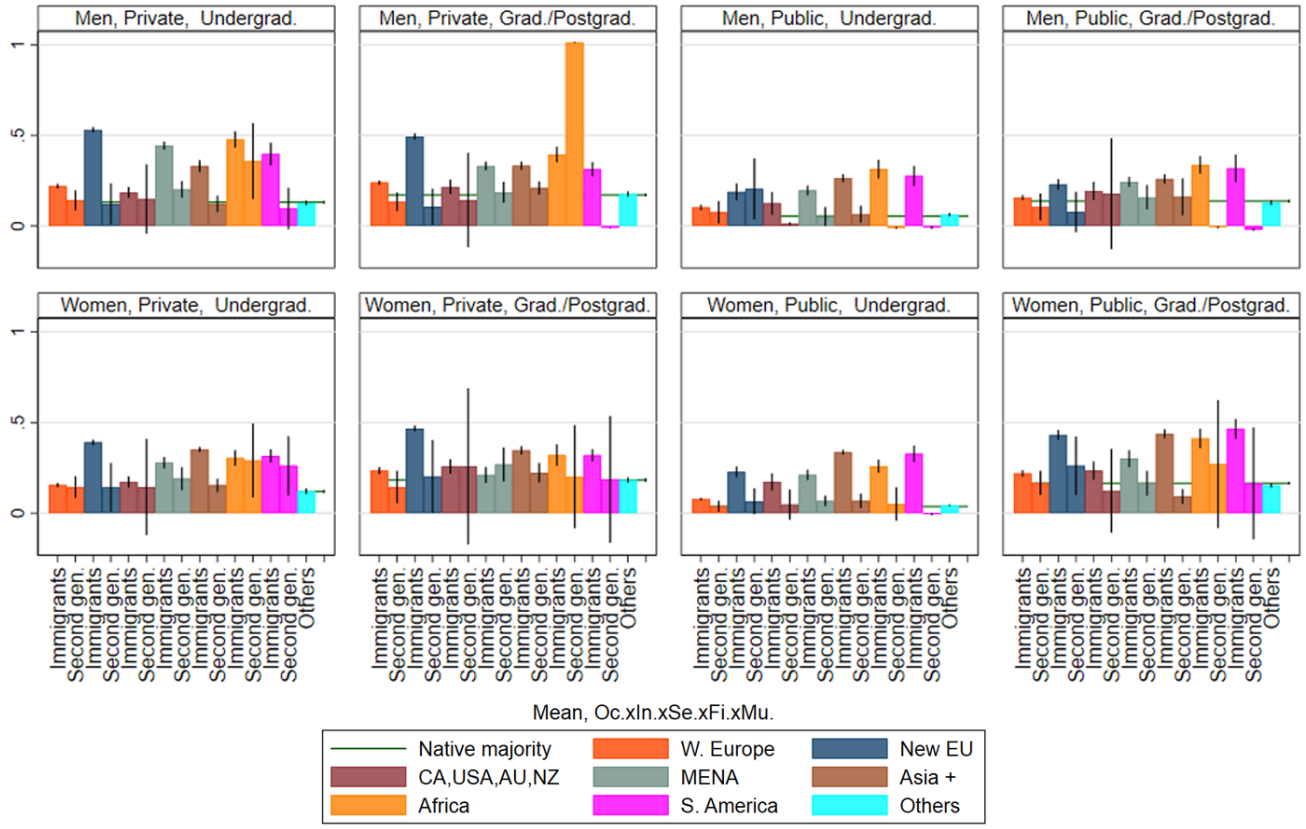

Figure 4. Predicted overqualification among immigrants and the second generation from seven country-of-origin groups, and others, compared to the majority, by educational level. Note: 4 models estimated with age fixed effects.

strong employment protection and an open and competitive economy.

Our main contributions to the literature can be summarized in three main points. First, we compare three different measurements of relative overqualification, providing an assessment of the impact of the choice of method. Second, by measuring jobs at a more detailed level than in previous research, we address heterogeneity between jobs and compare individuals working in similar jobs. Finally, by differentiating between immigrants and descendants from different countries of origin, we address heterogeneity between immigrant groups in the prevalence of overqualification. Our findings show that, in addition to having lower rates of employment, all immigrant groups are more likely to be overqualified than the Norwegian-born majority. However, second generation descendants of immigrants are not more likely to be overqualified than the majority.

Further, these differences vary little with method for assessing overqualification. We have tested three methods, the mean, modal, and median approach and found the results to be comparable. Group differences in relative overqualification between immigrants and the majority also persist even when using extremely detailed job definitions. In other words, immigrants are more likely to be overqualified compared to the majority, even when comparing individuals in near identical occupational positions.

Relative differences in overqualification do not seem to differ substantially by gender, nor by sector, weakening the hypothesis that the public sector plays a sheltering role. We also found that, while the prevalence of overqualification is generally higher for immigrants than for second-generation descendants and the majority, these differences seem to diminish over time since immigration. This can potentially be explained by differing reasons for migration for different groups, e.g., that migrants that face potential re-migration are more likely to accept jobs below their qualifications. However, it is worth noting that we only use cross-sectional data, so this pattern may be biased by systematic differences between immigrants from the same country origin groups arriving in different periods. For descendants of migrants, the prevalence of overqualification is generally comparable to the level among the majority. We also found that, while overall overqualification is higher among those with higher education, the relative differences between immigrants and the majority are still marked.

In further studies, we aim to dig deeper into the relevant factors in mapping differences in overqualification between minority groups and the majority. Of particular relevance would be to differentiate between pre- and post-immigration qualifications (see Friedberg, 2000). This is in part done by categorizing immigrants by migration recency, but should still be taken into account more precisely, as the (lack of) recognition of foreign edu-

cation is likely a major hurdle to finding a suitable job for educated immigrants. Using data for multiple years may allow us to explore how initial overqualification might affect the occupational trajectories of immigrants relative to the majority, and to take into account time variation in the composition of the immigrant flow.

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Conflict of interests

The authors declare no conflict of interests.

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Annex

Table A1. Coding of educational levels and years of education.

Original coding of educational levels				Recoded educational levels and years of education	
Level	**Level name**	**ISCED 2011**	**Grade**	**Years of education**	**Level of education**
0	No education and pre-school education	01/02	None	0	
1	Primary education	1	1.–7.	7	1
2	Lower secondary education	2	8–10.	10	
3	Upper secondary education, basic education	3/4	11.–12.	12	
4	Upper secondary, final year	3/4	13. +	13	2
5	Post-secondary non-tertiary education	4/5	14. +	14	
6	First stage of tertiary education, undergraduate level	6	14.–17.	17	3
7	First stage of tertiary education, graduate level	7	18.–19.	19	4
8	Second stage of tertiary education, postgraduate education	8	20. +	22	5
9	Unspecified (missing)			0	1
.	[missing]			0	1

Table A2. Descriptive statistics (full table)

	Modal						Median						Mean					
	Oc. (short)	Oc.	Oc.xIn.	Oc.xIn.xSe.	Oc.xIn.xSe.xFi.	Oc.xIn.xSe.xFi.xMu.	Oc. (short)	Oc.	Oc.xIn.	Oc.xIn.xSe.	Oc.xIn.xSe.xFi.	Oc.xIn.xSe.xFi.xMu.	Oc. (short)	Oc.	Oc.xIn.	Oc.xIn.xSe.	Oc.xIn.xSe.xFi.	Oc.xIn.xSe.xFi.xMu.
Sample size	1782865	1782291	1771263	1770672	1753872	1753646	1782867	1782867	1782867	1782867	1782867	1782867	1782867	1782867	1782867	1782867	1782867	1782867
Women (%)	48,06	48,06	48,11	48,11	48,07	48,07	48,06	48,06	48,06	48,06	48,06	48,06	48,06	48,06	48,06	48,06	48,06	48,06
Mean age	43,82	43,82	43,82	43,82	43,85	43,85	43,82	43,82	43,82	43,82	43,82	43,82	43,82	43,82	43,82	43,82	43,82	43,82
Public sector employees (%)	34,67	34,67	34,84	34,85	34,90	34,90	34,67	34,67	34,67	34,67	34,67	34,67	34,67	34,67	34,67	34,67	34,67	34,67
Overqualified (%)	20,75	16,70	14,36	14,09	8,80	8,69	18,14	15,59	13,77	13,59	9,06	8,98	12,60	10,53	9,79	9,72	6,96	6,89
Immigrant background (%)																		
Native majority	82,70	82,70	82,72	82,73	82,88	82,88	82,70	82,70	82,70	82,70	82,70	82,70	82,70	82,70	82,70	82,70	82,70	82,70
Immigrants total	12,24	12,23	12,22	12,22	12,06	12,06	12,24	12,24	12,24	12,24	12,24	12,24	12,24	12,24	12,24	12,24	12,24	12,24
Western Europe (old EU + EFTA)	3,10	3,09	3,08	3,08	3,07	3,07	3,10	3,10	3,10	3,10	3,10	3,10	3,10	3,10	3,10	3,10	3,10	3,10
New EU countries	3,05	3,05	3,05	3,05	2,99	2,99	3,05	3,05	3,05	3,05	3,05	3,05	3,05	3,05	3,05	3,05	3,05	3,05
Canada, USA, Australia, NZ	0,23	0,23	0,23	0,23	0,23	0,23	0,23	0,23	0,23	0,23	0,23	0,23	0,23	0,23	0,23	0,23	0,23	0,23
MENA *	1,45	1,45	1,45	1,45	1,43	1,43	1,45	1,45	1,45	1,45	1,45	1,45	1,45	1,45	1,45	1,45	1,45	1,45
Asia ++ **	3,37	3,37	3,37	3,37	3,32	3,32	3,37	3,37	3,37	3,37	3,37	3,37	3,37	3,37	3,37	3,37	3,37	3,37
Africa, excluding MENA	0,60	0,60	0,60	0,60	0,59	0,59	0,60	0,60	0,60	0,60	0,60	0,60	0,60	0,60	0,60	0,60	0,60	0,60
South and Central America	0,44	0,44	0,44	0,44	0,43	0,43	0,44	0,44	0,44	0,44	0,44	0,44	0,44	0,44	0,44	0,44	0,44	0,44
Second generation total	0,46	0,46	0,46	0,46	0,46	0,46	0,46	0,46	0,46	0,46	0,46	0,46	0,46	0,46	0,46	0,46	0,46	0,46
Western Europe (old EU + EFTA)	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10
New EU countries	0,03	0,03	0,03	0,03	0,03	0,03	0,03	0,03	0,03	0,03	0,03	0,03	0,03	0,03	0,03	0,03	0,03	0,03
Canada, USA, Australia, NZ	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01
MENA*	0,16	0,16	0,16	0,16	0,16	0,16	0,16	0,16	0,16	0,16	0,16	0,16	0,16	0,16	0,16	0,16	0,16	0,16
Asia ++ **	0,14	0,14	0,14	0,14	0,14	0,14	0,14	0,14	0,14	0,14	0,14	0,14	0,14	0,14	0,14	0,14	0,14	0,14
Africa, excluding MENA	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01
South and Central America	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01
Others	4,60	4,60	4,59	4,59	4,59	4,59	4,60	4,60	4,60	4,60	4,60	4,60	4,60	4,60	4,60	4,60	4,60	4,60
Educational level (%)																		
No education, pre-school or missing	0,30	0,30	0,29	0,29	0,29	0,29	0,30	0,30	0,30	0,30	0,30	0,30	0,30	0,30	0,30	0,30	0,30	0,30
Primary	0,27	0,27	0,27	0,27	0,27	0,27	0,27	0,27	0,27	0,27	0,27	0,27	0,27	0,27	0,27	0,27	0,27	0,27
Lower secondary	14,56	14,56	14,53	14,52	14,39	14,39	14,56	14,56	14,56	14,56	14,56	14,56	14,56	14,56	14,56	14,56	14,56	14,56
Upper secondary basic	8,10	8,10	8,12	8,12	8,16	8,16	8,10	8,10	8,10	8,10	8,10	8,10	8,10	8,10	8,10	8,10	8,10	8,10
Upper secondary, final year	30,90	30,91	30,99	30,99	31,13	31,13	30,90	30,90	30,90	30,90	30,90	30,90	30,90	30,90	30,90	30,90	30,90	30,90
Post-secondary, non-tertiary	3,85	3,85	3,85	3,85	3,86	3,86	3,85	3,85	3,85	3,85	3,85	3,85	3,85	3,85	3,85	3,85	3,85	3,85
First stage of tertiary, undergraduate	29,52	29,52	29,53	29,54	29,55	29,55	29,52	29,52	29,52	29,52	29,52	29,52	29,52	29,52	29,52	29,52	29,52	29,52
First stage of tertiary, graduate	11,24	11,24	11,17	11,16	11,11	11,11	11,24	11,24	11,24	11,24	11,24	11,24	11,24	11,24	11,24	11,24	11,24	11,24
Second stage of tertiary, postgraduate	1,25	1,25	1,24	1,25	1,24	1,24	1,25	1,25	1,25	1,25	1,25	1,25	1,25	1,25	1,25	1,25	1,25	1,25

Notes: * Includes Afghanistan, Algeria, Bahrain, Djibouti, Egypt, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Libya, Mauritania, Morocco, Oman, Pakistan, Palestine, Qatar, Saudi Arabia, Somalia, Sudan, Syria, Tunisia, United Arab Emirates, and Yemen; ** Includes Asia (excluding MENA countries), Eastern European non-EU countries, and Oceania (excluding Australia and New Zealand).

Table A3. Descriptive statistics for jobs.

Mean and median method

Number of individuals working in the same job

	Number of unique jobs	Mean number of individuals	SD individuals	Percentiles 1	5	10	25	50	75	90	95	99
Oc_short	426	4185.13	10168.97	1	1	2	86	833	3932	11333	17018	60723
Oc	6772	263.27	1392.28	1	1	1	4	25	121	451	1011	3771
OcXIn	118604	15.03	203.13	1	1	1	1	2	5	17	38	195
OcXInXSe	132830	13.42	178.11	1	1	1	1	2	5	15	33	175
OcXInXSeXFi	641710	2.78	9.82	1	1	1	1	1	2	5	8	26
OcXInXSeXFiXMu	653129	2.73	8.70	1	1	1	1	1	2	5	8	25

Number of individuals working in the same job, weighted by number of individuals

	Number of unique jobs	Mean number of individuals	SD individuals	Percentiles 1	5	10	25	50	75	90	95	99
Oc_short	426	28835.52	30698.67	476	1460	2708	6984	16228	38172	76224	112330	112330
Oc	6772	7625.17	12345.69	19	87	180	587	2370	8084	17544	45672	45796
OcXIn	118604	2759.99	7248.78	1	3	6	35	256	1570	7049	17130	42233
OcXInXSe	132830	2376.84	6792.70	1	2	5	29	214	1358	5605	10433	41575
OcXInXSeXFi	641710	37.45	133.50	1	1	1	2	5	20	68	149	655
OcXInXSeXFiXMu	653129	30.47	95.26	1	1	1	2	5	19	62	130	492

Table A3. (Cont.) Descriptive statistics for jobs.

Modal method

Number of individuals working in the same job

	Number of unique jobs	Mean number of individuals	SD individuals	Percentiles 1	5	10	25	50	75	90	95	99
Oc_short	425	4194.98	10178.92	1	1	2	92	840	3932	11333	17018	60723
Oc	6638	268.50	1405.78	1	1	1	5	26	127	465	1033	3774
OcXIn	114290	15.50	206.92	1	1	1	1	2	5	17	39	203
OcXInXSe	128158	13.82	181.31	1	1	1	1	2	5	15	35	182
OcXInXSeXFi	628924	2.79	9.91	1	1	1	1	1	2	5	8	26
OcXInXSeXFiXMu	640234	2.74	8.79	1	1	1	1	1	2	5	8	26

Number of individuals working in the same job, weighted by number of individuals

	Number of unique jobs	Mean number of individuals	SD individuals	Percentiles 1	5	10	25	50	75	90	95	99
Oc_short	425	28835.56	30698.76	476	1460	2708	6984	16228	38172	76224	112330	112330
Oc	6638	7627.62	12346.95	20	87	180	589	2375	8084	17544	45672	45796
OcXIn	114290	2778.04	7269.04	1	3	7	36	262	1587	7049	17130	42233
OcXInXSe	128158	2393.19	6813.19	1	2	6	31	222	1372	5605	10433	41575
OcXInXSeXFi	628924	38.02	134.52	1	1	1	2	6	21	69	152	680
OcXInXSeXFiXMu	640234	30.92	95.98	1	1	1	2	5	20	64	134	492

Notes: These numbers pertain to the main employment relation of individuals in our sample. When coding our outcome variable (relative overqualification), we used all employment relations. For numbers labeled "Number of individuals working in the same job", we take jobs as the unit of analysis and provide statistics for the distribution of people in these jobs. Numbers labeled "Number of individuals working in the same job, weighted by number of individuals" use the number of individuals that hold the same job as weights. At the most detailed job definition, these figures show that the majority of jobs have only one person working in them, but the majority of people work in jobs that are held by more than one person.

Table A4. Descriptive statistics by immigrant background.

	Native majority	Others	Western Europe (old EU + EFTA)		New EU countries		Canada, USA, Australia, NZ		MENA*		Asia ++ **		Africa, excluding MENA		South and central America	
			Immigrants	Second generation	Immigrants	Second generation	Immigrants	Second generation	Immigrants	Second generation	Immigrants	Second generation	Immigrants	Second generation	Immigrants	Second generation
N	1474443	81996	55185	1770	54443	616	4185	141	25822	2844	60037	2491	10665	193	7838	198
Sample %	82,70	4,60	3,10	0,10	3,05	0,03	0,23	0,01	1,45	0,16	3,37	0,14	0,60	0,01	0,44	0,01
Mean age	44,47	42,23	43,10	43,33	38,12	40,98	43,32	49,29	39,00	30,61	40,37	30,56	39,42	31,07	41,43	30,37
% Women	48,28	48,45	44,27	46,72	38,32	48,05	44,61	46,81	35,04	47,75	59,73	48,01	45,34	50,78	56,32	48,48
% Public sector	35,68	34,32	30,59	31,81	13,84	29,71	28,32	43,26	30,57	31,68	34,43	27,18	42,04	32,12	34,55	25,76
% Overqualified	5,73	6,98	11,28	6,72	18,71	7,14	16,13	7,09	11,32	8,12	15,21	8,63	13,30	14,51	17,30	6,57
Educational level (%)																
No education, pre-school or missing	0,04	0,11	1,66	0,11	0,99	0,00	1,79	0,00	4,66	0,77	2,11	0,16	3,08	0,00	2,49	0,51
Primary	0,00	0,01	0,41	0,00	0,22	0,00	0,17	0,00	5,68	0,00	4,06	0,08	4,65	0,00	1,02	0,00
Lower secondary	14,09	12,87	11,12	14,58	12,65	17,05	5,35	11,35	31,59	25,77	22,96	18,83	29,03	18,13	18,42	26,26
Upper secondary basic	8,90	5,34	5,84	7,29	3,52	6,49	1,98	10,64	2,61	0,98	3,57	0,80	2,58	0,00	3,05	1,52
Upper secondary, final year	31,60	27,12	21,62	27,40	42,53	26,46	11,76	21,28	20,58	28,94	24,92	26,50	24,94	24,87	26,24	33,84
Post-secondary, non-tertiary	4,26	3,84	0,98	3,11	0,70	4,55	1,15	3,55	1,46	2,07	1,37	2,01	1,82	1,55	1,76	2,53
First stage of tertiary, undergraduate	29,84	33,00	33,05	30,34	22,38	26,95	38,57	35,46	21,61	23,70	25,03	30,59	21,13	39,38	25,59	26,77
First stage of tertiary, graduate	10,36	16,12	18,99	15,14	15,15	17,53	28,94	12,77	9,95	17,33	13,17	20,43	10,69	15,54	18,01	8,59
Second stage of tertiary, postgraduate	0,91	1,60	6,32	2,03	1,86	0,97	10,30	4,96	1,87	0,42	2,82	0,60	2,08	0,52	3,41	0,00

Notes: * Includes Afghanistan, Algeria, Bahrain, Djibouti, Egypt, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Libya, Mauritania, Morocco, Oman, Pakistan, Palestine, Qatar, Saudi Arabia, Somalia, Sudan, Syria, Tunisia, United Arab Emirates, and Yemen; ** Includes Asia (excluding MENA countries), Eastern European non-EU countries, and Oceania (excluding Australia and New Zealand).

Figure A1. Predicted overqualification among immigrants and the second generation from seven countries of origin and others, compared to the native majority. Notes: 4 models estimated with age fixed effects. Excluding jobs shared by less than 10 individuals.

Table A5. Differences in employment by immigrant background group and gender. OLS with age fixed effects and controls for educational level (5 levels), educational level x field (286 groups) and stated reason for immigration (work, family, refugee, education, other reasons, a missing category, and a "not relevant" category).

		Men		Women		Men		Women		Men		Women		Men		Women	
		Coef.	P	Coef.	P	Coef.	P	Coef.	P	Coef.	P	Coef.	P	Coef.	P	Coef.	P
Immigrant group	*[ref: Natives]*																
Immigrants	Western Europe (old EU + EFTA)	−0.0280	0.0000	−0.0113	0.0000	−0.0147	0.0000	−0.0174	0.0000	0.0184	0.0000	0.0104	0.0000	−0.0487	0.0000	−0.0127	0.0000
Second generation	Western Europe (old EU + EFTA)	−0.0186	0.0606	−0.0456	0.0001	−0.0174	0.0683	−0.0438	0.0001	−0.0112	0.2370	−0.0356	0.0013	−0.0186	0.0610	−0.0456	0.0001
Immigrants	New EU countries	−0.0878	0.0000	−0.1006	0.0000	−0.0437	0.0000	−0.0825	0.0000	0.0026	0.2733	−0.0309	0.0000	−0.1246	0.0000	−0.0813	0.0000
Second generation	New EU countries	−0.0562	0.0019	−0.0617	0.0019	−0.0605	0.0008	−0.0587	0.0029	−0.0531	0.0030	−0.0533	0.0065	−0.0562	0.0020	−0.0617	0.0019
Immigrants	Canada, USA, Australia, NZ	−0.0584	0.0000	−0.1201	0.0000	−0.0771	0.0000	−0.1393	0.0000	−0.0301	0.0000	−0.0914	0.0000	−0.0786	0.0000	−0.0859	0.0000
Second generation	Canada, USA, Australia, NZ	−0.0333	0.3957	−0.0415	0.3407	−0.0352	0.3654	−0.0614	0.1390	−0.0218	0.5703	−0.0511	0.2162	−0.0335	0.3937	−0.0411	0.3446
Immigrants	MENA *	−0.2929	0.0000	−0.4618	0.0000	−0.2370	0.0000	−0.3322	0.0000	−0.2069	0.0000	−0.2964	0.0000	−0.2412	0.0000	−0.3840	0.0000
Second generation	MENA *	−0.1262	0.0000	−0.1424	0.0000	−0.0906	0.0000	−0.1101	0.0000	−0.0794	0.0000	−0.1058	0.0000	−0.1259	0.0000	−0.1422	0.0000
Immigrants	Asia ++ **	−0.1291	0.0000	−0.1680	0.0000	−0.1058	0.0000	−0.1071	0.0000	−0.0795	0.0000	−0.0745	0.0000	−0.1093	0.0000	−0.1051	0.0000
Second generation	Asia ++ **	−0.0617	0.0000	−0.0484	0.0000	−0.0537	0.0000	−0.0415	0.0000	−0.0468	0.0000	−0.0382	0.0000	−0.0615	0.0000	−0.0480	0.0000
Immigrants	Africa, excluding MENA	−0.2419	0.0000	−0.2714	0.0000	−0.1934	0.0000	−0.1593	0.0000	−0.1632	0.0000	−0.1320	0.0000	−0.1923	0.0000	−0.1872	0.0000
Second generation	Africa, excluding MENA	−0.1184	0.0002	−0.0754	0.0222	−0.1125	0.0004	−0.0911	0.0046	−0.1063	0.0009	−0.0850	0.0079	−0.1183	0.0002	−0.0751	0.0228
Immigrants	South and Central America	−0.1122	0.0000	−0.1775	0.0000	−0.1015	0.0000	−0.1314	0.0000	−0.0712	0.0000	−0.0989	0.0000	−0.1226	0.0000	−0.1288	0.0000
Second generation	South and central America	−0.1658	0.0000	−0.1349	0.0001	−0.1365	0.0000	−0.0976	0.0049	−0.1205	0.0002	−0.0888	0.0100	−0.1657	0.0000	−0.1345	0.0001
Others		−0.0375	0.0000	−0.0282	0.0000	−0.0428	0.0000	−0.0352	0.0000	−0.0367	0.0000	−0.0305	0.0000	−0.0374	0.0000	−0.0283	0.0000
Constant		0.8181	0.0000	0.7944	0.0000	0.6764	0.0000	0.6003	0.0000	0.5687	0.0000	0.4501	0.0000	0.8185	0.0000	0.7938	0.0000
Age FE		yes		yes		yes		yes		yes		yes		yes		yes	
Educational level controls						yes		yes									
Educational level x field controls										yes		yes					
Reason for immigration controls														yes		yes	
R2		0.0519		0.0830		0.0969		0.1314		0.1066		0.1416		0.0542		0.0851	
N		1358362		1296589		1296602		1260613		1292248		1256177		1358362		1296589	

Table A6. Differences in overqualification by immigrant background group and gender. Jobs are defined as the combination of occupation, industry, sector, firm, and municipality. Overqualification is defined by the mean approach. OLS with age fixed effects and controls for educational level (5 levels) educational level x field (286 groups) and stated reason for immigration (work, family, refugee, education, other reasons, a missing category, and a "not relevant" category).

		Men		Women		Men		Women		Men		Women		Men		Women	
		Coef.	P	Coef.	P	Coef.	P	Coef.	P	Coef.	P	Coef.	P	Coef.	P	Coef.	P
Immigrant group	*[ref: Natives]*																
Immigrants	Western Europe (old EU + EFTA)	0,0689	0,0000	0,0630	0,0000	0,0277	0,0000	0,0283	0,0000	−0,0056	0,0155	−0,0182	0,0000	0,0450	0,0000	0,0454	0,0000
Second generation	Western Europe (old EU + EFTA)	0,0071	0,5117	0,0214	0,0594	−0,0104	0,3270	0,0101	0,3611	−0,0128	0,2188	0,0033	0,7603	0,0072	0,5072	0,0215	0,0583
Immigrants	New EU countries	0,1041	0,0000	0,1969	0,0000	0,1155	0,0000	0,1820	0,0000	0,1142	0,0000	0,1043	0,0000	0,0506	0,0000	0,1395	0,0000
Second generation	New EU countries	0,0014	0,9375	0,0223	0,2514	−0,0114	0,4971	0,0178	0,3223	−0,0176	0,2804	0,0072	0,6634	0,0016	0,9286	0,0227	0,2443
Immigrants	Canada, USA, Australia, NZ	0,1115	0,0000	0,1439	0,0000	0,0250	0,0052	0,0738	0,0000	−0,0516	0,0000	−0,0355	0,0008	0,0739	0,0000	0,1031	0,0000
Second generation	Canada, USA, Australia, NZ	−0,0072	0,8226	0,0568	0,2096	−0,0334	0,2476	0,0141	0,7557	−0,0342	0,1888	−0,0003	0,9954	−0,0075	0,8149	0,0565	0,2114
Immigrants	MENA *	0,0651	0,0000	0,0266	0,0000	0,0805	0,0000	0,0581	0,0000	0,0623	0,0000	0,0393	0,0000	0,0454	0,0000	0,0074	0,0914
Second generation	MENA *	0,0037	0,6659	0,0012	0,8916	0,0081	0,3101	0,0114	0,1621	0,0169	0,0334	0,0144	0,0673	0,0044	0,6002	0,0023	0,7831
Immigrants	Asia ++ **	0,0778	0,0000	0,1138	0,0000	0,0733	0,0000	0,1252	0,0000	0,0511	0,0000	0,0825	0,0000	0,0517	0,0000	0,0783	0,0000
Second generation	Asia ++ **	0,0067	0,4613	0,0172	0,0852	−0,0053	0,5361	0,0133	0,1713	−0,0005	0,9489	0,0190	0,0395	0,0075	0,4127	0,0183	0,0666
Immigrants	Africa, excluding MENA	0,0984	0,0000	0,0270	0,0000	0,1029	0,0000	0,0646	0,0000	0,0780	0,0000	0,0453	0,0000	0,0724	0,0000	0,0077	0,1769
Second generation	Africa, excluding MENA	0,0766	0,0599	0,0656	0,0910	0,0722	0,0600	0,0513	0,1699	0,0809	0,0223	0,0247	0,4843	0,0774	0,0576	0,0667	0,0860
Immigrants	South and Central America	0,1156	0,0000	0,1311	0,0000	0,0963	0,0000	0,1280	0,0000	0,0579	0,0000	0,0678	0,0000	0,0925	0,0000	0,0969	0,0000
Second generation	South and Central America	−0,0187	0,4900	−0,0042	0,8968	0,0081	0,7701	0,0146	0,6361	0,0077	0,7834	−0,0103	0,7082	−0,0181	0,5047	−0,0032	0,9205
Others		0,0125	0,0000	0,0122	0,0000	−0,0054	0,0007	−0,0009	0,5552	−0,0058	0,0003	−0,0058	0,0001	0,0127	0,0000	0,0123	0,0000
Constant		0,0814	0,0000	0,1004	0,0000	0,0017	0,4068	0,0099	0,0000	−0,0357	0,0000	−0,0229	0,0000	0,0810	0,0000	0,0997	0,0000
Age FE		yes		yes		yes		yes		yes		yes		yes		yes	
Educational level controls						yes		yes									
Educational level x field controls										yes		yes					
Reason for immigration controls														yes		yes	
R2		0,0133		0,0300		0,0983		0,0929		0,1546		0,1778		0,0141		0,0315	
N		704450		693901		704450		693901		703308		692704		704450		693901	

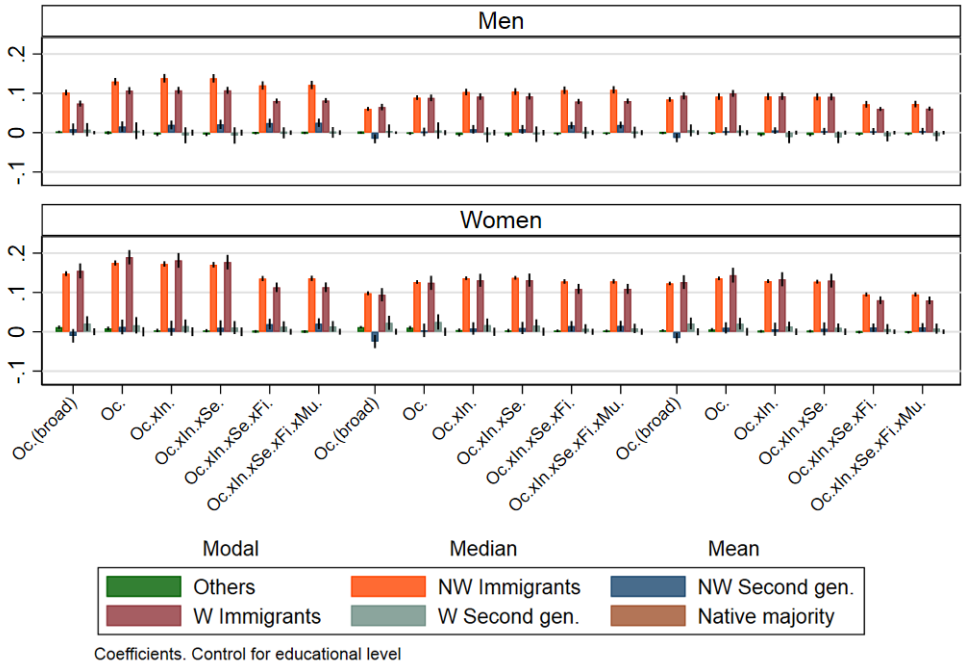

Figure A2. Differences in overqualification between non-western immigrants, non-western second generation, western immigrants, western second generation, others, and the native majority. 36 models estimated with age fixed effects and controls for educational level (5 levels). Note: Non-western (NW) countries include the country groups MENA, Asia ++, Africa excluding MENA and South and Central America.

Figure A3. Differences in overqualification between immigrants and the second generation from seven country-of-origin groups, others, and the native majority by sector. Notes: 4 models estimated with age fixed effects and controls for educational level (5 levels).

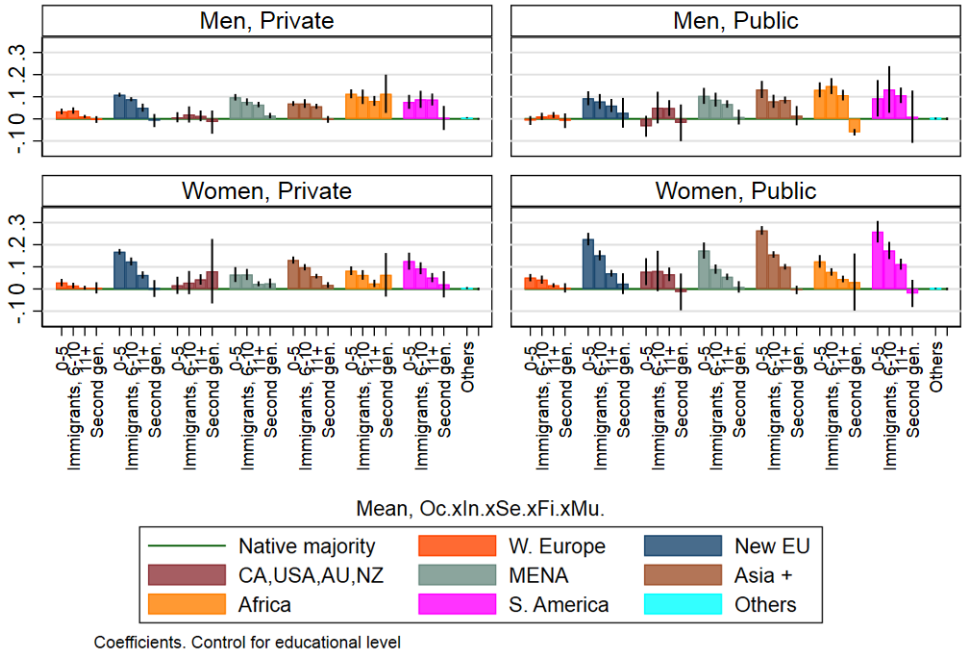

Figure A4. Differences in overqualification between immigrants, by time since immigration and seven country-of-origin groups, the second generation from seven country-of-origin groups, others, and the native majority. Note: 4 models estimated with age fixed and controls for educational level (5 levels).

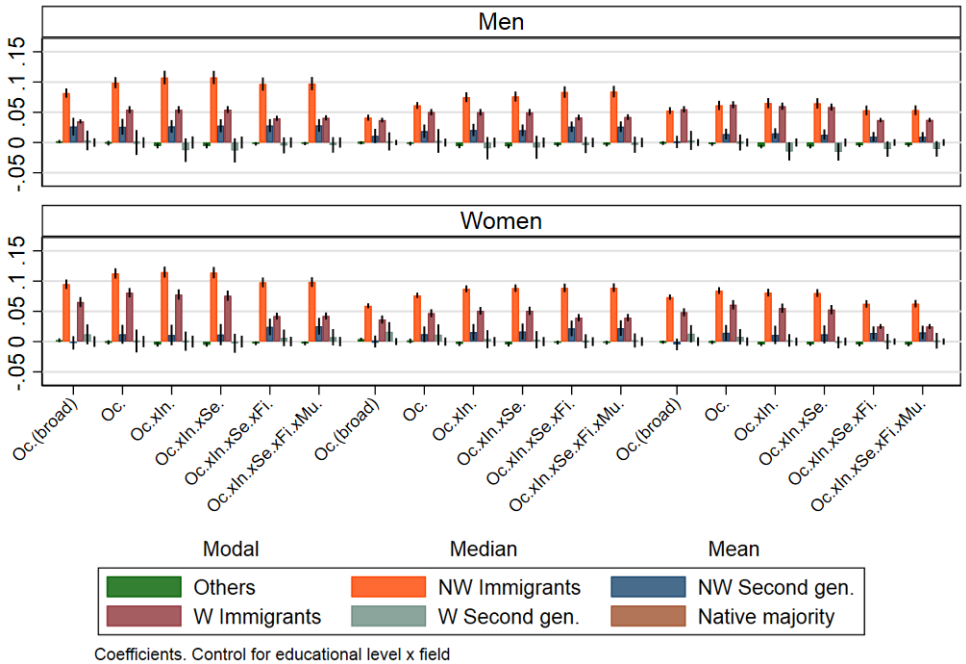

Figure A5. Differences in overqualification between non-western immigrants, non-western second generation, western immigrants, western second generation, others and the native majority. 36 models estimated with age fixed effects and controls for educational level x field (286 groups). Note: Non-western (NW) countries include the country groups MENA, Asia ++, Africa excluding MENA and South and Central America.

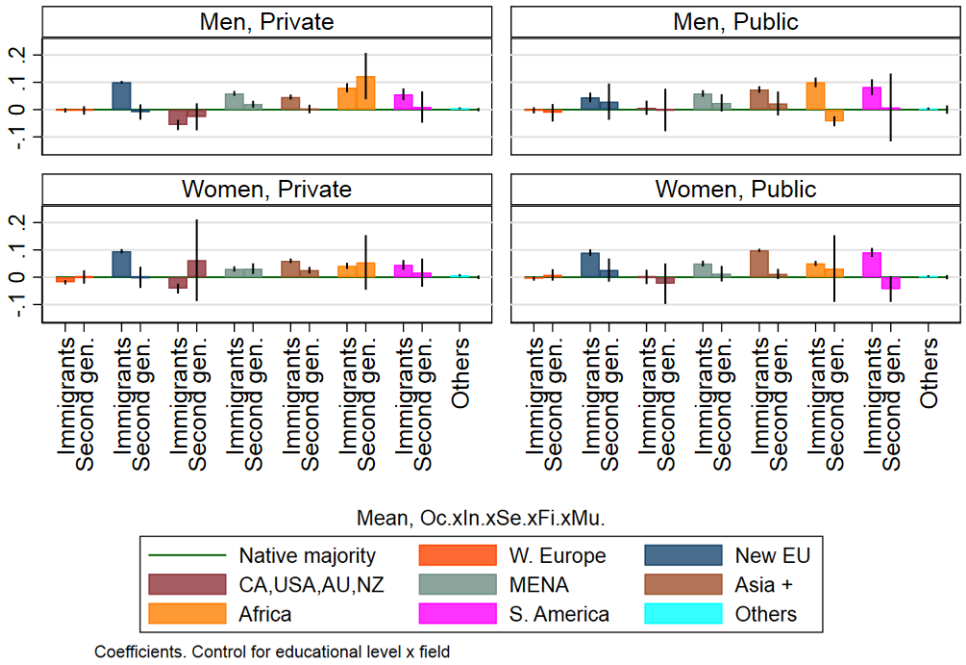

Figure A6. Differences in overqualification between immigrants and the second generation from seven country-of-origin groups, others, and the native majority by sector. Note: 4 models estimated with age fixed effects and controls for educational level x field (286 groups).

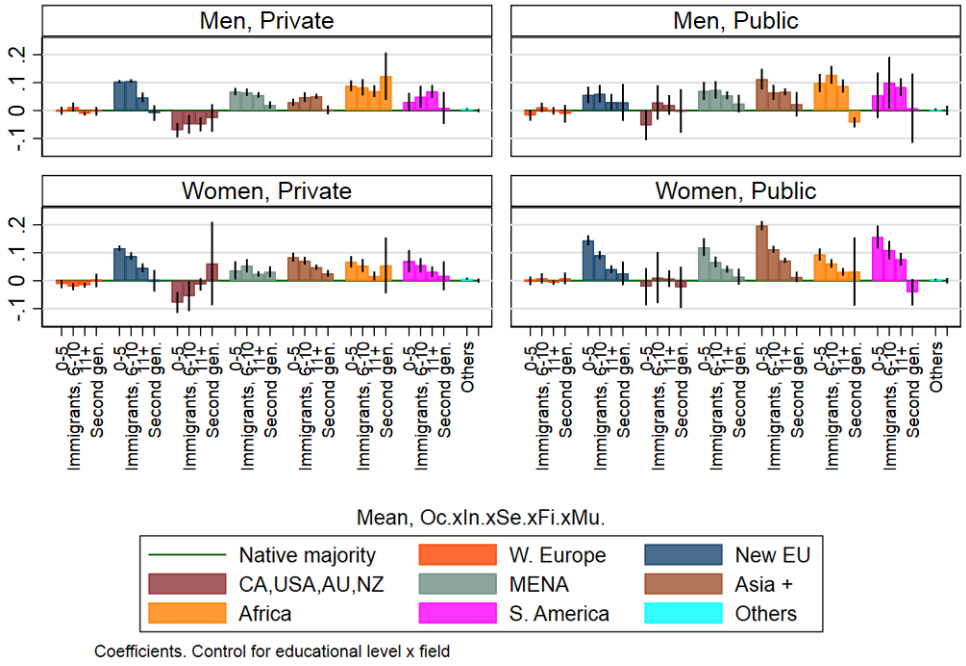

Figure A7. Differences in overqualification between immigrants, by time since immigration and seven country-of-origin groups, the second generation from seven country-of-origin groups, others, and the native majority. Note: 4 models estimated with age fixed effects and controls for educational level x field (286 groups).

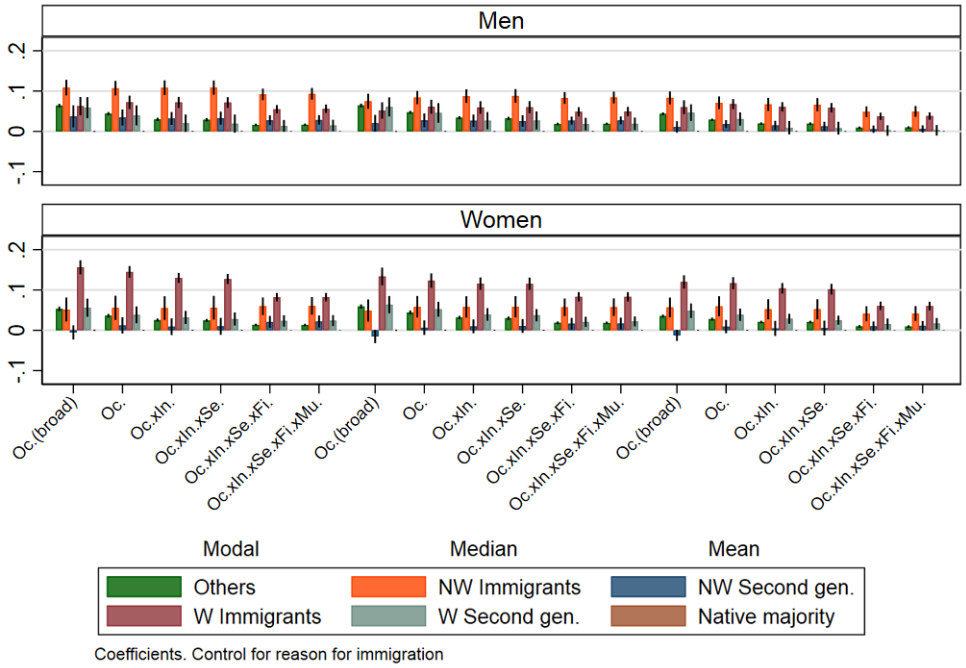

Figure A8. Differences in overqualification between non-western immigrants, non-western second generation, western immigrants, western second generation, others, and the native majority. 36 models estimated with age fixed effects and controls for stated reason for immigration (work, family, refugee, education, other reasons, a missing category, and a "not relevant" category). Note: Non-western (NW) countries include the country groups MENA, Asia ++, Africa excluding MENA and South and Central America.

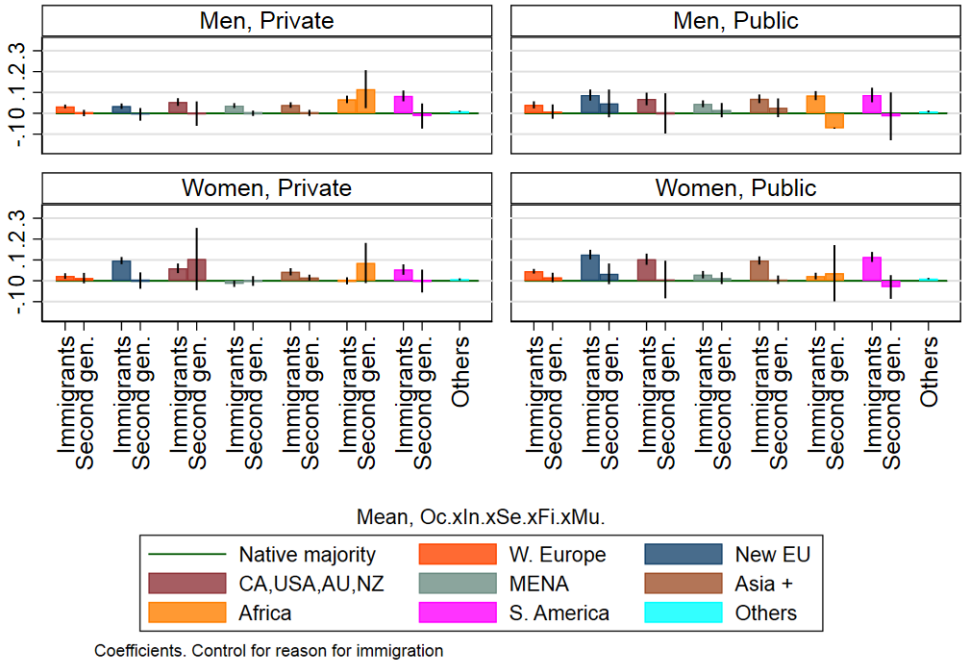

Figure A9. Differences in overqualification between immigrants and the second generation from seven country-of-origin groups, others, and the native majority by sector. Note: 4 models estimated with age fixed effects and controls for stated reason for immigration (work, family, refugee, education, other reasons, a missing category, and a "not relevant" category).

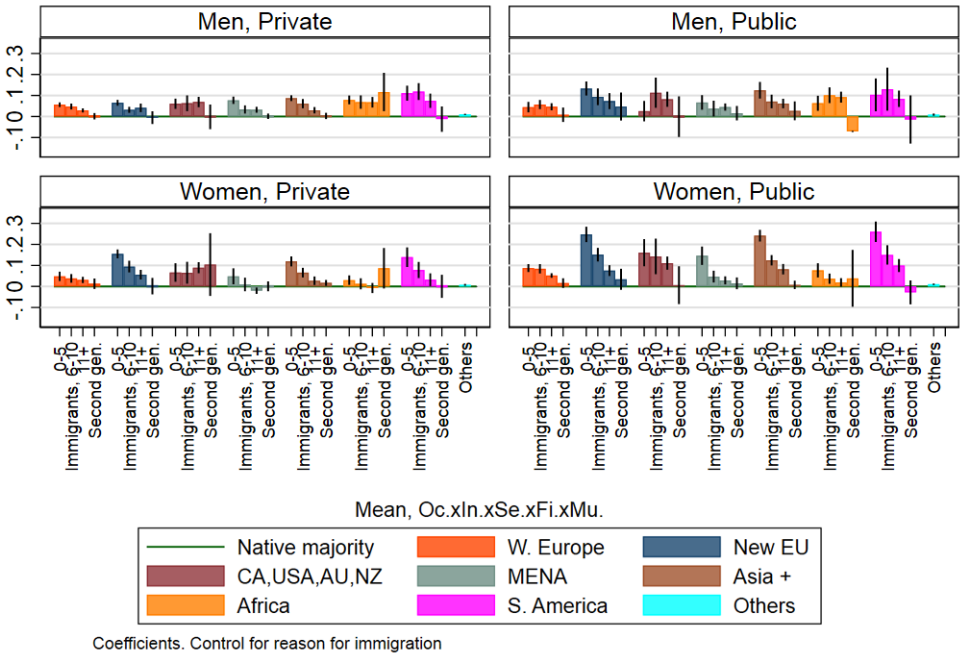

Figure A10. Differences in overqualification between immigrants, by time since immigration and seven country-of-origin groups, the second generation from seven country of origin groups, others, and the native majority. Note: 4 models estimated with age fixed effects and controls for stated reason for immigration (work, family, refugee, education, other reasons, a missing category, and a "not relevant" category).

Figure A11. Differences in overqualification between immigrants and the second generation from seven country-of-origin groups, others, and the native majority by educational level. Note: 4 models estimated with age fixed effects and controls for stated reason for immigration (work, family, refugee, education, other reasons, a missing category, and a "not relevant" category).

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Article

Incorporation of Immigrants and Second Generations into the French Labour Market: Changes between Generations and the Role of Human Capital and Origins

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Abstract
This article analyses the labour market incorporation of migrants and second-generation minorities in France. Using the 2013–2017 French Labour Surveys and the 2014 adhoc module, we focus on labour market outcomes—activity, employment, occupation and subjective overqualification—and measure the gaps between ethnic minorities and the majority group by origins, generation and by gender. In order to elucidate the mechanisms behind these gaps and explain ethnic disadvantages for immigrants, we take into account different factors, such as education, and factors linked to migration—duration of stay in France, language skills, foreign qualifications, nationality—with additional controls for family, socioeconomic and contextual characteristics. We also investigate the returns to higher education among second-generation minority members compared to the majority population. We show large differences by country of origins, generation and gender. Across generations, most minority members have made clear progress in terms of access to employment and skilled jobs, but ethnic penalties remain for the descendants of North-Africa, Sub-Saharan Africa and Turkey. In contrast, Asian second-generation men and women encounter slight advantages in attaining highly-skilled positions. Controlling for tertiary degrees even increases the gap with majority members mostly in access to highly-skills jobs.

Keywords
discrimination; employment; France; human capital; immigrants; labour market; returns to higher education; second generation; skilled workers

Issue
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1. Introduction

In a context of increasing immigration into Europe, the issue of the integration of migrants and their children lies at the heart of current social, economic and academic debates. Their labour market incorporation is an important issue with consequences for economic integration, social mobility and cohesion.

Immigration in France is an old phenomenon with records of migrant waves since the 19th century (Noiriel, 1988). Immigrants and their descendants constitute a diverse population, and successive waves of immigration have contributed to this diversity (Beauchemin, Hamel, & Simon, 2016; Brutel, 2014). Second generations from more recent waves of migrations (e.g., from Turkey or South-East Asia) are now in the labour market and may be compared with earlier waves such as those from EU15 countries or North-Africa.

This article analyses the labour market outcomes of immigrants and second-generation minorities in France by comparing these groups to the majority population. We aim at measuring the gaps between generation, country of origin and by gender in order to analyse whether there is an improvement or persistence of eth-

nic inequalities across generations over time. We also focus on the transferability of educational qualifications. Human capital is an important factor for the obtainment of skilled and stable jobs. It is often assumed that the second generation, socialized and educated in France, should be able to catch up with the majority population in terms of its situation in the labour market. However, scholarly debate in the United States between the assimilation perspective (e.g., Alba & Nee, 2003) and the segmented assimilation perspective (e.g., Portes & Rumbaut, 2001; Portes & Zhou, 1993) is relevant for the French case.[1] A number of previous studies in France have shown disadvantages in access to employment, particularly pronounced for those with North-African and Sub-Saharan Africa origins (e.g., Brinbaum & Guégnard, 2013; Brinbaum & Werquin, 1997, 2004; Frickey & Primon, 2006; Meurs, Pailhé, & Simon, 2005, 2006; Silberman, Alba, & Fournier, 2007; Silberman & Fournier, 1999; etc.). These disadvantages appear to be reduced and disappear for the second generations when wages are considered (Aeberhardt, Fougère, Pouget, & Rathelot, 2010; Boumahdi & Giret, 2005; Dupray & Moullet, 2004), but exist, in a lesser extent, as to early career job quality (Brinbaum & Issehnane, 2015).

However, only some research compares the labour market situation of first and second generations due to the lack of the data and the size of the samples by origins in the surveys (in general population), but also because of the difficulties of comparison. Therefore, most research have been focused on the second generation: born and educated in France, they are more comparable and should be able to catch up with the majority population.

The Trajectories and Origins Survey, conducted in 2008, allows us to analyse labour market outcomes for immigrants and their descendants (Beauchemin et al., 2016). In comparison to the majority population, we observe ethnic penalties in employment for non-European immigrants and their descendants, both among men and women (Brinbaum, Meurs, & Primon, 2016). Differences are also observed among second generations by gender (Brinbaum & Primon, 2013b). It is important to investigate whether the same patterns can be observed now, as the economic crisis may have accentuated the gaps.

Among immigrants, a number of other factors may shape labour market insertion, such as language skills, the recognition of foreign qualifications, and the role of nationality. Without knowledge of the language, it may be difficult to assert one's skills in the labour market (Chiswick & Miller, 2014). Recognition of foreign qualifications and transferability of skills into skilled jobs may indeed be a strong barrier for the economic integration of immigrants in Europe (Damas de Matos & Liebig, 2014). These dimensions are rarely considered because of lack of data, and some variables linked to the experience of migration remain unobservable in the surveys.

We further study the effect of having a tertiary degree on the employment prospects and access to skilled positions among second-generation minority members.

This article constitutes an important contribution to the debate. We use recent data: the French Labour Force Surveys (LFS) from 2013 to 2017 and the 2014 adhoc module. Furthermore, we focus on a variety of labour market outcomes such as activity, employment, occupation and perceived over-qualification to build a comprehensive picture of labour market insertion. We compare the situation in the labour market of both immigrants and descendants from earlier and more recent waves of immigration, while taking into account heterogeneity and diversity of both origins and gender. First, we describe and measure the gaps between majority and minority members—with controls for education and socioeconomic and contextual characteristics (or "ethnic penalties", to refer to Heath & Cheung, 2007)—by groups of origin, generation and gender. Secondly, we focus on the factors affecting this disadvantage. In one hand, we examine whether the remaining gaps among immigrants can be explained by duration of stay in France, language skills, education (received in France or abroad), nationality, which, importantly, have been captured in the surveys which we are using. On the other hand, we test the impact of the possession of tertiary degrees among second-generation minority members.

2. Data and Methodology

This study uses data from the French Labour Force Survey (LFS), a nationally representative dataset, gathered by the French National Institute of Statistics and Economic Studies (INSEE). A pooled sample has been built from 2013 to 2017, using data from the four quarters of each year, and the two first quarters of 2017. This provides rich and recent data on labour market outcomes which allows us to distinguish between the majority population, migrants and minorities. Moreover, generation and country of origin differences have been recorded. Additionally, we use the 2014 adhoc module that contains important information on immigrant's outcomes. The sample of this survey is too small for detailed generational analysis.

Our analysis is focused on respondents aged 18 to 64. Students, people in adult education or in training are excluded. We compare the labour market outcomes of migrants and second generation minorities to the outcomes of the majority group in France, differentiating between men and women. France here concerns Metropolitan France, our sample consisting of 595,214 men and 630,440 women—and among the active, re-

[1] According to the assimilation perspective, over time and generation, ethnic differences would be reduced (Alba & Nee, 2003). According to the segmented assimilation perspective, changes in the labor market context and the racialization of contemporary migrants would reduce opportunities for social mobility that were afforded to European immigrants. The second generation might experience high levels of discrimination and downward assimilation (Portes & Rumbaut, 2001; Portes & Zhou, 1993).

spectively, 491,318 men and 467,133 women. We excluded those with missing data on diploma (N = 2723) because this is a key variable for our study.

The origin variable is based on the respondents' place of birth, their parent's country of birth and nationality at birth. Individuals born outside France and foreign at birth are defined as immigrants. The second generation is defined as those born in France with at least one immigrant parent. The reference group, the majority population, includes individuals born in France whose parents are French at birth and born in France. We retain seven countries or areas of origins; for each, we distinguish first (born abroad) and second generations (born in France): EU15 and EU13 countries, Maghreb (Algeria, Morocco, Tunisia), Other Africa (or Subsaharan-Africa), Turkey, South-East Asia (Vietnam, Laos, Cambodia, China) and Other Asia. Among Europeans we distinguish between those from EU15 members (without France) and those from EU13 countries, the new EU members from East countries. The last category, with "other countries", is included in the analyses, but we don't present the outcomes on account of its heterogeneity. Table A1 in Annex presents the sample sizes by origin groups.

We focus on four outcomes: the probability of being employed (rather than unemployed or inactive, an indicator which measures the labour market participation and share of inactivity),[2] the probability of being employed (rather than unemployed) among the active, as well as the probability of holding managerial and professional positions. This indicator is based on the current job occupation of the respondent, and ISCO-08 categories are used to measure highly-skilled jobs. Additionally, among immigrants, we analyse the probability of assessing oneself as overqualified; this subjective question on overqualification, in considering its own qualifications and skills, is only available in the adhoc module.

To give an overview of the employment patterns by generation status, country of origin and by gender (see Section 3.1), we first look at descriptive statistics to examine gross differentials (in percentages). All descriptive analyses are weighted. We then use multivariate analysis to measure the ethnic gaps (net of controls) for each labour market indicator (see Section 3.2).

Multivariate analyses are conducted separately by gender and introduce controls for factors that can explain the gaps: age, age squared, family situation activity and partner's activity (whether respondents have a partner or not and whether the partner is employed, unemployed or inactive), the number of children (no child, one, two or more), education measured by the highest diploma, self-reported health, place of residence, and the year of survey. Regarding education we distinguish between no diploma, vocational diploma—in lower secondary education—baccalaureate—high school diploma or equivalent—post-secondary degree—two-year degree after the baccalaureate—and more; on place of residence we distinguish whether they live in "zus", segregated areas—which have been shown to affect employment—in Paris or outside Paris. Through logistic regressions we estimate differences in the probability of employment (first for all individuals and then for the active), of accessing skilled jobs and of feeling overqualified. We report average marginal effects in the tables.

We use different analyses for migrants (see Section 3.3.1) and second generations (Section 3.3.2) to test specific hypotheses. For immigrants, based on the adhoc module, we include men and women and add gender as a control. We further include an indicator of nationality (foreign/French), duration of stay in France, linguistic skills or French knowledge (fluent French or mother tongue, difficulties with written or spoken French). In Table 3, we report the odds ratios from the logistic regression for some dependent variables, as we are mainly interested in the effect of ethnic origins, education and the factors linked to migration. Then, we investigate whether higher educational qualifications benefit migrants and whether having obtained any post-secondary degree in France or not ameliorates the prospects of immigrants in line with the human capital framework.

For the analysis focused on second generations compared to the majority, based on the LFS Surveys, we estimate whether higher education benefits the second generation. We include an interaction term between origin groups and highest diploma in order to compare the highly educated—those with a tertiary degree—and the lower educated—those with at most a secondary diploma. We report results as the difference in predicted probabilities for each outcome and minority group compared to similarly qualified majority member workers, estimated at the grand margin. We would expect lower ethnic gaps.

3. Findings

3.1. An Overview of Employment Patterns by Generation, Groups of Origins and Gender

Minorities individuals and the majority population differ in terms of individual and socio-demographic characteristics such as age, level of education, number of children, place of residence, etc. In particular, age structure varies a lot between different migrant groups. Second generation minority members are younger on average than the majority population though this pattern differs by origin. The proportion of people under 30 is particularly high among individuals with Turkish descent (59%), from other Asian countries (55%) and Other African countries (54%), which constitute more recent waves of migration. This rate is lower for descendants from EU15 countries (16%), which represent earlier waves of migration (the mean age for the latter is similar to those of the majority

[2] This is the International Labour Organization's definition: active people include all persons who have been in paid employment during a reference week, just prior to the date of survey.

population, at 17%).[3] It's interesting to analyse the situation in the labour market of groups from more recent waves of migration, less known, because they were too young in previous surveys and they are now numerous in the labour market.

The level of education varies largely between the origin groups and by generation. They live in different contexts: some groups, such as minorities from Maghreb and Sub-Saharan Africa live more in segregated areas than the majority members (between 17% and 26% versus 3% for the majority population in our data).

Table 1 distinguishes labour market outcomes by gender and generation. There are clear differences between men and women by generation in respect to inactivity. Here, employment rate is defined as the percentage of persons employed rather unemployed or inactive. Overall, the employment rate is lower for first- and second-generation minority members compared to the majority population, with large differences by country of origin.

Among men, employment is high and similar to that of the majority population of the second generations from EU15 countries and minorities from South-East Asia. In contrast, the second generations from EU13 countries and from Maghreb, as well as minorities (both generations) from Turkey and Sub-Saharan-Africa, are less likely to be employed. For the active, the picture changes a little; in particular, the second generation from EU15 and EU13 members catch up with majority members, while the employment rate remains low for minority members from Africa and Turkey. Surprisingly, for some groups, such as South-East Asians, Sub-Saharan-Africans and Turks, immigrants are more likely to be employed than the descendants of immigrants.

Among women, we observe huge differences between generations for some groups. While the employment rate appears very high for second-generation women from EU15 countries and close to that of the majority population; it is much lower for those coming from EU13 countries, Maghreb, Sub-Saharan Africa and Turkey, with significant differences between generations. Hence, only 24.5% of first-generation Turkish women are employed and more than 50% are inactive (66%). In comparison, 44% of their descendants are employed, which is still low, but an increase across generations has been observed. Among North Africans, the employment rate goes from 35% to 60% (respectively from 46.5% to 74% for Other Asians) across generations. Low participation in the labour market is particularly widespread among women coming from Muslim countries. This reflects different cultural attitudes and relationships to the activity in the country of origin (these factors cannot be observed in this survey). Hence, the change across genera-

Table 1. Labour market outcomes by country of origin, generation and by gender (in %). Source: INSEE Labour Force Survey 2013–2017, excluding people in education or in training.

		Men			Women		
		Employed	**Employed** among active	**Occupation** High skilled jobs	**Employed**	**Employed** among active	**Occupation** High skilled jobs
Majority		77,1	91,6	24,1	71,1	91,9	22,1
EU15	1st	73,4	92,1	21,3	66,9	91,9	18,7
	2nd	77,2	91,3	21,5	70,8	91,4	19,3
EU13	1st	74,0	84,3	20,3	60,4	84,1	25,4
	2nd	63,4	91,3	32,1	57,5	93,0	25,1
Maghreb	1st	62,3	76,3	13,0	35,4	75,8	10,3
	2nd	65,3	75,9	14,9	59,6	81,3	15,1
Other Africa	1st	71,3	81,0	13,2	57,0	79,8	6,5
	2nd	65,6	77,1	14,2	59,6	77,2	13,9
Turkey	1st	65,7	79,4	4,5	24,5	71,4	2,4
	2nd	64,8	74,5	7,5	43,9	74,0	5,3
SouthEast Asia	1st	78,4	91,4	27,1	64,9	90,1	19,4
	2nd	77,3	85,6	29,4	75,6	90,8	32,6
Other Asia	1st	75,3	86,7	28,1	46,5	84,2	20,0
	2nd	72,7	85,0	33,4	74,3	89,3	35,1

[3] Immigration from Spain and Italy were earlier waves of immigration in the 1930s and, later, from Portugal, since 1970. Immigration from Algeria after the Second World War and from Morocco, from the late 1960s, constitute regular flows. Since the 1960s, immigration concerns more African countries (out of Maghreb) and Asian countries, through the flows are less important.

tions is particularly striking: the employment rate of the second generation surpasses the one of the first generation, except for the EU13 countries. Overall, second generations tend to adopt the model of the majority population. Among the active, the differences in employment between generations are smaller.

In terms of access to skilled jobs, access to a managerial or professional position varies largely by generation and origin groups.

Among men, Asian minorities and the EU13 second generations have the highest occupational attainment (between 27% and 33%), exceeding that of majority members (24%) while North-African and Sub-Saharan African origins have poor attainment. This lagging behind holds in both the first and second generations of North African descent. Among Europeans, outcomes differ more for occupation than for employment. While men from EU15 countries have a high employment rate, they are less likely to hold skilled jobs. The second generations from EU13 countries is more likely to access good position than the first generations, indicating a polarization within this group.

Among women, we note a progress from one generation to the other, with a higher proportion of skilled workers among the descendants of immigrants for almost all the origin groups. Skilled workers are particularly numerous among Asian second generation women (who surpass the first one and the majority population to reach more than 30% with very good occupational attainment). Yet, they are very few women in the Turkish origin group with good positions (respectively, 2.4 and 5.3% for first and second generation).

The percentage of high skilled workers has increased over time, with the evolution of educational attainment, both in the countries of origins and in the host country. However, levels of education differ largely by origin group, generation and by gender (see Table A2 in Annex). First, we highlight a large progress from the first generation to the second one for almost all groups, except for the women from EU13 countries. The progress is huge in particular for women of Maghrebian, Sub-Saharan Africa and Turkish origin; the change between generations is even more pronounced when we include the inactive. However, the rate of higher educated remains quite low for the Turkish second generation (for both genders), while it appears particularly high among Asian second-generation men and women,[4] who even surpass the majority population. This is consistent with previous French research that highlights the success in school careers of the South-East Asian second generation, and the low educational attainment of second generation Turks (Brinbaum & Primon, 2013a). These results reflect also differences in social origins by ethnic groups, linked to the selectivity of migration (Feliciano, 2006) and the predominant role of social background for explaining the differences in educational attainment between the second generation and the majority population (Heath & Brinbaum, 2007).

The trend is starkly different among men, as the share of highly educated is lower among Maghrebians and Sub-Saharan African second generation, and even lower for the descendant of Turks. This can be explained by the lower school careers of men and the fact that men were more likely to get vocational diplomas than women. It also reflects the huge proportion of people without diploma which can be responsible for their labour market difficulties.

3.2. Multivariate Analysis: Measuring the Gaps in Employment and Occupation

These differences can be related to the structural differences between the majority population and minorities, in terms of individual and socio-demographic characteristics (such as age, level of education, family situation, number of children and place of residence). All these factors have an impact on labour market outcomes, as it has been shown in previous research. Therefore, we use logistic regressions to measure the gaps and disentangle the effects of origins, once controlling for socio-demographic characteristics, education and place of residence (see Section 2 on methodology). Table 2 focuses on these gaps. Some large negative associations have been observed, indicating ethnic penalties, both in employment and occupation, for first and second generation men and women. We furthermore observe important differences between groups.

Among men, once controlling for compositional differences, the gaps (to the majority population) are reduced but remains negative for all groups, except for Europeans from EU15 countries and for South-East Asian second generation. The gaps are huge for some groups, e.g., individuals from African countries and immigrants from new EU member states, EU13 immigrants, and furthermore among Turkish immigrants. For most groups there is a reduction of the gap except for the Maghrebians, Asians and, to a lesser extent, for Sub-Saharan-Africans, for whom the gaps are similar for both generations.

Among women, as noticed previously, the gaps are particularly high in the first generation and reflect the lower labour market participation of new EU members (EU13) and some non-European groups, even controlling for socio-demographic characteristics. The gaps have diminished with the control of education in the model but remain large for the first generations (19.7 points for EU13; 30 points for Maghreb; 34.6 for Other Asia; 41.6 points for Turks). The second generation of these groups is still penalized compared to the majority population, except for the descendants of Southeast Asian.

Among the active, the trend is quite similar for men with a reduction of a few points, but the picture dif-

[4] Among Asians, we highlight a polarization among the first generation, with a group of lower educated and a large group of higher educated, while there is a high proportion of higher educated people among migrants from other Asian countries.

Table 2. Estimated gaps in labour market outcomes from Majority population by gender. Source: INSEE Labour Force Survey 2013–2017, excluding people in education or in training.

		Men			Women		
		Probability to be employed	**Probability to be employed among active**	**Probability to hold high skilled jobs**	**Probability to be employed**	**Probability to be employed among active**	**Probability to hold high skilled jobs**
		M1	M2	M3	M1	M2	M3
Ref. Majority		Coef/SE	Coef/SE	Coef/SE	Coef/SE	Coef/SE	Coef/SE
EU15	1st	0,004	−0,005**	−0,036***	−0,010***	−0,008***	−0,024***
		0,003	0,002	0,003	0,004	0,002	0,003
	2nd	−0,004*	−0,002	0,002	−0,013***	−0,005***	−0,011***
		0,003	0,002	0,003	0,003	0,002	0,002
EU13	1st	−0,097***	−0,063***	−0,056***	−0,197***	−0,077***	−0,060***
		0,012	0,008	0,007	0,011	0,008	0,003
	2nd	−0,032***	−0,011*	0,019**	−0,023***	0,002	−0,001
		0,008	0,006	0,009	0,009	0,006	0,007
Maghreb	1st	−0,142***	−0,107***	−0,092***	−0,303***	−0,105***	−0,069***
		0,004	0,003	0,002	0,004	0,004	0,002
	2nd	−0,144***	−0,076***	−0,037***	−0,147***	−0,047***	−0,030***
		0,004	0,003	0,003	0,004	0,003	0,002
Other Africa	1st	−0,105***	−0,076***	−0,103***	−0,125***	−0,068***	−0,082***
		0,006	0,004	0,002	0,005	0,004	0,002
	2nd	−0,092***	−0,038***	−0,029***	−0,080***	−0,040***	−0,037***
		0,009	0,005	0,007	0,010	0,005	0,005
Turkey	1st	−0,085***	−0,054***	−0,091***	−0,416***	−0,098***	−0,091***
		0,008	0,005	0,005	0,009	0,010	0,004
	2nd	−0,037***	−0,019***	−0,034**	−0,205***	−0,042***	−0,060***
		0,011	0,005	0,015	0,015	0,008	0,008
SouthEast Asia	1st	0,025***	−0,018***	−0,040***	−0,089***	−0,026***	−0,059***
		0,009	0,007	0,007	0,011	0,007	0,004
	2nd	−0,068	−0,028***	0,022*	0,014	0,012**	0,022**
		0,014	0,008	0,013	0,014	0,006	0,010
Other Asia	1st	−0,047***	−0,049***	−0,066***	−0,346***	−0,089***	−0,072***
		0,009	0,006	0,005	0,009	0,009	0,003
	2nd	−0,069***	−0,013	0,012	−0,053**	−0,019*	−0,011
		0,019	0,009	0,016	0,022	0,010	0,010

Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Estimated gap in the predicted probability of being employed (for all and among active) or accessing professional and managerial positions compared to the majority population, from logistic regression controlling for age (squared), family situation, education, year of survey, place of residence and health. Marginal effects are reported.

fers for women. The immigrants' gaps are considerably reduced compared to the first model. However, ethnic penalties in employment are observed for all immigrant men and women. We observe minor gaps for EU15 members and South-East Asians and larger gaps for EU13, Maghrebian and Sub-Saharan African groups, and to a lesser extent for Turks and other Asians (lower gaps in any case for men than for women).

We also observe a decrease of the gaps across generations. Nevertheless, the ethnic penalties remain significant however for the North-African, Sub-Saharan African and Turkish second generation men and women, and for South-East Asians (only for men, a positive association is observed among women). There is no difference (or little difference, less than 1 point) between the majority population and European or Asian second generation individuals.

In terms of occupational attainment, we observe disadvantages in access to high skilled occupations for all migrants, men and women. Again, we highlight important changes across generations, with a notable reduction of the gap between first and second generation individuals (Table 2, M3). However, ethnic penalties persist for both gender among the descendants of North African, Sub-Saharan African immigrants (2 to 4 points) and Turks (almost 6 points for women). Slight advantages are ob-

served for South-East Asian second generations and the men of EU13 origins.

Comparing results across both outcomes show higher gaps in employment than in occupation for the North-African second generation (with larger differences for men), while there are higher gaps in occupation than in employment for the Turkish second generation (with larger differences for women). The picture is different for Europeans or Asian individuals, with little negative gaps in employment that become even positive when attaining a high skilled position is considered. These patterns hold for both SE Asian second generation men and women. Slight advantages are also observed for the second generation EU13 men.

Other factors play a role in employment and occupation. In all models (Table 2), tertiary degrees have the highest effect on the probability of employment and having a high skilled position. Hence, people without qualifications have significantly less chance to be employed and logically to access high skilled positions, while Tertiary educated individuals have better prospects (even higher when they got more than a bachelor's degree). Moreover, place of residence is an important factor. Living in a segregated area, where minorities are numerous, decreases both the employment probability and access to skilled positions of minority individuals. This can be due to spatial mismatch—that is to say economic deprivation can have a debilitating effect among individuals of different groups. More longitudinal research is needed for this pattern to be disambiguated.

3.3. Mechanisms and Factors Explaining the Gaps

3.3.1. Returns of Foreign Educational Qualifications and Role of Language Skills for Immigrants

Among immigrants, disadvantages remain for most of the groups in both employment and occupation. However, the difference from majority members can be explained by human capital and other factors related to the experience of migration, such as duration of stay in France, nationality, the problem of recognition of qualifications, language skills and more (Chiswick & Miller, 2014), as well as the lack of knowledge of the functioning of the French labour market and lack of suitable networks. Do these factors explain the observed gaps? To answer this question, we use additional analyses focusing on immigrants, and using the 2014 adhoc module which contains some important variables, rarely present in other surveys. We take advantage of this data, despite its limitations to improve the understanding of the mechanisms leading to labour market integration. As these factors do not relate to the majority members, we look at the associations of these variables with labour market outcomes among migrants with a new reference group: the first generation of European immigrants (from EU15).[5]

Table A3 in the Annex gives us some descriptive statistics by origin group and Table 3 reports the odds of the three regressions for the probability of being employed among the active, of having access to skilled jobs and of feeling overqualified for the current job. For each indicator, we control for the same variables as in Table 2, and add nationality, French knowledge, duration of stay in France, and a combined variable, which indicates whether the individual has a tertiary degree, and whether this is foreign or French qualification (instead of the detailed education variable-based on the highest diploma used in Table 2).

Table 3 M1 shows that all groups are still disadvantaged in terms of employment compared to EU15 immigrants with similar characteristics, even with the control of these additional variables.

While difficulties in speaking or writing in French decrease a little the probability of being employed—and this factor appeared significant once we control for the duration of stay in France, difficulties in both (oral and writing) have no significant effect. Besides, obtaining a tertiary degree in France or outside France does not affect the probability of employment.[6] These outcomes, surprising at first insight, could be explained by the fact that migrants mobilize their social capital and use their personal networks to find a job. This is even more pronounced when French knowledge is low (48% for those who encounter difficulties in speaking or writing found employment through networks, against 28% for those with a good level of French). This trend varies a lot by country of origin: hence, 57% of immigrants from EU15 countries found their current job by deploying diverse networks (mostly family and personal networks; see Table A3 in Annex). Networks are also very efficient for migrants from Turkey (51%) despite of their lower educational attainment, even more than for the majority population (34%). This can foster access to employment, however there is a little or no impact on the access to skilled jobs.[7]

Furthermore, having foreign nationality decreases the probability of employment, insofar that it prevents access to certain jobs (those of public sector) and limits access to jobs due to administrative restrictions (Fougère & Safi, 2005). This effect disappears in access to skilled jobs and as to perceived overqualification.

Even though French knowledge has little effect on the probability of employment, it has a stronger impact

[5] The EU13 category, too small in the adhoc module, has been gathered with the category of other origins, as well as immigrant from Asian countries in another category.

[6] However, when we exclude the knowledge of French in the model, qualifications obtained in France has a positive effect on employment, while this is not the case with tertiary degree obtained abroad. A previous model, with a detailed highest diploma, highlights the positive effect of the higher levels of tertiary degree (more than three years after the baccalaureate) on employment.

[7] Channel of getting a job has been added as explanatory variable to the M2. Finding a job through networks (rather than spontaneous application) increases the access to skilled jobs for men, but not for women.

Table 3. Logistic regressions on labour market outcomes among immigrants (odds ratios). Source: INSEE Labour Force Survey 2014 § adhoc module.

	Probability to be employed (M1)		Probability to hold skilled jobs (M2)		Probability to feel overqualified (M3)	
	Odds	SE	Odds	SE	Odds	SE
Ref. EU15						
Maghreb	0,26***	0,29	0,24***	0,34	2,03***	0,24
Oher Africa	0,24***	0,26	0,32***	0,31	2,20***	0,21
Turkey	0,26***	0,36	0,19**	0,81	1,16	0,38
Asia 0,34***	0,36	0,58	0,39	1,54	0,30	
Others	0,37***	0,30	0.53**	0,31	1,59*	0,24
Women/Men	0,78	0,16	0,60**	0,20	1,00	0,14
Ref. Below						
Tertiary degree: in France	1.35	0,24	25,91***	5,15	1,55**	0,20
outside France	0,88	0,22	11,53***	2,47	2,33***	0,21
Nationality: Ref. French						
Foreign	0.62***	0,17	0,88	0,25	1,3	0,16
Ref. Perfect French or mother tongue						
Difficulties at oral or writing	0,65**	0,21	0,30***	0,32	1,48**	0,19
Difficulties at oral and writing	0,72	0,21	0,27***	0,33	1,45***	0,19

Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Field: immigrants (18 to 64), active (M1) and employed (M2, M3). Controls for age, age2, number of children, place of residence, partner's activity, duration of stay in France.

on access to skilled jobs and feeling of over-qualification. Hence, language skills have a significant effect on the probability of accessing managerial and professional positions (once controlling for educational attainment and socio-demographic characteristics). Migrants with difficulties in French have less chance to gain such positions. Taking into account the strong relationship between diploma and occupation in France, access to these positions gradually increases with the level of education. However, among the Tertiary degree holders, those who obtained their degree abroad (rather than in France) have lower chances of access to these positions. It is difficult to analyse the gaps further with the data, but the patterns observed seem to reflect a lack of human capital and of degree recognition, as well as quality of education—among immigrants who would have liked to have their foreign diploma recognized when they arrived in France, almost a third said that they did not succeed. This is a problem particularly encountered by migrants from less developed countries. A long duration in France (more than 15 years) is positively correlated with access to skilled jobs. Moreover, women are less likely to hold skilled positions compared to men with similar qualifications and characteristics.

Somewhat similar trends emerge for perceived overqualification. Descriptive statistics (in Table A3 in Annex) show that migrants from all groups feel more overqualified than the majority population (16%): almost a quarter of Europeans (EU15) and Asians, 29% of Turkish and 35% of migrants from Maghreb and Sub-Saharan Africa express this feeling. Table 3 M3 shows that compared to Europeans (EU15), the effect of ethnic origins remains significant for perceived overqualification for two groups, the North Africans and Sub-Saharan Africans, the groups who also appear most disadvantaged in access to employment and high skilled occupations. The more educated workers are more likely to express this feeling, but this is amplified when they gained their degree abroad (odds = 2.3). Furthermore, those who have difficulties in French feel more overqualified.

Hence, lack of human capital, through lack of French proficiency or lack of French tertiary qualifications has a significant impact on access to skilled jobs and perceived over-qualification. These results have been observed as to immigrants' wages (Bechichi, Bouvier, Brinbaum, & Lê, 2016). These additional variables explain labour market disadvantages between EU15 migrants and other migrants, though we need further research, with larger samples to disentangle the effect of different factors. Returns to human capital are related to the quality of education, recognition of diplomas and skills in the host country, which is difficult to measure in the LFS. However, ethnic penalties remain and may be attributed to other factors—not measurable in the survey—and discrimination, in line with previous research (see the discussion in Section 3.3.3).

3.3.2. Returns to Higher Education for Second Generations

Table 4 compares the ethnic gaps for the highly educated (with a tertiary degree) and the lower educated (at most

Table 4. Estimated gaps of having post-secondary education (rather than below*) on labour market outcomes for second generation by origin groups and gender. Source: INSEE Labour Force Survey 2013–2017.

		Men		Women	
		Probability to be employed	**Probability to hold high skilled jobs**	**Probability to be employed**	**Probability to hold high skilled jobs**
Ref. Majority		Coef/SE	Coef/SE	Coef/SE	Coef/SE
EU15	Below	−0,004*	0,007***	−0,005**	0,001
		0,002	0,002	0,002	0,002
	tertiary degree	−0,000	−0,037***	−0,005**	−0,041***
		0,002	0,007	0,002	0,006
EU13	Below	−0,013	0,007	0,007	0,001
		0,008	0,007	0,008	0,005
	tertiary degree	−0,005	0,070***	−0,006	0,151
		0,008	0,020	0,008	0,198
Maghreb	below	−0,092***	−0,020***	−0,053***	−0,007***
		0,004	0,002	0,004	0,002
	tertiary degree	−0,035***	−0,085***	−0,037***	−0,102***
		0,004	0,009	0,004	0,008
Other Africa	below	−0,045***	−0,022***	−0,029***	−0,007
		0,006	0,006	0,007	0,006
	tertiary degree	−0,014**	−0,066***	−0,047***	−0,131***
		0,007	0,020	0,007	0,016
Turkey	below	−0,020***	−0,042***	−0,048***	0,001
		0,007	0,007	0,011	0,012
	tertiary degree	−0,036***	−0,074*	−0,039***	−0,257***
		0,014	0,042	0,013	0,030
South-East Asia	below	−0,023**	0,033**	0,039***	0,041***
		0,010	0,016	0,007	0,015
	tertiary degree	−0,021**	0,061***	−0,012	0,030
		0,008	0.23	0,008	0,022
Other Asia	below	0,007	0,096***	0,007	0,056**
		0,011	0,029	0,015	0,012
	tertiary degree	−0.024**	−0,019	−0,029***	−0,008
		0.11	0,032	0,011	0,029

Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Field: 18–64, excluding people in education or in training. Majority population and second generations. Results are explained as marginal effects. *Note: Below means at most, secondary diploma. Controls for age, age2, number of children, place of residence, partner's activity, year of survey.

secondary education) by adding interactions between educational attainment and origin groups. It allows us to measure whether a tertiary degree may reduce employment gaps between the majority population and the second generation.

Different patterns appear by groups of origins and by gender. A tertiary degree increases the chances of being employed (in reducing the gap without cancelling it) for the descendants of Maghreb, men and women, and Sub-Saharan African men. However, it even decreases the probability of employment (in enlarging the gaps) for the Sub-Saharan second generation women and the Turkish second generation men. Besides, no improvement is seen among South East Asian second generation men.

Hence, a tertiary degree brings better the access to the labour market for some groups, particularly among men belonging to minorities who are likely to experience discrimination, through the ethnic gaps do not vanish. However, a Tertiary degree does not have the expected effect on the labour market entry of other groups.

The returns to higher education are negative for obtaining high skilled positions for the North-African, Other African and Turkish second-generation individuals (and the gaps are reinforced among the women in these groups). In contrast, some advantage is observed for the South-East Asians second generation men.

For some groups, returns to higher education are positive and reduction in the gap between the majority pop-

ulation and the second generation is observed, while for others, returns are even lower, particularly for accessing high skilled positions. This is an unexpected result that questions the opportunities of upward social mobility among the second generation.

However, for this thematic issue (and harmonization in comparative perspective), we use a rough category for the "higher educated" (individuals with a tertiary degree). Nevertheless, this category includes different degrees, from more or less selective programmes and diverse fields of study, at different levels, which have not the same value in the labour market. Previous research has shown unequal access and careers in higher education among the second generation linked to their social and migratory backgrounds and previous school careers. For instance, North-African second generation is more likely to get vocational or technological baccalaureate (as opposed to an academic one) that reduces access to selective tertiary programmes and success at university. Second generations have different routes into secondary and higher education which affects both degree completion and entry into the French labour market (Brinbaum & Guégnard, 2013). This has an impact on the degree completed and therefore on labour market access and careers. Hence, a better consideration of the differences in higher education and factors fostering the labour market outcomes may reduce ethnic gaps.

3.3.3. Further Explanations of Remaining Ethnic Gaps

The remaining ethnic gaps in the labour market, in general and among the higher educated, reflect ethnic penalties that can be explained further (e.g., Heath & Yu, 2005).

A potential explanation is the lack of networks for accessing a job (Granovetter, 1974) for some groups and the use of ethnic resources for others. The role of social networks in the professional integration of immigrants and ethnic minorities have been demonstrated in the United States, particularly in the Mexican community (Mundra & Amuedo-Dorantes, 2004; Waldinger, 1994). The propensity for ethnic minorities to find more employment than majority members through ethnic networks is well-established (Fernandez & Fernandez-Mateo, 2006). Similar patterns have been observed in France for the Portuguese community, explaining their high employment (Domingues Dos Santos, 2005) and confirmed for Portuguese and Turkish first and second generations based on the French Trajectories and Origins Survey (Brinbaum, 2018).

These trends are visible here with more recent data (Table A2 in Annex). Immigrants are more likely to get their jobs through networks than both the majority population (25% for men and 21.7% for women) and second generation individuals, with notable differences by origin and by gender. The share of networks in access to employment is particularly high among Europeans and Turkish migrants (43% and 38% for the men from EU13 and EU15 countries, 35% and 30% for the women; and respectively, 52% and 43% for the Turkish men and women) and for Asian men to a lesser extent (35% to 37%). In contrast, these results reflect lack of networks among the women of North-African, other African and Turkish origins. They do not have efficient networks that can help them reach high skilled jobs. We can refer to Putnam (2000) who distinguishes between bridging and bonding social capital (Turks and South Europeans in particular would use more bonding capital among co-ethnics). Turkish men are also more numerous among the self-employed in ethnic niches, and this can contribute to their high employment. However, they are less likely to hold skilled jobs.

The remaining ethnic gaps, higher for minorities from North Africa and Sub-Saharan Africa may be attributed to discrimination (direct and indirect discrimination).[8] Observed employment gaps are consistent with previous research and with the level of experience of discrimination these groups declare and can be attributed mainly to their racial and ethnic origins (Brinbaum, Safi, & Simon, 2016) or to "religious cleavages" (Alba & Foner, 2015). Discrimination in hiring against these groups have been confirmed by testing (Duguet, L'Horty, & Petit, 2009; Petit, Duguet, L'Horty, Parquet, & Sari, 2013). Discrimination may occur in hiring, but also in careers, leading to lower access to high skilled positions. Second generation women may be blocked by the "Glass ceiling" and by ethnic, racial and gender discrimination. Social and ethnic segregation also influence the labour outcomes. Living in segregated areas has also a negative effect on labour market employment. Investigating each of these issues in detail is beyond the scope of the present paper.

4. Conclusions

Based on recent data, the pooled 2013–2017 French LFS, we show large differences in the French labour market between minorities and the majority population by generation, country of origin and by gender. Like previous studies, we find evidence of stark ethnic disadvantage in the French labour market. We highlight the disadvantage for the first and second generation, for both men and women. Furthermore, differences appear between and within origin groups.

Ethnic penalties in employment and in access to skilled occupations are observed for all immigrants but their magnitude depends on ethnic origins. Lack of human capital explains to some extent migrants' labour market disadvantages, particularly French knowledge and educational qualification transferability are very important. These variables have however a greater impact on occupation and perceived overqualification than on employment. Furthermore, immigrants tend to mobilize more their social capital for finding a job.

A certain pattern emerges: disadvantages decline across generations, particularly for the second genera-

[8] Unexplained differences are also due to unobserved variables and other external factors.

tion, socialized and educated in France. This reflects a real progress in employment and access to skilled occupations across generations, in line with the evolution of educational attainment. This trend is even more pronounced among women.

Despite this real improvement, our research confirms the persistence of ethnic inequalities in access to employment and high skilled positions for some groups: the male and female descendants of North-African and Sub-Saharan African origin and to a lesser extent for the Turkish second generation women. In contrast, Asian second generation men and women encounter even a slight advantage in attaining high skilled positions. Their high educational attainments are transferred into occupation.

The share of Tertiary degree holders has increased among the second generations, even more for women. However, ethnic gaps have not disappeared at this level. Some employment gaps are reduced, in particular among the descendants of Maghreb and Sub-Saharan Africa (men), who benefit from postsecondary education to a certain extent. Ethnic penalties remain and even increase for accessing skilled positions (particularly for women of the same origin). More highly educated than the first generations, yet second generation women have less access to highly skilled jobs. This limits upward social mobility. These outcomes may be linked to their post-secondary school experience, and differentiated pathways in higher education, lack of suitable networks and possible discrimination (linked to ethnic origins and gender). Further analyses will be investigated further in this respect.

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Conflict of Interests

The author declares no conflict of interests.

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Annex

Table A1. Sample sizes by origin groups and by generation (N). Source: INSEE Labour Force Survey 2013–2017, excluding people in education or in training.

		All	Active	Employed
Majority		994116	787512	723326
EU15	1st	29941	22223	20462
	2nd	55882	44179	40424
EU13	1st	4656	3612	3061
	2nd	5639	3531	3272
Maghreb	1st	40202	25260	19258
	2nd	30981	24400	18979
Other Africa	1st	18867	14770	11805
	2nd	5414	4472	3443
Turkey	1st	6979	4073	3143
	2nd	2826	1983	1444
South-East Asia	1st	4448	3415	3085
	2nd	2325	1961	1719
Other Asia	1st	6072	4187	3537
	2nd	1256	1053	905

Note: unweighted Ns.

Table A2. Educational attainment of active and share of employees who got their current job through relations, by origin groups, generation and by gender (%). Source: INSEE Labour Force Survey 2013–2017.

		Men		**Women**		**Men**	**Women**
		Educational attainment*					
		Lower educated	**Higher educated**	**Lower educated**	**Higher educated**	**Share of people who got their current job through relations****	
Majority		16,0	34,5	14,7	42,1	25,3	21,7
EU15	1st	40,7	26,3	37,5	31,0	38,1	34,9
	2nd	19,5	29,4	15,8	38,0	29,2	25,1
EU13	1st	23,4	32,1	13,2	60,1	42,8	29,7
	2nd	13,3	37,3	23,1	39,6	26,3	25,4
Maghreb	1st	37,6	28,8	40,6	28,1	28,9	26,4
	2nd	26,2	26,6	18,7	36,8	26,7	19,7
Other Africa	1st	34,6	33,6	39,9	24,6	30,5	27,2
	2nd	25,9	29,8	15,9	41,2	26,1	15,7
Turkey	1st	61,2	7,7	62,7	10,1	51,7	43,4
	2nd	39,3	18,3	20,2	26,9	37,4	18,1
South-East Asia	1st	36,9	37,1	37,2	39,9	35,0	33,3
	2nd	10,9	50,8	9,0	57,8	25,0	19,8
Other Asia	1st	30,8	42,3	28,1	51,1	37,1	27,7
	2nd	8,8	56,8	4,0	71,7	17,0	21,4

Notes: * active excluding people in education or in training; ** employees at the date of the survey. The question comes from the LFS survey about the access to the current job (firm). Lower educated corresponds to no diploma or less than a secondary diploma; Higher educated to a tertiary degree.

Table A3. Labour market outcomes for immigrants and the majority population in 2014 (in %). Source: adhoc module (2014).

	Share of people who found their current job through networks				Labour market outcomes	
	Personal and family relations	Professional relations	Association of immigrants or compatriots	Total	Access to high-skilled jobs	Feeling of being overqualified
Majority	21	13	0	34	21	16
EU15	44	13	0	57	18	24
Maghreb	33	8	3	44	11	35
Other Africa	29	10	0	39	15	35
Turkey	42	9	0	51	4	29
Asia	29	12	3	44	22	26

Note: Majority population and immigrants employed in 2014.

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Article

Employment and Education–Occupation Mismatches of Immigrants and their Children in the Netherlands: Comparisons with the Native Majority Group

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Abstract
This study examines the labor market integration of immigrants and their children in the Netherlands focusing on employment and over- and underqualification. Using data from the first wave of the Netherlands Longitudinal Life-Course Study (NELLS), the analysis shows disadvantages in employment probabilities for men and women from different foreign origin groups compared to the Dutch majority even after accounting for differences in human capital. Ethnic differences in employment probabilities are lower, but still visible, when comparing only respondents who obtained post-secondary education in the Netherlands. Further, first-generation immigrant men from Turkey and Morocco are at higher risk of being overeducated than Dutch majority men whereas this is not the case for second generation men and first- and second-generation minority women. Substantial ethnic difference in the likelihood of being undereducated are not prevalent. Having a foreign compared to a Dutch degree is related to lower labor market outcomes, but this negative relation is more pronounced for women than for men. Finally, there is some indication that overeducation is somewhat less common in the public sector than in the private sector, but minorities do not benefit more from this than the Dutch majority.

Keywords
employment; immigrant integration; overeducation; public sector; returns to education; the Netherlands; undereducation

Issue
This article is part of the issue “The Race for Highly-Skilled Workers”, edited by Neli Demireva (University of Essex, UK) and Ivana Fellini (University of Milano Bicocca, Italy).

1. Introduction

Immigrants’ economic success is often considered to be one of the key conditions for a successful integration into the receiving-society. Nevertheless, many immigrant groups, especially those with a non-Western origin, are often disadvantaged in the European labor markets. In the Netherlands, Turks and Moroccans are two of the most disadvantaged groups (Crul & Doomernik, 2003). They are less likely to be employed, more likely to work in low-paid jobs, jobs with temporary contracts (Witteveen & Alba, 2017) and non-prestigious positions (Gracia, Vázquez-Quesada, & van de Werfhorst, 2016) than the Dutch majority.

The ethnic disadvantage of Turks and Moroccans in the Dutch labor market is often explained by their lower educational achievements compared to the Dutch majority (Becker, 1975; Bevelander & Veenman, 2004). But typically, substantial ethnic gaps in employment rates remain even once educational achievements are accounted for (Heath, Rothon, & Kilpi, 2008). One of the reasons for these ethnic disadvantages may be that immigrants face lower marginal returns for their education than the native majority population (Chiswick & Miller, 2008, 2009). Studies in other countries have shown that education received abroad or prior to immigration is less rewarded in terms of finding employment or earnings than education obtained in the receiving country (Fried-

berg, 2000). In line with this observation is that immigrants are also more likely to experience mismatches between their education and the occupational level of their current job than the native majority population (Aleksynska & Tritah, 2013). Overeducation means working in a position that requires education below one's own highest achieved educational degree, whereas undereducation means having a lower education than required for one's occupational position. Overeducated employees may feel insufficiently challenged and unsatisfied with their occupational situation (Fleming & Kler, 2008). Furthermore, while earning more than those lower educated in the same occupation, they still earn less than their equally educated counterparts in jobs that match their education level (Hartog, 2000). Undereducated employees earn less than appropriately educated individuals doing the same job (Hardoy & Schøne, 2014). Ethnic differences in the occurrence of over- and undereducation may, therefore, corroborate the ethnic stratification of society. Education-occupation mismatches can also be viewed as an inefficient use of human capital on the societal-level. Overeducated individuals could be more productive in jobs that require more professional skills. Undereducation implies a lost opportunity given that individuals with high abilities appear to have not received the appropriate level of education.

Using the first wave of the Netherlands Longitudinal Life-Course Study (NELLS), this study examines ethnic gaps in labor market outcomes in the Netherlands with the Dutch majority as a reference group. Two recent papers have also used the NELLS to compare labor market outcomes of second-generation Turks and Moroccans in the Netherlands (Gracia et al., 2016; Witteveen & Alba, 2017). Both papers show that once differences in human capital are accounted for, second generation Turks and Moroccans are disadvantaged at early stages of labor market trajectories (i.e., employment and employment conditions) but less disadvantaged when it comes to their occupational prestige measured by the International Socio-Economic Index (ISEI).

This article also looks at ethnic gaps in employment, though for the first and second generation. Its main contribution to the earlier studies is its focus on ethnic gaps in overeducation and undereducation. The analysis will pay particular attention to the role of returns to education of foreign degrees compared to Dutch degrees for ethnic gaps in labor market outcomes, addressing the question whether foreign degrees are differently related to labor market outcomes between varying origin groups. In addition, the study will examine whether ethnic patterns in education-occupation mismatches differ between the public and the private sector. Where sample size allows it, I distinguish between the first and second generation in the analysis as causes for disadvantages in the labor market may vary between these two groups (Portes & Zhou, 1993). Furthermore, analyses will be conducted separately for men and women as earlier studies have shown substantial differences in immigrants' labor market trajectories and occupational choices by gender (Baker & Benjamin, 1997; Blau, Kahn, Moriarty, & Souza, 2003).

2. Theoretical Background

2.1. Immigrants in the Netherlands

The two largest immigrant groups in the Netherlands from non-Western countries are Turks and Moroccans. Including the second generation, there were about 400,000 Turks and 389,000 Moroccans in the Netherlands in 2016 and, together, they make up about 5% of the Dutch population (Huijnk & Andriessen, 2016). Turks and Moroccans arrived in the Netherlands over the last couple of decades (starting in the 1960s) as work and family migrants. Most of them arrived as low-educated workers to fill in low-skilled occupations in a booming economy. The low socio-economic background of those immigrants is still reflected today in their disadvantaged labor market position and the lower educational achievement of their children compared to children with Dutch-origin parents (van de Werfhorst & van Tubergen, 2007; Witteveen & Alba, 2017). Even though support for traditional norms are also relatively strong among Turkish and Moroccan immigrants, second generation women tend to perform somewhat better on the labor market than their male counterparts, particularly among Moroccans (Crul & Doomernik, 2003). There are also important differences between Turks and Moroccans in the Netherlands. Most notably, the Turkish community is often described as more cohesive than the Moroccan one (Crul & Doomernik, 2003; Huijnk & Andriessen, 2016). Turks participate more in ethnic organizations and have more co-ethnic ties than Moroccans (Michon & Vermeulen, 2013). Perhaps as a consequence of the dense ethnic network, Turks are somewhat less proficient in Dutch than Moroccans, and their children lack behind in terms of educational attainment compared to children from the other Non-Western immigrant groups (Huijnk & Andriessen, 2016). On the labor market, the Turks' dependence on co-ethnic ties may impede employment chances and access to jobs with higher occupational status (Lancee, 2010), which may ultimately result in a higher occurrence of overeducation compared to the other ethnic minority groups.

Two other large non-Western immigrant groups in the Netherlands are Surinamese and Antilleans. These immigrants started to arrive in the Netherlands as post-colonial migrants about a decade earlier than the guest-workers and still migrate today (though in substantially smaller numbers than in the 1960s and 70s). Surinamese and Antilleans in the Netherlands tend to have on average higher educational levels and are more likely to work in higher-skilled jobs than Turks and Moroccans, but they still do worse than the Dutch majority in the educational system and on the labor market (Huijnk & Andriessen, 2016). Additionally, to these four main immigrant groups,

the Netherlands also saw an influx of refugees from diverse non-Western backgrounds in the 1990s and 2000s (Dourleijn & Dagevos, 2011). Finally, there is also a large group of Western immigrants. However, this group is less in the focus of societal and academic debates, partly because it is perceived as economically less disadvantaged and culturally more similar to the native Dutch than the other immigrant groups. Therefore, Western immigrants provide analytically a useful comparison to the other immigrant groups.

2.2. Returns to Education for Immigrants and Their Children

Ethnic gaps in labor market outcomes are often explained by compositional differences in human capital between ethnic groups. In the Netherlands, the disadvantaged position on the labor market of non-Western minority groups, including those with a Turkish or Moroccan national origin, is often explained by their lower educational level compared to the native majority group. Other human capital characteristics often discussed in the literature on immigrant's labor market performance are skills in the language of the receiving society and naturalization (Dustmann & Fabbri, 2003; Hainmueller, Pietrantuono, Aktas, Balaban, & Kurer, 2017). Both of these factors increase immigrants' labor market opportunities over and above their educational level (Bevelander & Veenman, 2006).

A higher likelihood of overeducation among immigrants may be caused by difficulties in the international transferability of foreign educational degrees (Chiswick & Miller, 2008; Hardoy & Schøne, 2014). Migration often results in a loss of value of educational degrees completed in the origin country as qualifications and skills acquired in the origin country's educational system may be difficult to apply in the host-society due to language barriers or lack of knowledge of the labor market. A loss of value may also be due to origin-country differences in the quality of education (Li & Sweetman, 2014), which is often perceived to be higher in Western than in Non-Western countries (Friedberg, 2000). Ethnic gaps in labor market outcomes may also be explained by less resourceful social networks of immigrants compared to the native majority (Lancee, 2010). Finally, employers might require minorities to have greater educational levels in order to 'compensate' for either statistical discrimination or a taste for discrimination by the employer, resulting in a higher likelihood of immigrants to be unemployed or overeducated (Andriessen, Nievers, & Dagevos, 2012; Hardoy & Schøne, 2014).

Undereducation follows somewhat different dynamics than employment or overeducation. Talented or highly motivated individuals who were not successful in the educational system can prove their worth on the labor market and get promoted as recognition for their talents, landing them in positions above their educational level. Positive selection of immigrants on unobserved characteristics such as cognitive ability or motivation may lead to a higher rate of undereducation among immigrants than among the native majority (Aleksynska & Tritah, 2013). However, this effect should be more pronounced for individuals that have accumulated work experience in the receiving society and had opportunities to prove that their actual abilities are higher than their formal educational level would suggest.

2.3. Minorities in Public Sector Jobs in the Netherlands

Since the 1980s, the Dutch government has implemented policies aimed at improving the labor market integration of immigrants, particularly those from Turkey, Morocco and the former Dutch colonies Suriname and the Antilles (Doomernik, 1998). Even though these policies have repeatedly changed since, some evidence suggests that certain policy measures have led to an increase in public sector employment among immigrants, especially second-generation Turks and Moroccans (Groeneveld, 2011; Tesser & Veenman, 1997). Employment in the public sector is often held to higher standards and tends to be subject to stricter procedures in filling vacant positions than employment in the private sector. This suggests that being employed by the government protects to some extent from the ethnic disadvantage often experienced in the private sector. Field experiments suggest that public sector employers are often less likely to discriminate against minority applicants than private employers (Zschirnt & Ruedin, 2016). However, the Dutch government's efforts in improving ethnic minorities' labor market position have also been heavily criticized for their ineffectiveness (Vasta, 2007). In line with this criticism, Groeneveld (2011) has shown that ethnic minorities are more likely to (voluntarily) leave public sector jobs than native Dutch, suggesting that they are less satisfied with their employment in the public sector than native Dutch.

3. Data and Methods

3.1. Data

I use the first wave of the NELLS for the analysis (de Graaf, Kalmijn, Kraaykamp, & Monden, 2010a). Data collection for the first wave took place between December 2008 and May 2010 with a break of two months in July and August 2009. Respondents of Moroccan and Turkish origin, based on respondents' and their parents' country of birth, were intentionally oversampled. The response rate of the survey was 52% (56% for Dutch, 50% for Turkish and 46% for Moroccans). Women, older respondents, the urbanized areas and the Southern regions of the Netherlands are over-represented whereas the West is under-represented (de Graaf et al., 2010a). Weights are provided to adjust for these deviations. As there are only very few Moroccans and Turks living in rural municipalities, this group was not included in the sample. The sam-

ple contains observations of 5312 respondents aged 15 to 49.

I distinguish between five origin groups in the analysis (though due to small sample sizes I must pool groups for some analyses): Dutch, Turks, Moroccans, Non-Western, and Western. Turks and Moroccans are further classified into first and second generation. Respondents who were born abroad with at least one foreign-born parent are classified as a first-generation migrant unless they immigrated to the Netherlands before they were four years old, which is the age at which children enter school in the Netherlands. Respondents who were born in the Netherlands to at least one foreign-born parents or who arrived before they reached school age are classified as second generation. Due to small sample sizes, the first and second generation have to be pooled for respondents with Non-Western or Western origin. Hence, any conclusions with respect to generational differences do not apply to these groups. Western origin refers to all European countries (excluding Turkey), U.S., Canada, Australia, New Zealand, Japan, and Indonesia (this is a small group of probably ethnic Dutch from former Dutch Indonesia). The group with a non-Western origin contains individuals from all other countries including the former Dutch colonies Suriname and the Dutch Antilles. Any references to respondents with Non-Western origin in the following do not refer to the Turks and Moroccans in the sample.

Observations of retired respondents and students are excluded from the analysis. The remaining number of observations in the analytic sample is 4229, of which 2063 are native majority Dutch, 610 first generation Moroccan, 279 second generation Moroccan, 608 first generation Turks, 321 second generation Turks, 169 first and second generation of Non-Western origin, and 179 first and second generation of Western origin.

3.2. Measures

The main dependent variables are employment, overqualification, and underqualification.

I compare employed individuals to individuals who are not employed. The latter group includes individuals without a job who are searching for a paid work and those not searching for a job.

For education-occupation mismatches, there are different ways to measure mismatches between workers' education and the qualifications required for their occupation. The biggest challenge of any measure is to get a correct estimation of the qualifications or skills required for a specific occupation (for a discussion of different measures, see Verhaest & Omey, 2006). This study uses the mean measure of the so-called realized matches approach. In this approach, the required level of education is estimated by the actual distribution of workers' educational level within an occupation. I estimate the required educational level at the 3-digit level ISCO-08 scale. Required education is estimated on the basis of the years of education of employees with a completed Dutch education as this is the reference point likely to be used by Dutch employers (Nielsen, 2011). The mean method classifies individuals as overeducated (undereducated) when their years of education is 1 standard deviation above (below) the mean years of education within their occupation.

By definition, overeducation is mainly a concern for higher educated individuals whereas undereducation is more relevant for individuals with low educational achievements. Individuals with no or very little education are not at risk of being overqualified whereas individuals with high educational achievements are not at risk of undereducation. Many studies exclude the groups that are not at risk from the analysis. To maximize the sample size, I keep these observations in the analytic sample but control for *years of education* to account for those who are not at risk of being classified as over- or undereducated and for ethnic difference in educational achievement. Years of education is also an important indicator of human capital and therefore relevant to account for when examining ethnic gaps in employment.

I create a dummy variable that measures whether the highest education was completed at least partially in the Netherlands (0) or abroad (1). Another dummy indicates whether employed respondents reported working in the private sector (0) or in the public sector (1).

Ethnic gaps in education-occupation mismatches may be due to initial occupational misplacements of the immigrant workers shortly after their arrival. Overeducated immigrants might get promoted once their actual skills and knowledge are recognized by their employers or as they get more familiar with the labor market and find a job that matches their educational level. In contrast, the ethnic gap in undereducation might increase once work experience in the Dutch labor market is accounted for if immigrants are positively selected on unobserved characteristics. I only have a proxy of work experience in the Dutch labor market based on either the years since the respondent left full-time education (if the respondent is native Dutch or obtained the highest educational degree in the Netherlands) or years since the respondent's migration to the Netherlands (if the respondent is non-Dutch and obtained the highest degree abroad). I call this proxy *exposure to Dutch labor market* and use it as a control in the analysis of education-occupation mismatches. For the analysis of employment, I only use *years since migration* (instead of *exposure to Dutch labor market*) as a control because the sample may include respondents who were not active in the labor market since they have left education or arrived in the Netherlands. Some of the variance due to work experience and years since migration may already be explained by age as older individuals have more work experience than younger individuals. Hence, I control for *age* and age *square*. I measure respondents' *Dutch language skills* (based on the interviewer's assessment), using a dichotomous variable that distinguishes between respondents

who are proficient in Dutch (0) and those who are not (1). Dutch citizenship is also measured with a dummy variable that distinguishes between Dutch citizens (0) and Non-Dutch citizens (1). Urban areas tend to provide a wider range of employment opportunities than rural areas. Therefore, finding a (better matched) job is more likely for those living in larger cities than those living in smaller cities or in the countryside. As immigrants are over-represented in urban areas (and under-represented in rural areas), I also account for *living in a big or medium city* compared to a small city or rural area.

3.3. Analytic Strategy

I begin the analysis by presenting distributional traits of the relevant variables. Means/proportions and standard deviations of all included variables are presented for the total sample in Table 1. Means/proportions of selected variables are also shown by national origin group and generation (e.g., education-occupation mismatches) in Table 2.

In the explanatory analysis, I run multivariable logistic regression models and use Average Marginal Effects (AME) to compare outcomes between the different origin groups.

First, I examine gaps between origin groups in employment and over- and undereducation with the Dutch-origin group as the reference accounting. Note that all analyses of over- and undereducation focus only on respondents in employment.[1] In a second step, I restrict the sample to respondents who received (academic or vocational) tertiary education in the Netherlands to examine ethnic gaps in employment rates and overeducation for those with comparable educational credentials. In the third part of the analysis, I examine an interaction between origin and having received the highest education abroad. This analysis focuses on first generation immigrants who are most likely to have received education abroad. Finally, I examine the interaction effect of origin and working in the public sector on the likelihood of being overeducated and undereducated. Due to the potential endogeneity of Dutch language proficiency, citizenship, and living in a city, I estimate two models for each analysis: A basic model that only accounts for age, age square, years of education, and years since migration/exposure to Dutch labor market and an extensive model that additionally accounts for Dutch language problems, citizenship, and urbanity. The presentation of the results will focus on the extensive models and only refer to the basic models if their estimates show any substantial differences.

Weights are applied in all regression analyses to adjust for deviances of the sample from the national distribution in sex, age, region, and urbanization increasing the comparability between the origin groups (de Graaf et al., 2010b). All models are estimated with robust standard errors. Analyses are conducted separately for men and women as studies have shown that labor market behavior is strongly shaped by gender (Baker & Benjamin, 1997; Blau et al., 2003). Observations with missing values (N = 28) are listwise-exclude from the analysis. Results are depicted as graphs (Figures 1 to 10), with full models included as tables in the annex (Tables A1 to A3).

4. Results

4.1. Descriptive Results

Table 1 shows descriptive results. The share of undereducated and overeducated in the sample are both 14%. Table 2 shows that there are substantial differences between the different groups on all variables. Employment ranges from 90.3% for the Dutch majority to 58.9% for first-generation immigrant Moroccans. The differences are somewhat reduced after excluding respondents who are not active in the labor market (e.g., homemaker), which is likely due to the large share of Moroccan and Turkish women that focus on domestic work instead of paid employment. Nonetheless, employment is still substantially lower for Turkish, Moroccan and Non-Western immigrants and their children even after excluding respondents who are not active in the labor market.

Mismatches in the level of workers' education and their occupation seem to be most common among first-generation immigrants. The level of education and occupation matches correctly for 76% of the Dutch majority, 77% of the second-generation Moroccans, 73% of the second-generation Turks, 63% of first-generation Moroccans and 61% of first-generation Turks. First and second-generation Turks and Moroccans are more often undereducated than overeducated whereas for the other groups the opposite is the case. Among first generation Turks and Moroccans, the share of undereducated is notably higher than among the other groups.

4.2. Explanatory Results

4.2.1. Ethnic Gaps in Employment and Over- and Undereducation

Figure 1 presents the employment gaps between different minority groups and the Dutch majority. Minority groups are less likely to be employed across gender and generation with the exception of first generation Turkish men who are almost as likely to be employed as Dutch majority men. The estimated employment gap for Western origin men is also not significant but still lies at about 8%. For the first generation, the ethnic gaps in

[1] One could argue that selection into employment may bias results of the overeducation and undereducation models. I, therefore, also estimated models with Heckman correction (more details about the model specification provided in the annex). Results of this robustness test do not indicate a strong selection bias (see Figures A2 and A3) and give uncertainty about the correct instruments and the sensitivity of Heckman models to mis-specification, I present the main results with standard logit-AME models.

Table 1. Descriptive statistics.

	n	Range	Proportion/Mean	Std. Dev.
Employed of total labor force (0 = inactive/unemployed)	4228	0/1	0.79	
Employed of active labor force (0 = unemployed)	3619	0/1	0.92	
Education-occupation mismatches	3338	0–2		
Undereducated			0.14	
Correctly matched			0.72	
Overeducated			0.14	
Highest education obtained abroad	4143	0/1	0.19	
(Ref. education obtained in the NL) Post-secondary education	4143	0–2		
At most secondary education			0.72	
Post-secondary education abroad			0.03	
Post-secondary education in the NL			0.24	
Public sector job (0 = private sector job)	3339	0/1	0.16	
Female (0 = male)	4229	0/1	0.53	
Years of education	4228	0–23	11.62	3.42
Age	4229	16–49	34.27	7.29
Lives in big or medium city (0 = lives in town or rural area)	4229	0/1	0.58	
Lives with partner (0 = lives alone)	4228	0/1	0.71	
Kids under age 12 in household (0 = no)	4229	0/1	0.53	
No Dutch citizenship (0 = Dutch citizenship)	4229	0/1	0.12	
Fluent Dutch (0 = not fluent Dutch)	4228	0/1	0.87	

Note: Unweighted descriptive results.

Table 2. Proportions/means on key variables by national origin and generation.

	Native majority	Moroccan 1st gen	Moroccan 2nd gen	Turkish 1st gen	Turkish 2nd gen	Non-Western (1st and 2nd gen)	Western (1st and 2nd gen)
Employed of total labor force (0 = inactive/unemployed)	0.90	0.59	0.74	0.66	0.75	0.70	0.82
Employed of active labor force (0 = unemployed)	0.96	0.86	0.90	0.87	0.86	0.84	0.94
Education-occupation mismatches							
Undereducated	0.10	0.22	0.14	0.25	0.18	0.12	0.14
Correctly matched	0.76	0.63	0.77	0.61	0.73	0.74	0.65
Overeducated	0.14	0.15	0.09	0.14	0.09	0.14	0.21
Years of education	12.42	10.00	11.62	10.26	11.31	11.83	13.00
Highest education obtained abroad (0 = education obtained in the NL)	0.01	0.46	0.03	0.57	0.03	0.38	0.27
Post-secondary education							
At most secondary education	0.67	0.08	0.76	0.83	0.82	0.66	0.56
Post-secondary education abroad	0.003	0.08	0.01	0.08	0.003	0.14	0.10
Post-secondary education in the NL	0.33	0.10	0.23	0.09	0.18	0.20	0.34
Public sector job (0 = private sector job)	0.15	0.18	0.17	0.15	0.15	0.16	0.16
Number of observations	2063	610	279	608	321	169	179

Note: Unweighted descriptive results.

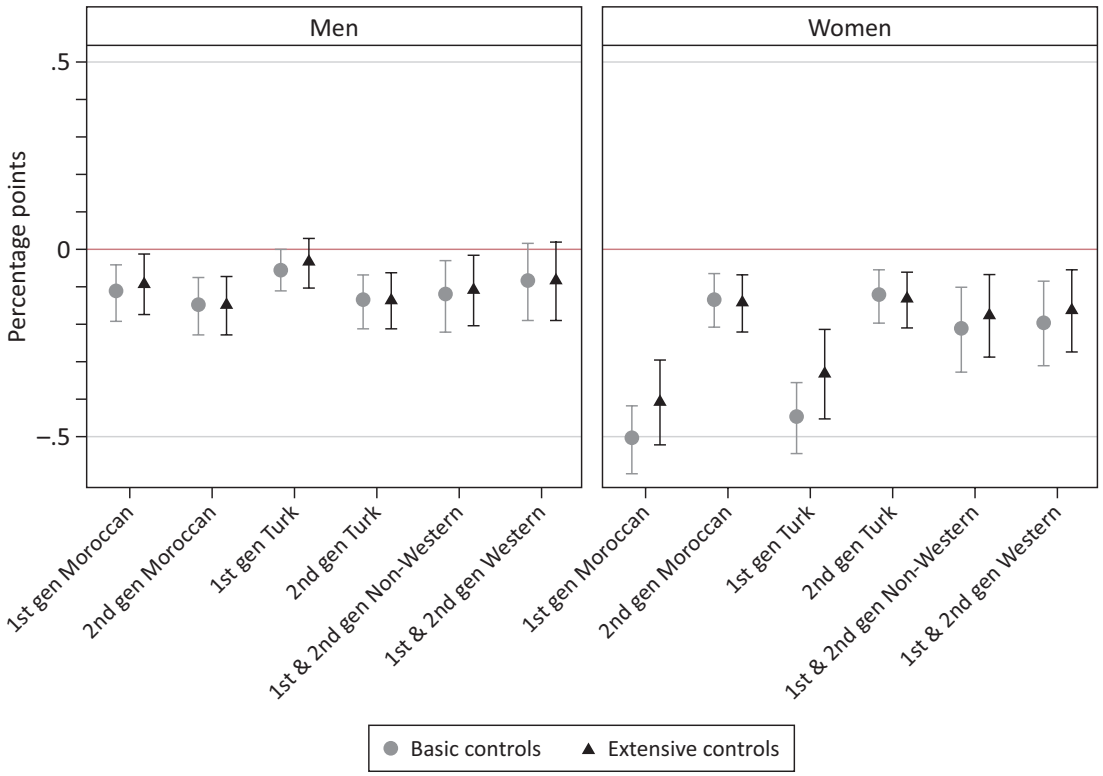

Figure 1. Estimated employment gaps between different origin groups and the Dutch majority with 95% confidence interval (c.i.) (see Table A1). Basic controls: for age, age square, years of education, years since migration. Extensive controls: basic controls, urbanity, Dutch language problems, and Dutch citizenship. All models are weighted.

employment are higher for women than for men. First-generation Moroccan and Turkish women are about 50 and 45 percentage points less likely to work than native Dutch women when accounting for the basic controls.[2] Adding citizenship, Dutch language skills, and urbanity to the model decreases this difference, which still remains larger than for any other group. The estimated ethnic employment gap in the second generation is about as large for women as for men.

Figure 2 shows ethnic gaps in overeducation. First-generation Moroccan and Turkish men are 10 and 5 percentage points more likely to be overeducated than Dutch majority men. For women, the likelihood of being overeducated does not differ substantially by origin or generation.

Figure 3 shows that there are no substantial differences in undereducation between Moroccan, Turkish, and Dutch majority men. Men with Non-Western origin are 4% less likely to be undereducated than Dutch majority men. Among women, only first-generation Moroccans are significantly less likely (about 7%) to be undereducated than the Dutch majority. This suggests that the higher share of undereducation of Turks and Moroccans shown in the descriptive results are rather due to the lower educational level of this groups than to a positive selection of the immigrants.

4.2.2. Returns to Post-Secondary Education Completed in the Netherlands

For the analysis in the following section, I constrain the sample to respondents who have completed (vocational or academic) tertiary education in the Netherlands. This allows me to test whether there is ethnic parity in labor market outcomes once ethnic minorities obtained their educational degree from a Dutch educational institution. Figure 4 shows that there are no significant employment gaps between ethnic minority and Dutch majority men with a Dutch tertiary education. However, confidence intervals are rather large and estimated differences are still around 10% for most groups except first generation Moroccans and Turks. Second-generation Turkish women and first- and second-generation non-Western and Western women who have obtained their tertiary education in the Netherlands have lower employment rates than Dutch majority women (though the difference is not significant at the 5% level for the Non-Western and Western origin women). Figure 5 shows that for those with a

[2] As additional analyses show (see Figure A1 and Table A4), ethnic disadvantage in women's employment is substantially lower, especially for first and second generation Moroccan women, when excluding economically inactive women (i.e. those who are unemployed and not searching for employment) from the analysis. In contrast, ethnic gaps in men's employment are less sensitive to the exclusion of economically inactive respondents. This suggests that the ethnic differences in women's employment maybe partly due to more traditional family structures—with husbands focusing on paid work and wives on domestic work—in some ethnic minority groups than in the majority group.

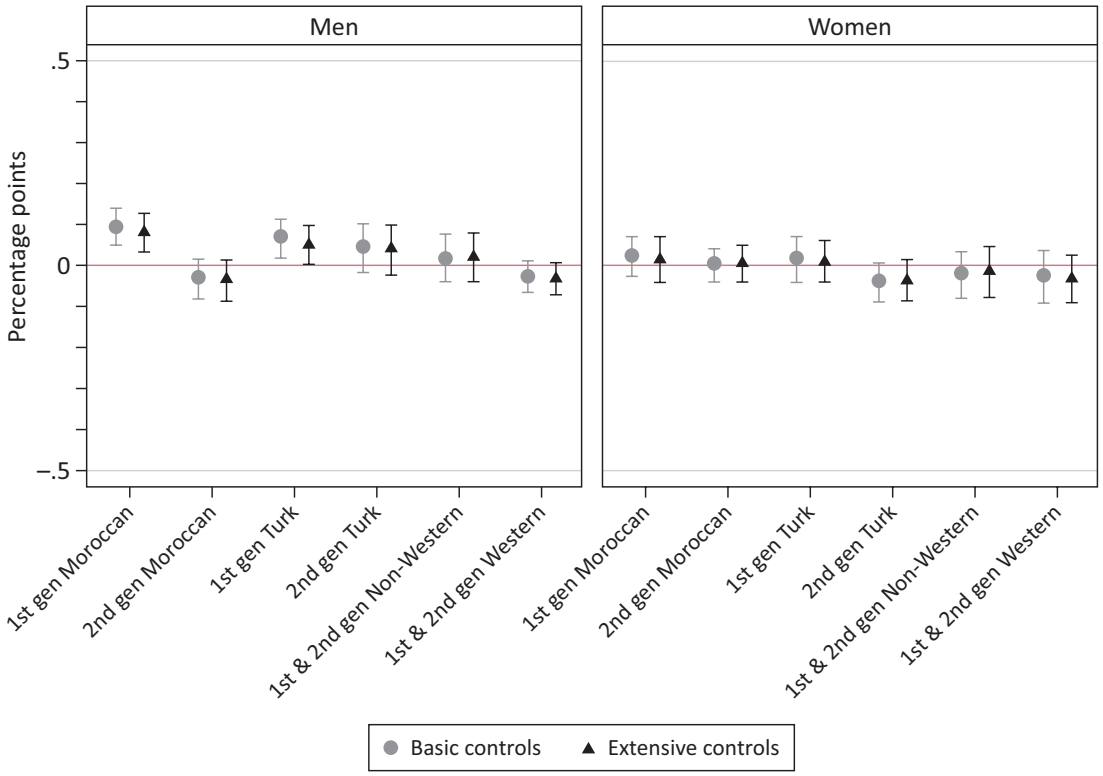

Figure 2. Estimated gaps in overeducation between different origin groups and Dutch majority with 95% (c.i.) (see Table A2). Basic controls: for age, age square, years of education, exposure to Dutch labor market. Extensive controls: basic controls, urbanity, Dutch language problems, and Dutch citizenship. All models are weighted.

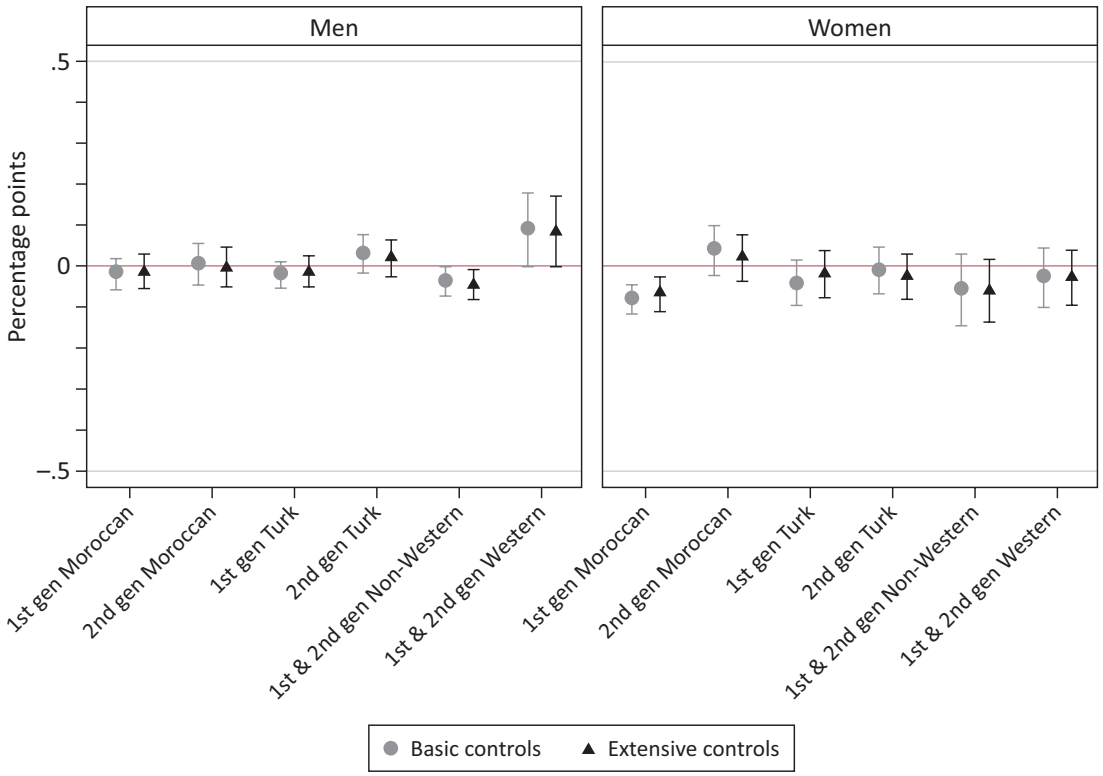

Figure 3. Estimated gaps in undereducation between different origin groups and Dutch majority with 95% (c.i.) (see Table A3). Basic controls: for age, age square, years of education, exposure to Dutch labor market. Extensive controls: basic controls, urbanity, Dutch language problems, and Dutch citizenship. All models are weighted.

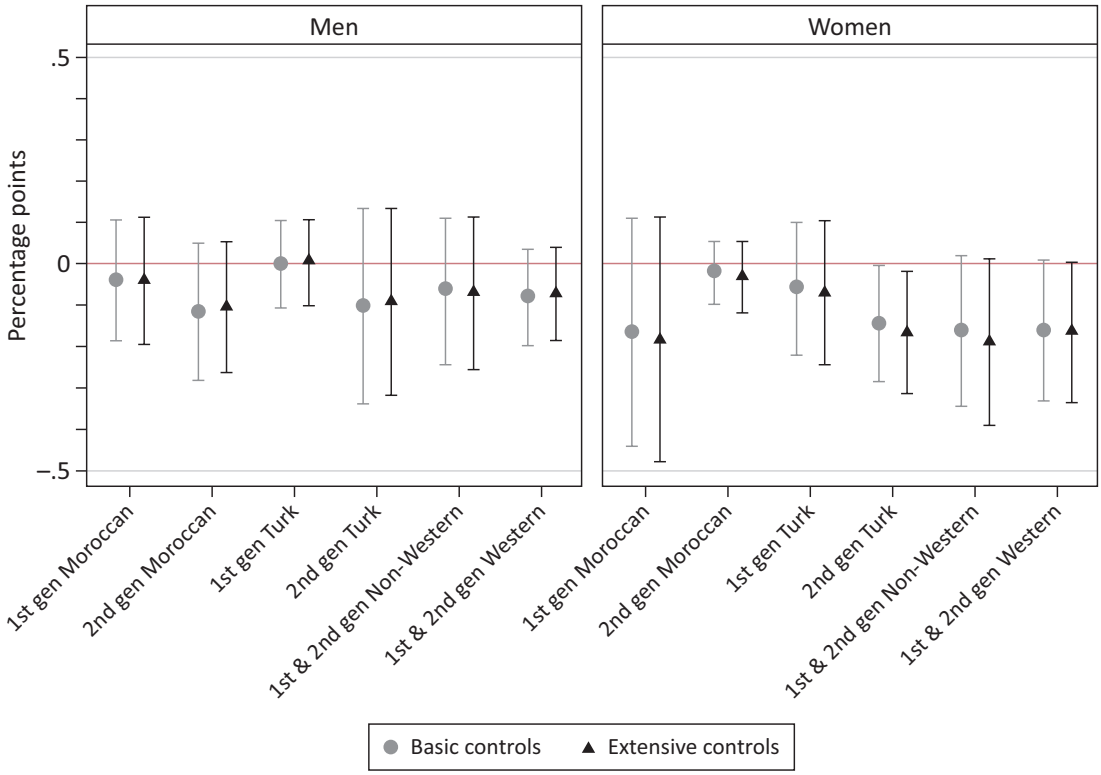

Figure 4. Estimated gaps in employment between different origin groups and the Dutch majority for respondents who completed tertiary education in the Netherlands with 95% (c.i.). Basic controls: age, age square, exposure to Dutch labor market. Extensive controls: basic controls, urbanity, Dutch language problems, and Dutch citizenship.

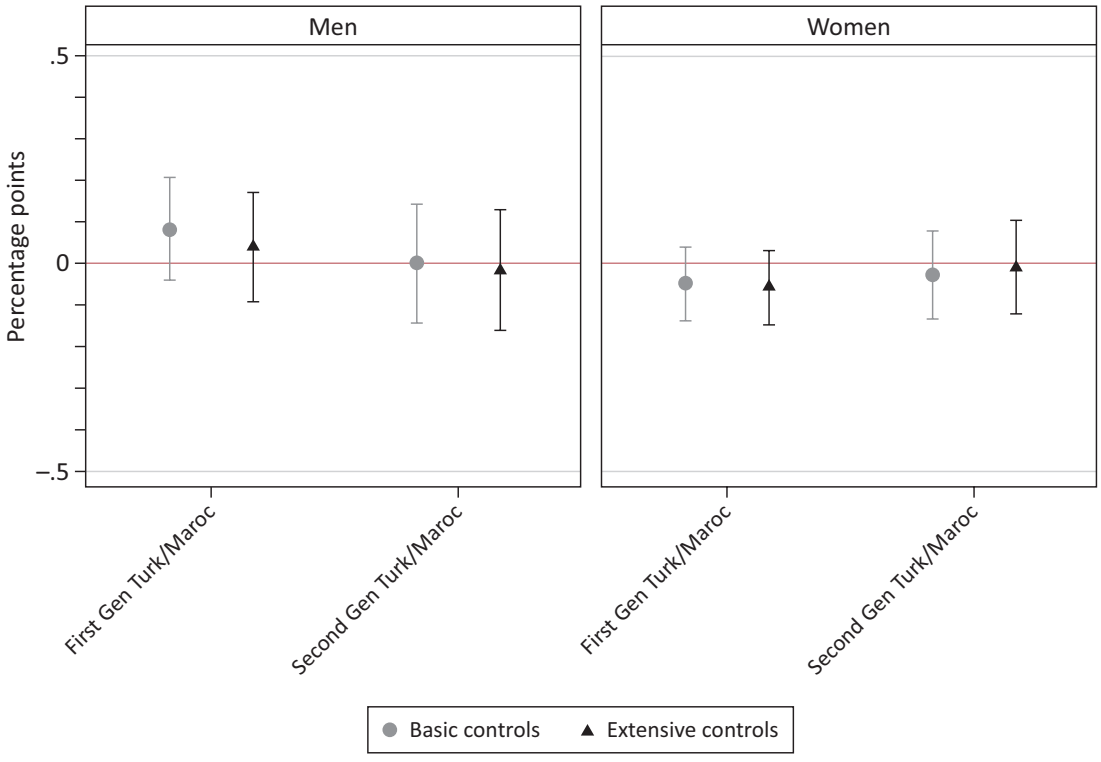

Figure 5. Estimated gaps in overeducation between different origin groups and the Dutch majority for respondents who completed tertiary education in the Netherlands with 95% (c.i.). Basic controls: for age, age square, exposure to Dutch labor market. Extensive controls: basic controls, urbanity, Dutch language problems, and Dutch citizenship.

Dutch tertiary education, the likelihood of being overeducated does not differ by origin or generation for either men or women.

4.2.3. Returns to Education: Foreign Degrees vs. Degrees Obtained in the Netherlands

I now investigate how having obtained the highest degree abroad compared to having received the highest degree in the Netherlands is associated with labor market outcomes and whether there are differences in these associations between origin groups. Second generation Turks and Moroccans are excluded from this analysis (or pooled together with non-Western) as only a small number have a foreign degree. Figure 6 shows that a degree from abroad is not strongly associated with employment for men from most of the groups. Only first generation Moroccan men have an about 8% lower likelihood of being employed if they obtained their highest degree abroad and not in the Netherlands though this difference is not significant at the 5%-level. Having a degree from abroad is associated with a substantially lower employment probability for first generation Turkish and Non-Western origin women but not for native Dutch and first generation Moroccan women.

Figure 7 shows the relation of having a foreign degree with overeducation for the different origin groups. First-generation Moroccan men show an about 10% higher likelihood of being overeducated if they have obtained their highest educational degree abroad and not in the Netherlands. For the other origin groups, a degree from abroad is not strongly related to the likelihood of being overeducated. For women, the probability of being overeducated increases with a foreign degree for Dutch majority and first-generation Moroccan women (though for the latter the difference is not significant at the 5%-level with extensive controls). Given the low sample size of employed native Dutch women with foreign highest degrees (N = 12), the relatively large estimated effect size should not be overinterpreted.

Having a foreign degree is also not strongly related to undereducation for most origin groups as can be seen in Figure 8. Only Dutch majority men and second-generation Turks, Moroccans and Non-Western men are somewhat less likely to be undereducated if they have a foreign compared to a Dutch degree. First generation Turkish women with a foreign degree show a somewhat lower likelihood to be undereducated than those with a Dutch degree in the basic controls model but the difference disappears once additional controls are added.

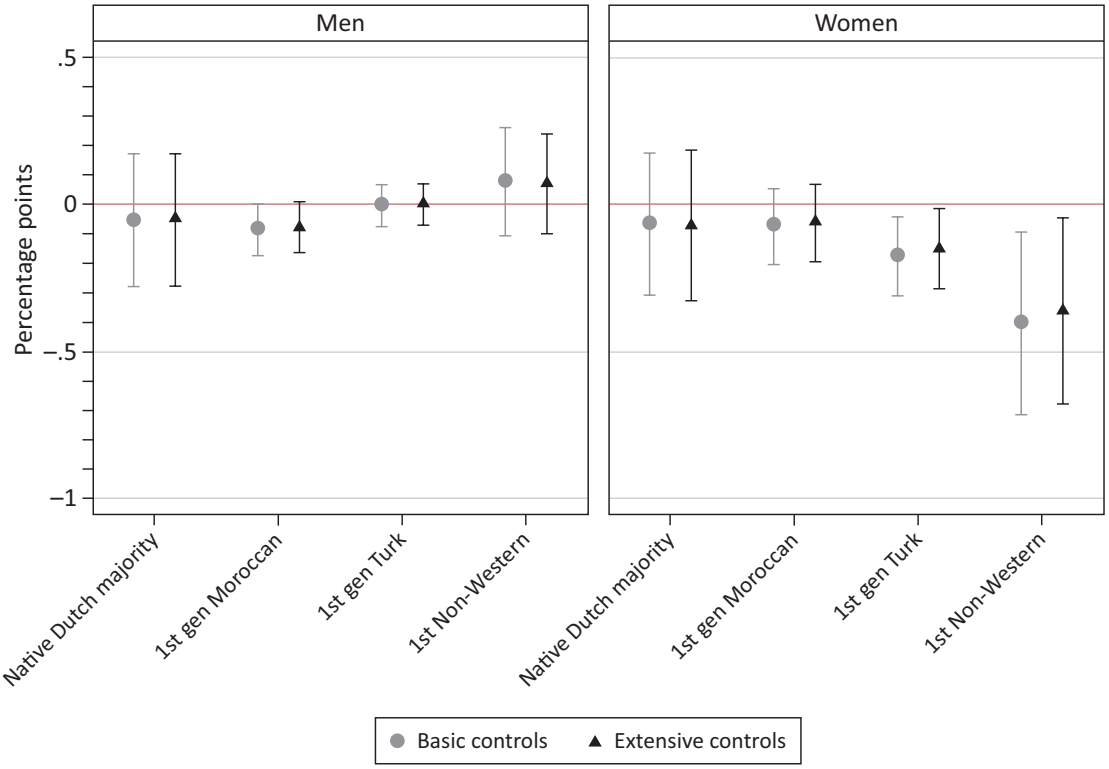

Figure 6. AME of highest education received abroad (compared to highest education received in the Netherlands) on being employed by origin and gender. Basic controls: for age, age square, exposure to Dutch labor market, education received abroad, interaction: education received abroad and national origin. Extensive controls: basic controls, urbanity, Dutch language problems, and Dutch citizenship. Note: the y-scale is larger than in the other figures due to the confidence interval of first generation non-Western women.

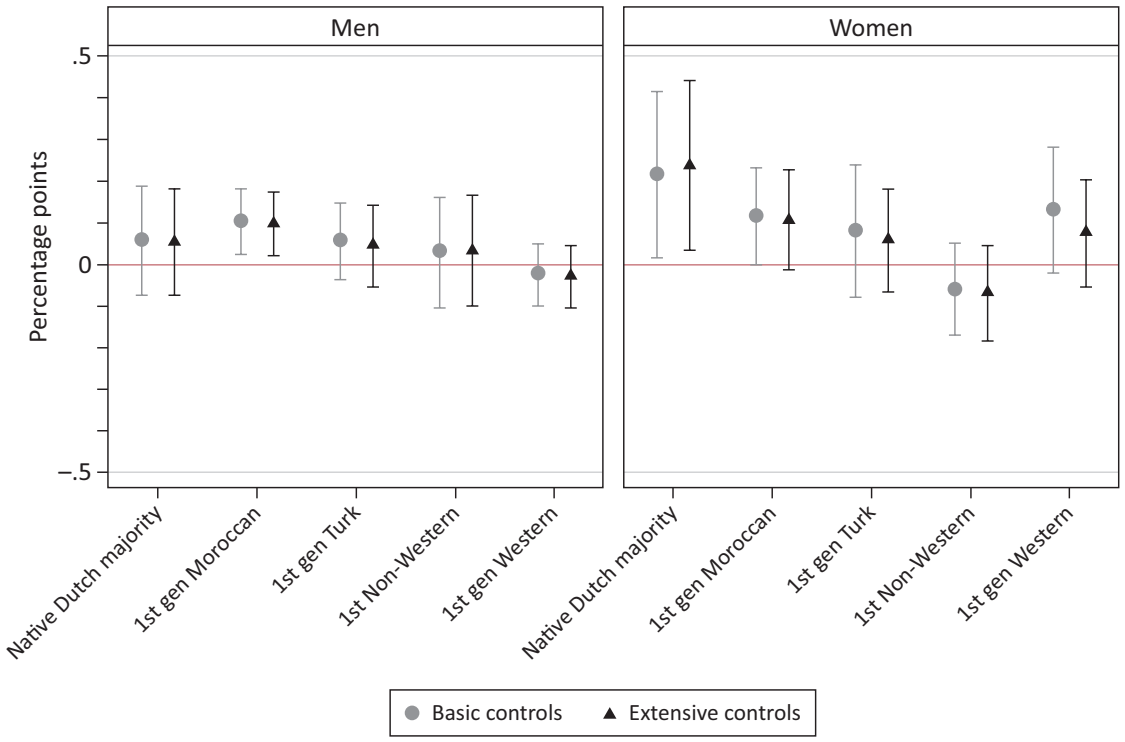

Figure 7. AME of highest education received abroad (compared to highest education received in the Netherlands) on overeducation by origin and gender. Basic controls: for age, age square, exposure to Dutch labor market, education received abroad, interaction: education received abroad and national origin. Extensive controls: basic controls, urbanity, Dutch language problems, and Dutch citizenship.

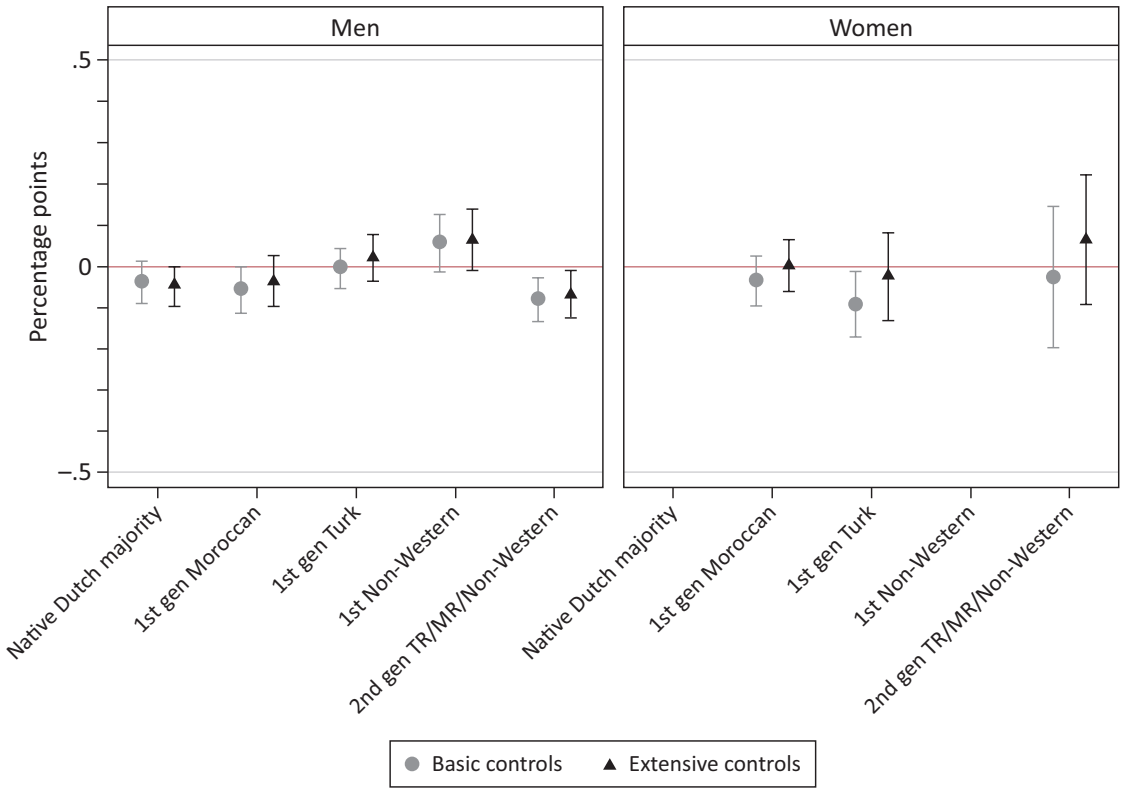

Figure 8. AME of highest education received abroad (compared to highest education received in the Netherlands) on undereducation by origin and gender. Basic controls: for age, age square, exposure to Dutch labor market, education received abroad, interaction: education received abroad and national origin. Extensive controls: basic controls, urbanity, Dutch language problems, and Dutch citizenship. Coefficient estimates for the Dutch majority and first generation Non-Western immigrant women missing due to small sample sizes.

4.2.4. Public Sector Jobs

In the final analysis, I examine whether being employed in a public sector job reduces the probability of a mismatch between individuals' educational and occupational level. Figure 9 presents the results for overeducation. For men, the findings show that native Dutch and Non-Western origin men are about 5 and 9 percentage points less likely to be overeducated in the public than in the private sector. Dutch majority women, first generation Turkish women, and women with origin in Western countries are also less likely to be overeducated in public sector jobs than in private sector jobs even though these differences are not significant at the 5%-level. For the other groups, especially Turkish and Moroccan men and Moroccan women, the data does not provide much evidence for such a protective effect of the public sector.

In Figure 10, I examine whether working in the public sector is also related to the likelihood of being undereducated. There is little evidence for such a relation among male and female native Dutch. However, second-generation Moroccan men and first-generation Turkish men are about 5% less likely to be undereducated in the public sector than in the private sector. Ethnic minority women are about 10% more likely to be undereducated in public than in private sector jobs even though the difference is only significant for first-generation Moroccan women (and first-generation Turkish women in the model with only basic controls).

5. Conclusion

This study examined to what extent minorities with different national origins are disadvantaged in the Dutch labor market compared to the Dutch majority focusing on employment and mismatches between workers' education level and the occupation skill level required for their job.

First-generation migrants and second-generation minorities with Turkish and Moroccan background experience clear disadvantage in finding employment, even after accounting for compositional differences in human capital, which is in line with plenty of earlier studies in the Netherlands as well as in other European countries (Heath et al., 2008). The ethnic employment gaps are reduced but remain substantial, especially for women, when comparing only individuals with tertiary education. This means that some form of social exclusion, let it be ethnic discrimination by employers or the lack of access to important social and cultural resources, creates higher barriers to employment for ethnic minorities than for the native Dutch.

Ethnic gaps in education-occupation mismatches are less pronounced than gaps in employment but still ob-

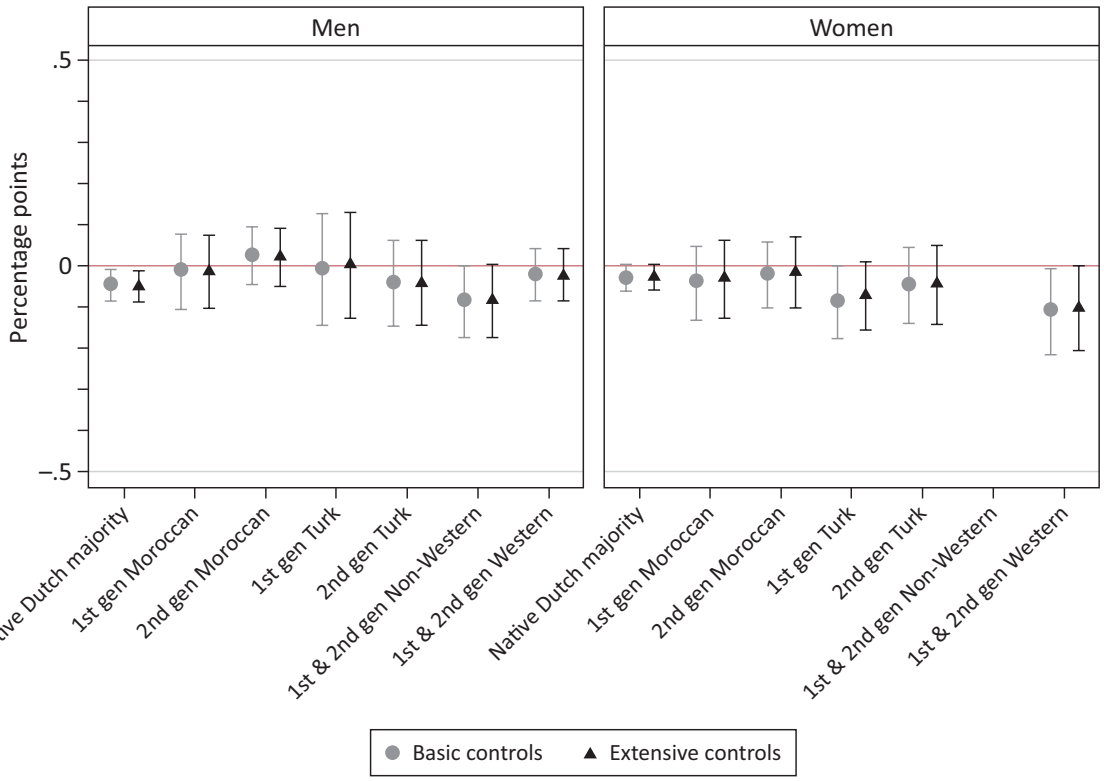

Figure 9. AME of working in the public sector (compared to working in the private sector) on overeducation by origin. Basic controls: for age, age square, exposure to Dutch labor market, public sector job, interaction: public sector job and national origin. Extensive controls: basic controls, urbanity, Dutch language problems, and Dutch citizenship. Estimates for Non-Western women missing due to small sample size.

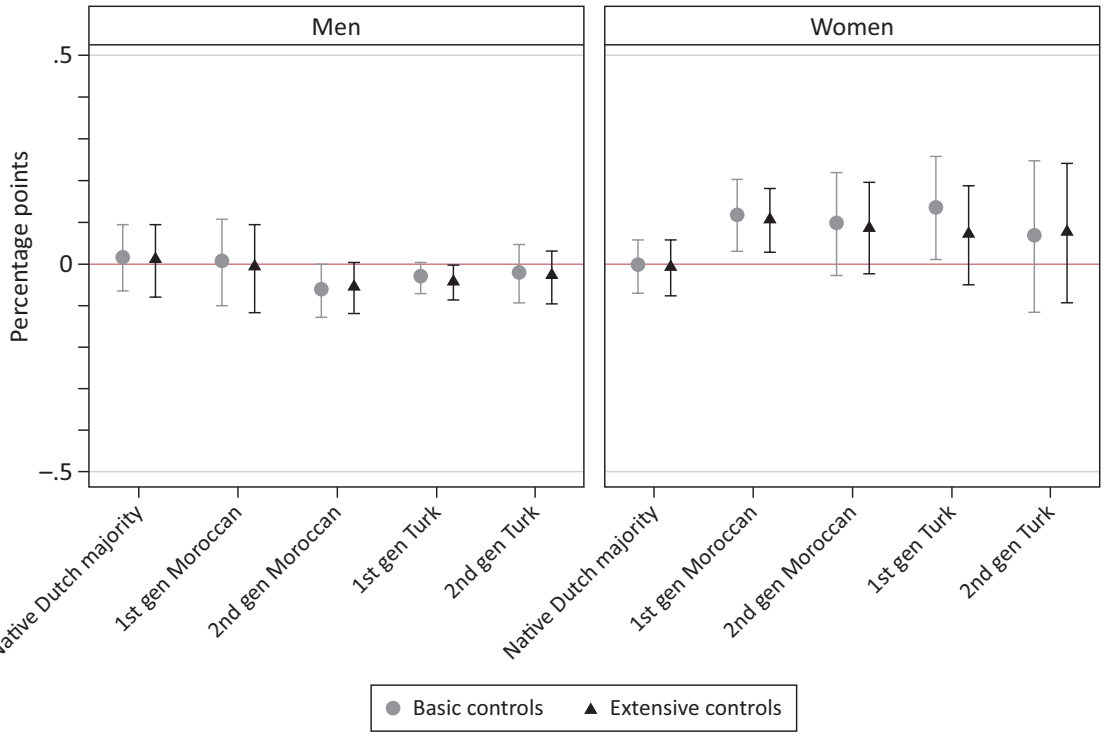

Figure 10. AME of working in the public sector (compared to working in the private sector) on undereducation by origin. Basic controls: for age, age square, exposure to Dutch labor market, public sector job, interaction: public sector job and national origin. Extensive controls: basic controls, urbanity, Dutch language problems, and Dutch citizenship. Coefficient estimates for 1st and 2nd generation Western and Non-Western individuals missing due to small sample size.

servable for the first generation. However, contrary to the expectation, there were no clear differences in the probability of being overeducated between Turks and Moroccans. Both, first-generation Turkish and Moroccan men, are more likely to be overeducated than Dutch majority men, which suggests difficulties in the transferability of their educational credentials to the Netherlands. This could be the result of highly educated immigrants turning to the low-skill oriented ethnic economy to find employment as their skills are not recognized or made use of in the high-skilled labor market. A more positive note is that a higher prevalence of overeducation compared to the native Dutch is not visible for second-generation Turkish and Moroccan men and for ethnic minority women. One explanation for this finding could be that first-generation immigrant women choose to focus on domestic tasks instead of working in a job that does not match their educational level. Moroccan and Turkish immigrant women often came as family migrants so their motivation to participate in the labor market may be lower than for the average native Dutch women. Among the second generation, those who obtain higher education may be perceived as particularly talented by Dutch employers because they counter the common stereotype of the low-achieving immigrant. Hence, employers who provide high-skilled level jobs may be as willing to hire them as Dutch majority applicants with similar educational achievements. This finding could also indicate that a lack of social capital may play a role in the first generation's relatively higher probability of being overeducated. The second generation, while being subjected to similar stereotypes, tends to have more bridging ties to natives than the first generation, which might help them find occupations that match their level of education.

The results do not show substantial ethnic differences in undereducation. Only first-generation Moroccan women and non-Western origin men are somewhat less likely to be undereducated than the Dutch majority. The findings, therefore, provide little evidence for a positive selection of the examined immigrant groups.

I expected to find lower returns to foreign compared to Dutch education for ethnic minorities in general but especially for first generation Turks and Moroccans given that their origin countries' quality of education is often perceived as lower than Western countries' educational quality (Chiswick & Miller, 2008; Friedberg, 2000). Among men, only first-generation Moroccans' labor market outcomes worsen (in terms of employment and overeducation) with a foreign compared to a Dutch degree. The fact that I do not find this negative relation for Turkish immigrants suggests that Moroccans with a foreign degree are selected on a particular characteristic that is detrimental for their labor market outcomes. Research on the immigrants' educational selectivity may provide further insights into differences between the Turkish and Moroccan community in the Netherlands (for immigrants' educational selectivity in France see Ichou, 2014).

For women, foreign degrees make more of a difference than for men. I find lower employment probabilities of first generation Turkish and Non-Western women with a foreign degree compared to those with a domestic degree and higher probabilities of overeducation for Dutch majority and first generation Moroccan women with a foreign degree. Minority women who have invested in a Dutch degree after their arrival to the Netherlands may have more ambition and work commitment than those who have not made this investment. Furthermore, for work-oriented women, it may have been more difficult to obtain a degree in their origin country. It is somewhat puzzling to see difficulties in the international transferability of skills also among Dutch majority women. One explanation could be the field of study. Dutch women who study abroad may be more likely to study subjects that are difficult to transfer into a concrete profession, which may increase the probability to end up in a job below one's qualification. For future research of education-occupation mismatches, it may, therefore, be fruitful to take into account field of study and type of occupation.

I find little evidence that ethnic minorities profit more from working in the public sector than in the private sector than the Dutch majority. In fact, evidence for lower overeducation probabilities in the public than in the private sector is clearer for the native Dutch than for some of the ethnic minority groups. This provides support for the more critical voices about the Dutch government's efforts to foster diversity within public administration (Vasta, 2007) Nonetheless, there are also some indications that Moroccan and Turkish women in the public sector are more likely to be undereducated than in the private sector, which could suggest that their abilities are more readily recognized in the public than in the private sector.

Of course, this study is not without limitations. In specific, small sample sizes reduce the reliability of some comparisons. For example, ethnic differences in labor market outcomes for the highly educated seem often substantial in their estimated size but are insignificant due to large confidence intervals. Moreover, the groups of non-Western and Western immigrants are rather heterogeneous, so it is not possible to infer any ethnicity-specific effects from their estimates. Studies with a larger sample of Surinamese, Antilleans, or any of the diverse groups of refugees may also offer useful comparisons to the findings of this study. Finally, the measure of education-occupation mismatches would also gain in precision with a larger sample.

The migration context in the Netherlands is comparable to many other European countries. For example, Turks and Moroccans in France and Germany migrated in the same historic period and for similar reasons as Turks in the Netherlands. They also share many socio-economic characteristics. In comparison with other European countries, the presented findings may, therefore, also offer valuable insights into the potential impact of institutional factors on immigrants' returns to education.

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Conflict of Interests

The author declares no conflict of interests.

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Annex

Table A1. Logit regression of employment for men and for women.

	MEN		WOMEN	
	Employment: Basic model	Employment: Extensive model	Employment: Basic model	Employment: Extensive model
Age	0.02*	0.03*	0.00	0.01
	(0.01)	(0.01)	(0.01)	(0.01)
Age squared	−0.00***	−0.00***	−0.00*	−0.00*
	(0.00)	(0.00)	(0.00)	(0.00)
Years of education	0.10***	0.09***	0.19***	0.18***
	(0.03)	(0.03)	(0.02)	(0.02)
Years since migration	−0.01	−0.02	0.04***	0.03**
	(0.01)	(0.01)	(0.01)	(0.01)
Lives in big or medium city		−0.15		0.08
(0 = lives in town or rural area)		(0.18)		(0.13)
No Dutch language proficiency		−0.63*		−0.55*
(0 = proficient in Dutch)	(0.25)		(0.22)	
Foreign citizenship (0 = Dutch citizenship)		0.21		−0.52*
		(0.25)		(0.20)
Origin group (0 = Dutch majority)				
1st gen Moroccan	−1.13***	−0.94*	−2.76***	−2.23***
	(0.32)	(0.38)	(0.26)	(0.30)
2nd gen Moroccan	−1.37***	−1.31***	−1.01***	−0.98***
	(0.27)	(0.28)	(0.23)	(0.23)
1st gen Turk	−0.67*	−0.45	−2.50***	−1.90***
	(0.31)	(0.39)	(0.26)	(0.31)
2nd gen Turk	−1.30***	−1.23***	−0.94***	−0.93***
	(0.26)	(0.27)	(0.23)	(0.23)
1st & 2nd gen Non-Western	−1.20***	−1.05**	−1.42***	−1.16***
	(0.36)	(0.38)	(0.30)	(0.31)
1st & 2nd gen Western	−0.91*	−0.86*	−1.34***	−1.09***
	(0.43)	(0.44)	(0.31)	(0.31)
Constant	1.76***	1.92***	−0.18	−0.04
	(0.38)	(0.39)	(0.28)	(0.29)
N	1975	1975	2231	2230
Log likelihood	−707.97	−703.86	−929.50	−920.15
chi2	104.13	114.62	351.48	338.18

Notes: Standard errors in parentheses; * $p < 0.05$, ** $p < .01$, *** $p < .001$

Table A2. Logit regressions of overeducation for men and women.

	MEN		WOMEN	
	Overeducation: Basic model	Overeducation: Extensive model	Overeducation Basic model	Overeducation Extensive model
Age	−0.07*	−0.05	−0.07	−0.00
	(0.03)	(0.03)	(0.05)	(0.05)
Age squared	0.00	0.00	0.00	0.00
	(0.00)	(0.00)	(0.00)	(0.00)
Years of education	0.96***	0.94***	0.95***	0.92***
	(0.07)	(0.07)	(0.07)	(0.07)
Exposure to Dutch labor market	0.05	0.03	0.05	−0.02
	(0.03)	(0.03)	(0.04)	(0.04)
Lives in big or medium city		0.17		−0.51
(0 = lives in town or rural area)		(0.24)		(0.26)
No Dutch language proficiency		0.00		1.48*
(0 = proficient in Dutch)		(0.59)		(0.72)
Foreign citizenship (0 = Dutch citizenship)		−0.54		−0.81
		(0.35)		(0.58)
Origin group (0 = Dutch majority)				
1st gen Moroccan	1.33***	1.16***	0.38	0.28
	(0.29)	(0.31)	(0.39)	(0.49)
2nd gen Moroccan	−0.73	−0.80	0.03	0.11
	(0.62)	(0.63)	(0.38)	(0.42)
1st gen Turk	1.00**	0.80*	0.26	0.19
	(0.32)	(0.35)	(0.48)	(0.45)
2nd gen Turk	0.70	0.63	−0.93	−0.81
	(0.45)	(0.46)	(0.63)	(0.66)
1st & 2nd gen Non-Western	0.31	0.33	−0.47	−0.31
	(0.50)	(0.50)	(0.66)	(0.69)
1st & 2nd gen Western	−0.59	−0.69	−0.57	−0.70
	(0.46)	(0.48)	(0.77)	(0.75)
Constant	−15.93***	−14.94***	−15.87***	−13.51***
	(1.19)	(1.28)	(1.42)	(1.65)
N	1715	1715	1619	1619
Log likelihood	−370.03	−368.73	−274.16	−268.65
chi2	265.02	264.78	248.88	250.74

Notes: Standard errors in parentheses; * $p < 0.05$, ** $p < .01$, *** $p < .001$

Table A3. Logit regressions of undereducation for men and women.

	MEN		WOMEN	
	Undereducation: Basic model	Undereducation: Extensive model	Undereducation: Basic model	Undereducation: Extensive model
Age	0.08*	0.06	−0.08*	−0.03
	(0.04)	(0.04)	(0.03)	(0.05)
Age squared	−0.00	−0.00	−0.00	−0.00*
	(0.00)	(0.00)	(0.00)	(0.00)
Years of education	−1.05***	−1.11***	−0.77***	−1.02***
	(0.08)	(0.09)	(0.07)	(0.11)
Exposure to Dutch labor market	−0.06	−0.04	0.10***	0.07
	(0.03)	(0.04)	(0.03)	(0.04)
Lives in big or medium city		0.48		0.58*
(0 = lives in town or rural area)		(0.26)		(0.24)
No Dutch language proficiency		−1.26*		−4.24***
(0 = proficient in Dutch)		(0.60)		(0.82)
Foreign citizenship (0 = Dutch citizenship)		0.69		−0.06
		(0.44)		(0.51)
Origin group (0 = Dutch majority)				
1st gen Moroccan	−0.38	−0.27	−1.57**	−1.26*
	(0.39)	(0.41)	(0.48)	(0.51)
2nd gen Moroccan	0.06	−0.08	0.43	0.25
	(0.43)	(0.45)	(0.34)	(0.37)
1st gen Turk	−0.44	−0.24	−0.64	−0.28
	(0.33)	(0.37)	(0.48)	(0.45)
2nd gen Turk	0.43	0.28	−0.17	−0.41
	(0.35)	(0.36)	(0.41)	(0.46)
1st & 2nd gen Non-Western	−0.80	−1.03*	−0.96	−1.07
	(0.41)	(0.48)	(0.94)	(0.88)
1st & 2nd gen Western	1.12*	1.10*	−0.41	−0.44
	(0.49)	(0.50)	(0.58)	(0.57)
Constant	10.37***	9.72***	5.29***	8.43***
	(1.23)	(1.23)	(1.03)	(1.74)
N	1715	1715	1620	1619
Log likelihood	−356.91	−348.33	−350.07	−321.47
chi2	183.66	172.72	168.81	125.88

Notes: Standard errors in parentheses; * $p < 0.05$, ** $p < .01$, *** $p < .001$

Table A4. Logit regressions on undereducation for men and women.

	MEN			WOMEN		
	Labor force participation	Employment (excl. inactive)	Employment (incl. inactive)	Labor force participation	Employment (excl. inactive)	Employment (incl. inactive)
Age	0.00	0.05***	0.03*	−0.01	0.04**	0.01
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Age squared	−0.00**	−0.00	−0.00***	−0.00	−0.00*	−0.00*
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Years of education	0.11**	0.07	0.09***	0.17***	0.13***	0.18***
	(0.03)	(0.04)	(0.03)	(0.02)	(0.03)	(0.02)
Years since migration	0.01	−0.04*	−0.02	0.02*	0.02	0.03**
	(0.02)	(0.02)	(0.01)	(0.01)	(0.02)	(0.01)
Lives in big or medium city	−0.22	−0.06	−0.15	0.04	0.11	0.08
(0 = lives in town or rural area)	(0.25)	(0.24)	(0.18)	(0.15)	(0.20)	(0.13)
No Dutch language proficiency	−0.47	−0.78*	−0.63*	−0.62**	−0.12	−0.55*
(0 = proficient in Dutch)	(0.35)	(0.33)	(0.25)	(0.22)	(0.38)	(0.22)
Foreign citizenship	−0.20	−0.22	−0.21	0.55**0.21	0.52*	
(0 = Dutch citizenship)	(0.36)	(0.32)	(0.25)	(0.21)	(0.34)	(0.20)
Origin group						
(0 = Dutch majority)						
1st gen Moroccan	−1.04*	−0.71	−0.94*	−2.08***	−1.79***	−2.23***
	(0.52)	(0.50)	(0.38)	(0.33)	(0.47)	(0.30)
2nd gen Moroccan	−1.31***	−1.24**	−1.31***	−1.06***	−0.67	−0.98***
	(0.37)	(0.39)	(0.28)	(0.26)	(0.40)	(0.23)
1st gen Turk	−0.69	−0.19	−0.45	−1.56***	−2.12***	−1.90***
	(0.53)	(0.51)	(0.39)	(0.34)	(0.52)	(0.31)
2nd gen Turk	−1.33***	−1.06**	−1.23***	−0.44	−1.46***	−0.93***
	(0.36)	(0.37)	(0.27)	(0.29)	(0.32)	(0.23)
1st & 2nd gen Non-Western	−1.18*	−0.79	−1.05**	−0.88*	−1.43***	−1.16***
	(0.55)	(0.47)	(0.38)	(0.36)	(0.43)	(0.31)
1st & 2nd gen Western	−1.02	−0.61	−0.86*	−0.83*	−1.41**	−1.09***
	(0.55)	(0.67)	(0.44)	(0.33)	(0.52)	(0.31)
Constant	2.76***	3.04***	2.13***	−0.18	1.59*	−0.56
	(0.60)	(0.59)	(0.44)	(0.36)	(0.62)	(0.35)
N	1975	1839	1975	2230	1760	2230

Notes: Standard errors in parentheses; * $p < 0.05$, ** $p < .01$, *** $p < .001$

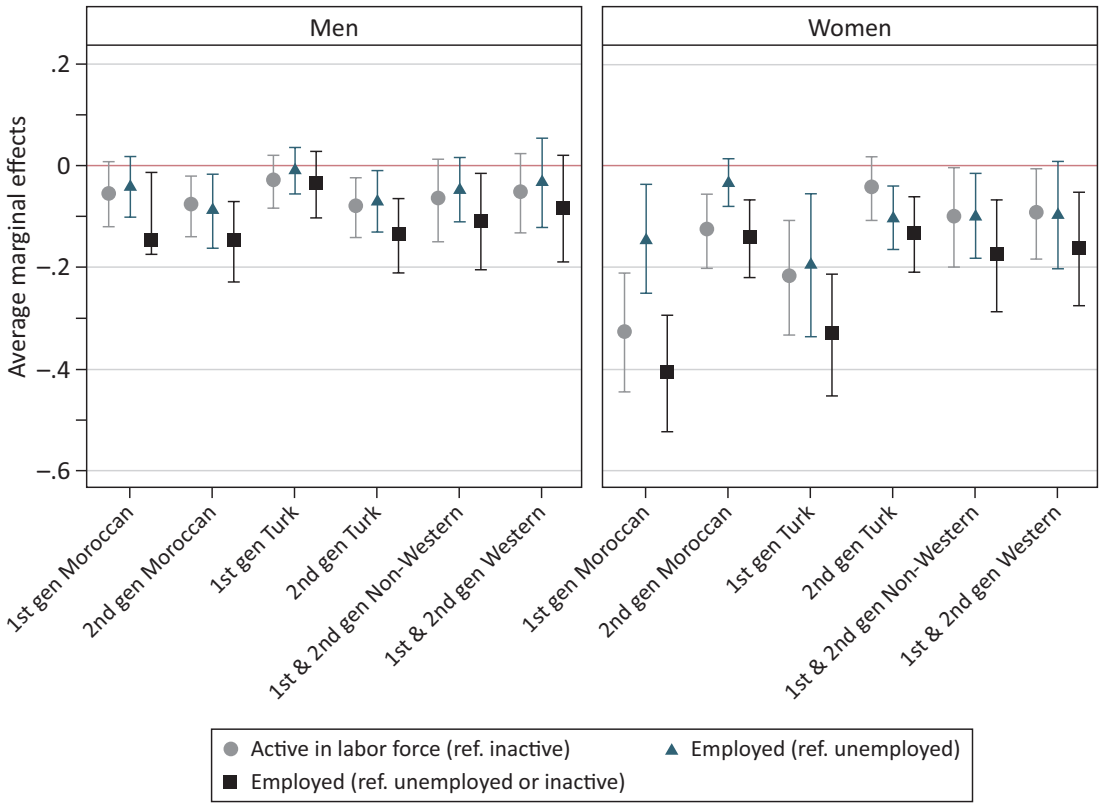

Figure A1. Gaps in labor market outcomes by ethnicity and generation. Models are weighted and account for age, age square, years of education, years since migration, urbanity, language problems, and Dutch citizenship (see Table A4).

Additional robustness checks for selection bias. To test whether selection into employment biases the results presented in the main analysis, I estimate the over- and undereducation with the extensive controls (age, age square, exposure to Dutch labor market, urbanity, Dutch language problems, and Dutch citizenship) using Heckman correction. I use the heckprobit procedure in Stata 13. The heckprobit models consist of one equation with the dependent variable of interest, in this case overeducation or undereducation, and a selection equation that predicts selection into the main outcome, in this case employment. The selection equation requires in addition to the main controls at least one instrument, i.e., a variable related to the selection but not to the main outcome. Potential instruments are partnership status and the presence of young children because they are unlikely to be related to education-occupation mismatches while they are established predictors of employment. Both variables have been used as instruments in earlier studies (Jauhiainen, 2011; Piracha, Tani, & Matloub, 2012). To test the assumption that partnership status and children are unrelated to the outcome, I estimated logit regressions of over and undereducation with these predictors added to the extensive model of the main analysis. I find that living with a partner is indeed unrelated to education-occupation mismatches for both men and women. This applies to the presence of children as well with the exception of women's undereducation, for which the presence of young children is a significant predictor. To avoid misspecification, I, therefore, use only living with a partner as an additional predictor in the selection equation for women's undereducation. I use living with a partner and the presence of young children as additional predictors in the selection equation for women's and men' overeducation, and for men's undereducation. I have also considered using district unemployment rates and district welfare recipient rates as instruments, but both were not associated with employment probabilities. Results are shown in Figure A2 for overeducation, and Figure A3 for undereducation. Overall, results are very similar regardless of whether Heckman correction was used or not. The main difference that can be observed is the larger confidence intervals, particularly in the estimates for overeducation. However, the observed differences do not lead to substantively different conclusions.

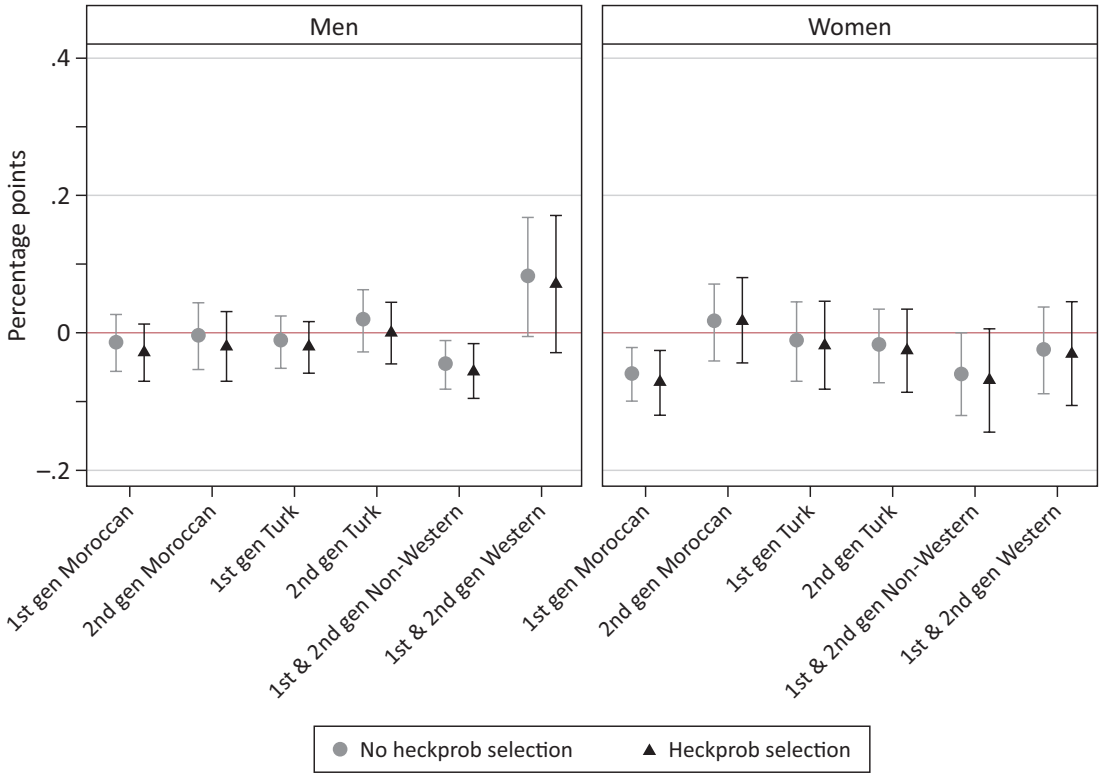

Figure A2. Estimated gaps in overeducation between different origin groups and Dutch majority with 95% (c.i.) using Heckman correction. Models estimated with robust standard errors. Circles show same estimates as extensive model in Figure 2. Triangle shows estimates of the same model with Heckman correction.

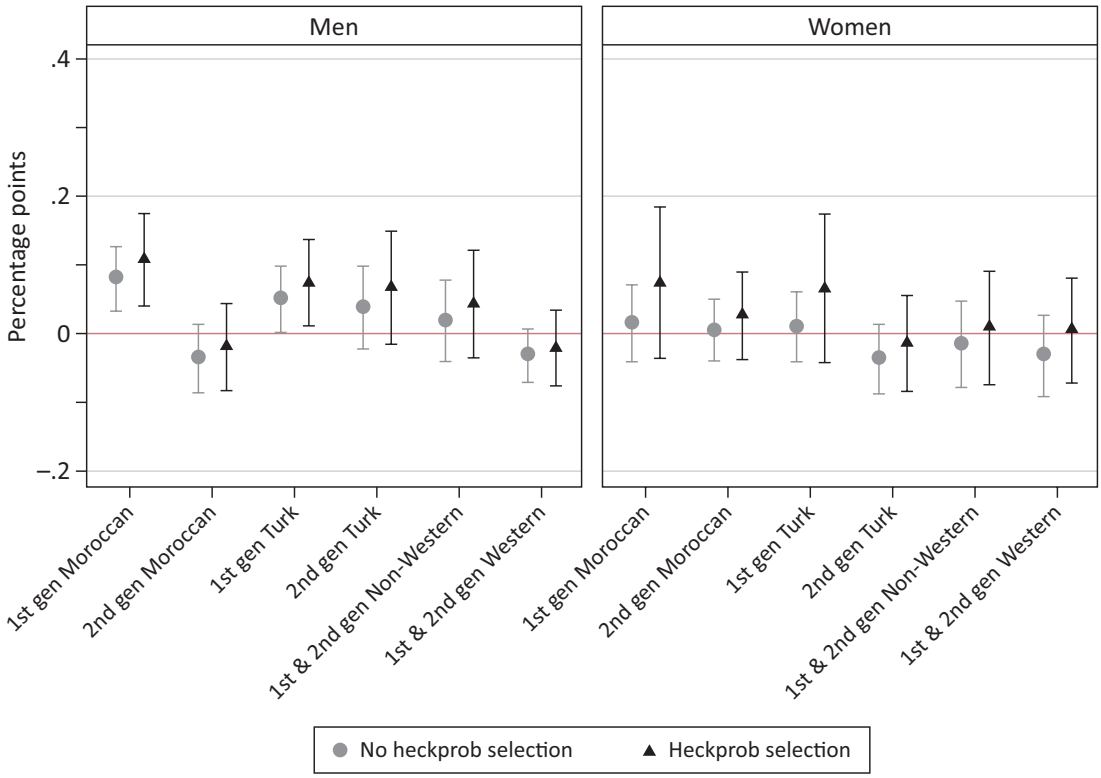

Figure A3. Estimated gaps in undereducation between different origin groups and Dutch majority with 95% (c.i.) using Heckman correction. Models estimated with robust standard errors. Circles show same estimates as extensive model in Figure 3. Triangles show estimates of the same model with Heckman correction.

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Article

Returns to Foreign and Host Country Qualifications: Evidence from the US on the Labour Market Placement of Migrants and the Second Generation

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Abstract
The integration of migrants in the US economic system is a central concern of policy-makers and scholars. A faster and smoother assimilation of valuable human capital would indeed benefit the labour market, increasing its efficiency. To investigate the integration of minorities and migrants in the US labour market, we employ data from the Current Population Survey from June 2016 (the primary source of labour force statistics in the US). We focus on the following ethnic groups: White, Black, Asian, and Other (a combination of Native Americans, Pacific and Mixed). For each ethnicity we consider if respondents are US born, 1st- or 2nd-generation of immigrant descent. Among 1st-generation migrants, we further differentiate between recent (in the country for 10 years or less) and long (in the country for more than 10 years) arrivals, as they are likely to have different levels of social capital and knowledge of the job market. We focus on three very relevant labour market outcomes: being employed, being employed in a public sector job and working in a professional or managerial position. Our results indicate better placement of individuals with tertiary degrees, an effect particularly important among women. Minorities in the public sector have made some important gains in terms of occupational attainment parity with the white majority.

Keywords
ethnic; foreign; host country; labour market attainment; minorities; private sector; public sector; qualifications

Issue
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1. Introduction

This thematic issue focuses on the utilization of the human capital of migrants and different minority groups. The article engages particularly with the case of the US. Human capital plays a major role in economic growth and development. Furthermore, schooling is an important determinant of pay and achieved occupational status. As a major immigrant society, the US is an interesting case. Previous research has indicated that not all degrees in the US receive good returns—for example, vocational training seems to be largely discounted especially government-led programmes (Cohn & Addison, 1998). In more recent research, Psacharopoulos and Patrinos (2004) suggest that only tertiary degrees can guarantee good returns; however, not in the case of vulnerable groups. Migrants and different minorities indeed occupy more vulnerable positions compared to majority members and broader macro events such as the economic crisis can already weaken their precarious labour market position. At the same time, some sheltering effect can be expected for those who occupy public sector jobs that should adhere strongly to anti-discrimination legislation. This article throws some light on these important ques-

tions and concerns by focusing on three main groups of interest: white migrants, 1st and 2nd generation Black and Asians, and compares their outcomes to those of the white majority group. No finer distinction of groups is possible as this article investigates a number of important interaction effects between ethnic group and educational credentials (obtained within and outside the US) to determine the rate of return to different degrees (which is a major focus of this special issue).

2. Literature Review

The integration of migrants in the US economic system is a central concern of policy-makers and scholars. A faster and smoother assimilation of valuable human capital would indeed benefit the labour market, increasing its efficiency. Prior research has investigated numerous factors that may be relevant in the process, emphasizing the importance of age, gender, ethnicity, skills transferability, language barriers, and education (Akresh, 2011; Andemariam, 2007; Bratsberg & Terrell, 2002; Chellaraj, Maskus, & Mattoo, 2006; Dustmann & Glitz, 2011; Enchautegui, 1998; Jasso, Massey, Rosenzweig, & Smith, 2000; Mattoo, Neagu, & Özden, 2012; Portes & Rivas, 2011; White & Glick, 2009).

High-skilled migrants represent a particularly interesting case: although the demand for them is strong in the US economy (e.g., in IT occupations; see: Bound, Demirci, Khanna, & Turner, 2015), immigrants experience extensive disadvantage (Mattoo et al., 2012). For instance, using the New Immigrant Survey Pilot, NIS-P (Jasso et al., 2000), which follows migrants for one year after receiving green cards, Redstone Akresh (2006) reports that 50% of US legal migrants experience occupational downgrading (i.e., they have an occupational level that is lower than their last position abroad). This points to the possibility of severe underutilization of human capital which is the main concern of this paper.

To understand better the extent of underutilization of human capital, we need to be able to quantify the interplay between the country in which the education has been obtained (e.g., the sending or the host country) and the origin group of the immigrant. A degree acquired in the US is shown to have a greater impact on a migrant's economic integration than a degree acquired abroad (Redstone Akresh, 2006). This pattern appears to apply to a variety of ethnic groups. Gonzalez' (2003) study illustrates that Mexican and Latin American immigrants with US schooling perform better than their fellow countrymen, as they gain higher wages and can subsequently payoff the cost of their education entirely. Likewise, Zeng and Xie (2004) find that foreign-educated Asian immigrants earn 16% less than US born whites, US born Asian-Americans, and US educated Asian immigrants.[1]

A similar difference can be observed among foreign countries as well. Mattoo, Neagu and Özden (2008) report conspicuous gaps among highly educated immigrants depending on the country of origin. Controlling for age, experience and level of education, they find that migrants educated in Latin America and Eastern Europe are more likely to suffer occupational de-skilling than migrants educated in Asia and industrial countries. This is also true for migrants' wages, as demonstrated with different datasets (e.g., the US Census and Current Population Survey) by Bratsberg and Terrell (2002) and Schoellman (2011): earnings are significantly higher for migrants educated in developed areas (e.g., Northern Europe) in comparison to migrants educated in developing ones (e.g., Central America). The variation is generally attributed to divergences in the educational quality provided (measured in terms of expenditures in tertiary education or pupil-teacher ratio) in the home countries (Bratsberg & Terrell, 2002), or to limitations to the transferability of individuals' skills in the US (Duleep & Regets, 1999).

In the long-run, however, differences tend to narrow down and disappear. Chiswick and Hurst (2000) suggest, indeed, that immigrants' high unemployment rates appear to have a short-term duration and stabilize after three years (or less). Also, even if a relevant portion of migrants' experience downgrading with their first US job, they quickly improve their position (Akresh, 2008). Already within the first year, average earnings increase substantially (Akresh, 2007), and employer-sponsored migrants who acquire a green card have an annual wage gain of about $11,860 (Mukhopadhyay & Oxborrow, 2012). Over the years, as migrants are more likely to obtain a US qualification and develop valuable social connections, experiences of economic disadvantage weakens (Akresh, 2008). In addition, Mattoo et al. (2012), pooling together data from the 1980, 1990 and 2000 US Census, show that, with time, the performance of migrants from countries with lower initial occupational placement tends to converge with the one of other better-placed at arrival migrants (Mattoo et al., 2012).

Economic assimilation tends to be strengthened and even reinforced in the second generation. Even though racial discrimination can reduce opportunities for second generation individuals in the labour market in comparison to the white majority, the second generation performs generally better than the first one (Portes & Rivas, 2011). For instance, US born Mexican Americans have a significant earnings advantage over Mexican immigrants, as they benefit from being raised and educated directly in the US (Trejo, 2003).

More broadly, Bean, Leach and Lowell's (2004) research indicates an upward mobility of migrants over time: between 1990 and 2000 immigrants have moved from low-end jobs to middle-range positions, and occasionally to higher-range jobs.

Despite such improvements, there is also evidence that the disparities with the white majority remain substantial, and migrants never fully catch up with majority-white occupational levels (Portes & Rivas, 2011). At the

[1] Gonzalez (2003) employs the 1980 and 1990 5% US Census PUMS data, while Zeng and Xie (2004) uses US census data from 1990 only.

same time, immigrants' employment opportunities cannot be equated to the one of ethnic minorities born within the receiving society, as Bean et al. (2004) pointed out: though both groups experience disadvantage, they do not necessarily follow the same trends. However, considering the ethnic background of migrants is crucial as this factor has major implications. For example, while Hispanics tend to be mostly manual workers with lower educational attainment, Asians are generally characterized by the possession of high human capital (Portes & Rivas, 2011).

In this article, we acknowledge such differences and analyse the integration in the labour market of US born minorities and migrants belonging to different ethnic backgrounds (Black, Asian and Other) separately. In addition, we estimate the return to education and track how economic disadvantage develops across the 1st and 2nd generations, providing an overall panorama of the process. More specifically, building upon previous literature, not only we assess the gaps in the probability of employment, but we also evaluate differences between the public and private sectors, as well as the probability of being hired for high-level jobs. In this sense, we explore if the public sector effectively facilitates economic assimilation (especially regarding high quality jobs), while considering the respondent's educational level.

3. Data and Methods

To investigate the integration of minorities and migrants in the US labour market, we employ data from the Current Population Survey (CPS) from June 2016 (the primary source of labour force statistics in the US). The CPS gathers information for about 150,000 people and it includes questions on country of origin, parental country of origin, citizenship, and year of entry into the US, allowing meaningful analyses of sub-populations.

We focus on the following ethnic groups: White, Black, Asian, and Other (a combination of Native Americans, Pacific and Mixed).[2] For each ethnicity we consider if respondents are US born, 1st- or 2nd-generation.[3] Among 1st generation migrants, we further differentiate between recent (in the country for 10 years or less) and long (in the country for more than 10 years) arrivals, as they are likely to have different levels of social capital and knowledge of the job market. The sample is restricted to people of working age (16 to 64), excluding inactive individuals who are retired or disabled—giving us a sample of about 74,000 individuals.

Three main outcomes are taken into account to assess gaps in the labour market between minorities or migrants and the white majority: (1) Being employed; (2) Working in the public sector; and (3) Working in professional or managerial positions (i.e., high-level jobs). In this sense, we evaluate labour market disadvantage broadly, evaluating not only the prospects of employment, but also eventual differences between the public and private sectors and the probability of being hired for high-level jobs.

Performances in the labour market across such outcomes are estimated using binary logistic regression and shown as marginal effects at mean of covariates. All models are weighted to represent the general population, and run separately for men and women, as processes are likely to diverge because of gender. In addition, to address possible sources of bias, we apply the following covariates: age, age (squared), highest qualification obtained, urbanization, region in the US, whether they cohabit, whether a dependent child is present (see Table 1 for more details).

4. Results

We begin by showing the overall integration in the labour market of each group by migrant status, ethnicity and years of residence in comparison to the white majority. Models in Table 2 indicate the existence of significant negative gaps in respect to employment chances, public jobs, and high-level positions for some migrant and minority groups, even if we control for age, education, urbanization level, family status, and region. This is in line with previous research and it confirms the existence of a widespread economic disadvantage for all ethnic minorities and migrants.

For instance, as concerns natives belonging to an ethnic minority (i.e., Black, Asian, Other), it can be observed that the predicted probabilities to be employed for native Black males are 7.2 percentage points lower than native White males. The same is true for native Asian females whose likelihoods of employment are 15.2 percentage points lower than their White counterpart. Such a distinctive ethnic divide seems to be rooted in the private sector, since the second generation of both sexes (i.e., Black and Other) are actually more likely to be hired in the public sector than the white majority. This is possibly a consequence of Affirmative Action policies, which have been aimed over the last 50 years at the improvement of the employment opportunities for groups historically discriminated in the US. However, evidence indicates that this rebalancing does not reach the top of the occupational hierarchy (professional or managerial positions), which are mostly taken by the white majority—even if the minority individual has the same education level, age, family status, as that of a white majority individual.

Table 2 shows that migrants experience significant economic disadvantage. They have lower chances to get

[2] Notice that the CPS does not identify Hispanics as a separate race. As a matter of fact, the CPS employs the following question to identify different ethnic groups: "I am going to read you a list of five race categories. You may choose one or more races. For this survey, Hispanic origin is not a race. (Are/Is) (NAME/you) White; Black or African American; American Indian or Alaska Native; Asian; OR Native Hawaiian or Other Pacific Islander?"

[3] Our US born category focuses on majority members who do not have foreign parents. 2nd generation migrants are US born citizens who have foreign parents (mother or father). This means that the category "US born" does not include 2nd generation migrants, but it can include 3rd gen migrants (this meaning that their grandparents were foreigners).

Table 1. Descriptive statistics by ethnicity and migrant status.

	White US born	White 1st gen	White 2nd gen	Black US born	Black 1st gen	Black 2nd gen	Other US born	Other 1st gen	Other 2nd gen	Asian US born	Asian 1st gen	Asian 2nd gen
	mean	mean	mean	mean	mean	mean	mean	mean	mean	mean	mean	mean
Male	0.49	0.50	0.49	0.45	0.48	0.48	0.45	0.46	0.51	0.47	0.46	0.53
Age	40.2	40.9	33.8	38.1	40.3	29.1	35.8	38.4	29.6	40.7	40.8	30.4
Cohabiting	0.53	0.63	0.37	0.28	0.44	0.17	0.36	0.54	0.26	0.46	0.67	0.29
Qualification												
Secondary or Less	0.010	0.17	0.017	0.0093	0.066	0.020	0.012	0.16	0	0.0051	0.036	0.0023
High School -No Diploma	0.092	0.15	0.16	0.14	0.10	0.19	0.15	0.19	0.16	0.093	0.047	0.13
High School Diploma	0.26	0.27	0.25	0.33	0.25	0.19	0.33	0.25	0.26	0.19	0.17	0.12
Some College	0.19	0.12	0.21	0.22	0.17	0.26	0.22	0.16	0.25	0.18	0.12	0.19
Associate Degree	0.11	0.056	0.087	0.092	0.099	0.077	0.10	0.068	0.068	0.096	0.061	0.078
Bachelor's Degree	0.22	0.14	0.17	0.14	0.19	0.16	0.12	0.11	0.17	0.30	0.31	0.32
Master's Degree or More	0.12	0.096	0.10	0.069	0.12	0.11	0.062	0.074	0.092	0.13	0.25	0.16
Dependent Child	0.32	0.48	0.28	0.30	0.39	0.23	0.33	0.45	0.27	0.28	0.41	0.20
Activity												
Employed	0.80	0.75	0.72	0.71	0.77	0.62	0.68	0.71	0.71	0.75	0.72	0.67
Unemployed	0.035	0.034	0.048	0.078	0.043	0.043	0.077	0.033	0.037	0.033	0.026	0.029
Inactive	0.17	0.22	0.24	0.21	0.19	0.34	0.25	0.26	0.25	0.22	0.25	0.30
Public Sector	0.15	0.065	0.13	0.18	0.12	0.13	0.21	0.065	0.10	0.23	0.10	0.12
Managerial or Professional Job	0.41	0.24	0.37	0.28	0.33	0.41	0.30	0.22	0.31	0.47	0.50	0.57
Region												
Northeast	0.18	0.15	0.18	0.096	0.36	0.36	0.068	0.12	0.17	0.058	0.19	0.22
Midwest	0.24	0.11	0.12	0.15	0.14	0.066	0.14	0.098	0.13	0.051	0.11	0.098
South	0.34	0.36	0.27	0.67	0.42	0.42	0.26	0.25	0.19	0.11	0.26	0.18
West	0.25	0.38	0.43	0.083	0.084	0.15	0.53	0.54	0.51	0.78	0.44	0.50

Table 1. (Cont.) Descriptive statistics by ethnicity and migrant status.

	White US born	White 1st gen	White 2nd gen	Black US born	Black 1st gen	Black 2nd gen	Other US born	Other 1st gen	Other 2nd gen	Asian US born	Asian 1st gen	Asian 2nd gen
	mean	mean	mean	mean	mean	mean	mean	mean	mean	mean	mean	mean
Urban												
Non Metropolitan or Not Identified	0.31	0.096	0.12	0.16	0.074	0.031	0.42	0.093	0.12	0.12	0.079	0.030
100 000–249 999	0.088	0.044	0.055	0.057	0.038	0.017	0.077	0.049	0.075	0.048	0.036	0.028
250 000–499 999	0.080	0.073	0.080	0.080	0.027	0.043	0.044	0.052	0.058	0.020	0.040	0.021
500 000–999 999	0.13	0.11	0.13	0.12	0.074	0.040	0.18	0.16	0.19	0.40	0.10	0.13
1 000 000–2 499 999	0.15	0.14	0.13	0.20	0.12	0.11	0.11	0.22	0.17	0.066	0.17	0.16
2 500 000–4 999 999	0.10	0.15	0.15	0.080	0.13	0.19	0.071	0.19	0.16	0.11	0.18	0.21
over 5 000 000	0.14	0.39	0.33	0.30	0.54	0.57	0.087	0.25	0.23	0.24	0.39	0.41
Years of Residence												
Not Foreigners	1	0	1	1	0	1	1	0	1	1	0	1
More than 10 years	0	0.76	0	0	0.64	0	0	0.73	0	0	0.62	0
Between 5–10 years	0	0.13	0	0	0.19	0	0	0.13	0	0	0.19	0
Equal or less than 4 years	0	0.11	0	0	0.16	0	0	0.14	0	0	0.19	0
Observations	47718	6543	4238	6419	1028	351	1921	367	294	396	2950	856

Table 2. Ethnic and migrant gaps with white majority in labour market outcomes. Source: US Census Bureau (2016).

	Employed (women sample)	*Employed (men sample)*	*Public Job (women sample)*	*Public Job (men sample)*	*Professional or Managerial Job (women sample)*	*Professional or Managerial Job (men sample)*
Ref category: White US born citizens						
White 1st gen short	−0.160***	0.008	−0.080***	−0.066***	−0.181***	−0.141***
	(0.021)	(0.013)	(0.012)	(0.007)	(0.028)	(0.019)
White 1st gen long	−0.054***	0.048***	−0.041***	−0.044***	−0.152***	−0.134***
	(0.012)	(0.007)	(0.008)	(0.006)	(0.016)	(0.012)
White 2nd gen	−0.001	−0.014+	0.007	0.006	−0.023	−0.030+
	(0.011)	(0.008)	(0.010)	(0.008)	(0.018)	(0.016)
Black US born	−0.018+	−0.072***	0.065***	0.044***	−0.070***	−0.116***
	(0.010)	(0.009)	(0.010)	(0.009)	(0.013)	(0.012)
Black 1st gen short	−0.140***	−0.067*	−0.049+	−0.022	−0.179***	−0.141***
	(0.042)	(0.034)	(0.029)	(0.024)	(0.052)	(0.041)
Black 1st gen long	0.042+	0.018	0.024	0.028	−0.037	−0.124***
	(0.025)	(0.020)	(0.026)	(0.021)	(0.038)	(0.027)
Black 2nd gen	−0.075*	−0.067*	0.031	0.005	−0.045	−0.025
	(0.038)	(0.028)	(0.039)	(0.032)	(0.053)	(0.054)
Other US born	−0.024	−0.039*	0.045**	0.053**	−0.037	−0.050*
	(0.018)	(0.015)	(0.017)	(0.016)	(0.029)	(0.025)
Other 1st gen short	−0.170*	0.059*	−0.104***		−0.278***	−0.270***
	(0.078)	(0.030)	(0.025)		(0.084)	(0.036)
Other 1st gen long	−0.025	0.048+	−0.069**	−0.032	−0.029	−0.156***
	(0.042)	(0.028)	(0.027)	(0.025)	(0.070)	(0.046)
Other 2nd gen	−0.011	0.015	0.010	−0.006	−0.193**	0.030
	(0.045)	(0.024)	(0.041)	(0.032)	(0.061)	(0.061)
Asian US born	−0.152***	−0.027	0.011	0.054	−0.028	−0.051
	(0.045)	(0.037)	(0.034)	(0.039)	(0.059)	(0.054)
Asian 1st gen short	−0.298***	−0.132***	−0.075***	−0.053***	−0.100**	0.073*
	(0.025)	(0.024)	(0.013)	(0.010)	(0.035)	(0.030)
Asian 1st gen long	−0.066***	−0.006	−0.057***	−0.032***	−0.116***	−0.064***
	(0.018)	(0.015)	(0.009)	(0.009)	(0.022)	(0.019)
Asian 2nd gen	−0.105***	−0.064***	−0.060***	−0.038**	0.061	0.093*
	(0.028)	(0.019)	(0.016)	(0.013)	(0.040)	(0.038)
Observations	37464	35617	28220	30824	28242	30876

Notes: Standard errors in parentheses; estimated gap by ethnicity (White; Black; Other; Asian) and migrant status (short $\leq$ 10y; long $>$ 10y; 2nd gen) for 16–64, excluding retired or inactive people with disability; weighted; robust SE; controlling for age, age (squared), education, urbanization, cohabiting, dependent child, f.e. for region; + $p < 0.1$ * $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$. Reference category: White US born citizens.

a job, be employed in the public sector, or be hired in high-level jobs. This tends to be true across all ethnicities, and it is particularly strong for recent arrivals (as also suggested in Chiswick & Hurst, 2000). Indeed, difficulties in the economic integration of migrants arise primarily at the beginning of the integration process (especially for women), when they are likely to have a worse positioning in the job market and fewer connections. The gap with the white majority, nevertheless, seems to fade away over time: negative coefficients are large and very significant for migrants who stayed in the country for less than 10 years, but they decrease in size and relevance for migrants with longer duration of stay.

However, relevant gaps remain in respect to public and high-level jobs, indicating that the evolution of migrants' social capital, market knowledge, and US schooling in the 2nd generation is not sufficient to reverse the trend entirely.

There are some noticeable exceptions to the patterns described above. In the first place, it can be noticed that among men arrived in the US, White 1st generation who stayed for more than 10 years and Other migrants are more likely to get a job, though they tend not to have a position in the public sector or be hired as a manager or a professional. In this sense, the US job market appears to be open towards migrants willing to get

lower level jobs in the private sector, as these positions are possibly disregarded by White US born citizens. Indeed, such occupations are more likely to be taken by migrants with low educational levels—more than 30% of White and Other men migrants have (at most) attended High school without obtaining a diploma.

Secondly, contrary to other ethnicities, Asian migrants' experiences of economic disadvantage persist over time, remaining significant both for the 1st and the 2nd generation. On the other hand, Asians are the only migrant group to show a positive coefficient for high-level jobs. As a matter of fact, the likelihood of having a managerial or professional position for recent migrants and 2nd generation Asian men are 7.3 and 9.3 (respectively) percentage points higher than for White US born. Plausibly, as Asians tend to have a higher educational level in comparison to other migrants and US born citizens,[4] they might prefer to stay for a longer period in the job market in the attempt of obtaining higher level jobs (Portes & Rivas, 2011).

Moving to the benefits of education, in line with previous studies, Table 3 displays the returns to education by ethnicity and migrant status. Overall, results indicate that having a post-secondary qualification strongly increases the chances of both the second generation and migrants to be employed and get better positions. The effect tends to be more significant for women, who, as it already emerged in Table 2, experience worse labour opportunities than their male counterpart. The chances to obtain a high-level job are particularly strengthened,

Table 3. Returns to high education by ethnicity and migrant status. Source: US Census Bureau (2016).

	Employed (women sample)	*Employed (men sample)*	*Public Job (women sample)*	*Public Job (men sample)*	*Professional or Managerial Job (women sample)*	*Professional or Managerial Job (men sample)*
(Ref categories: at most High school by ethnicity and migrant status)						
White US born with higher education	0.141*** (0.007)	0.053*** (0.005)	0.084*** (0.006)	0.070*** (0.005)	0.376*** (0.008)	0.362*** (0.007)
White 1st gen with higher education	0.180*** (0.019)	−0.037** (0.013)	0.072*** (0.012)	0.060*** (0.009)	0.365*** (0.018)	0.336*** (0.016)
White 2nd gen with higher education	0.168*** (0.021)	0.053*** (0.015)	0.084*** (0.020)	0.102*** (0.016)	0.327*** (0.026)	0.331*** (0.023)
Black US born with higher education	0.183*** (0.018)	0.096*** (0.017)	0.126*** (0.016)	0.105*** (0.016)	0.347*** (0.018)	0.264*** (0.018)
Black 1st gen with higher education	0.171*** (0.046)	0.051 (0.037)	0.101** (0.035)	0.129*** (0.030)	0.371*** (0.042)	0.368*** (0.037)
Black 2nd gen with higher education	0.237** (0.083)	0.190** (0.067)	0.085 (0.090)	0.121* (0.051)	0.367*** (0.095)	0.284** (0.097)
Other US born with higher education	0.122*** (0.037)	0.141*** (0.031)	0.040 (0.035)	0.060+ (0.031)	0.235*** (0.048)	0.262*** (0.040)
Other 1st gen with higher education	0.235** (0.079)	0.019 (0.048)	0.073* (0.036)	0.016 (0.040)	0.362*** (0.079)	0.275*** (0.068)
Other 2nd gen with higher education	0.032 (0.082)	0.011 (0.046)	0.154+ (0.084)		0.354*** (0.098)	0.418*** (0.094)
Asian US born with higher education	0.235* (0.111)	0.211* (0.091)	0.110 (0.072)	0.068 (0.077)	0.462*** (0.108)	0.376*** (0.080)
Asian 1st gen with higher education	0.026 (0.031)	0.020 (0.027)	0.070*** (0.017)	0.052** (0.017)	0.465*** (0.027)	0.535*** (0.024)
Asian 2nd gen with higher education	0.269*** (0.065)	0.095* (0.044)	0.059 (0.047)	0.093*** (0.021)	0.472*** (0.084)	0.424*** (0.074)
Observations	37464	35617	28220	30809	28242	30876

Notes: Standard errors in parentheses; estimated returns to education (Higher Education; compared to at most High School) by ethnicity (White; Black; Other; Asian) and migrant status (1st gen; 2nd gen) for 16–64, excluding retired or inactive people with disability; weighted; robust SE; controlling for age, age (squared), urbanization, cohabiting, dependent child, f.e. for region + $p < 0.1$ * $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$. Reference categories: "at most High School" by ethnic group and migrant status (e.g., White 1st gen migrants with higher education are compared to White 1st gen migrants with a High school degree at most).

[4] On average, 56% of 1st generation Asian migrants and 48% of 2nd generation Asians have a Bachelor's qualification or higher, while only 34% of White US born have the same educational level.

as higher qualifications are required for such positions. For instance, a 1st generation Black woman with a higher education has 37.1 percentage points higher predicted probability to obtain a managerial occupation compared to a 1st generation Black woman with at most high school diploma. The same pattern is valid for men and all other minorities.

Having a post-secondary qualification is also positively correlated with being employed in the public sector, suggesting a widespread application of more meritocratic and transparent hiring criteria in the public sector. To understand if this applies only to specific occupations, Table 4 further explores differences in the job market by focusing on high-level positions. More specifically,

Table 4. Ethnic and migrant gaps in private and public sectors for professional or managerial jobs. Source: US Census Bureau (2016).

	Professional or Managerial Job (women sample)	*Professional or Managerial Job (men sample)*
Ref categories: White US born in the private and public sectors		
White 1st gen		
Private	−0.152***	−0.147***
	(0.015)	(0.011)
Public	−0.124**	−0.044
	(0.048)	(0.053)
White 2nd gen		
Private	−0.030	−0.035*
	(0.019)	(0.017)
Public	−0.010	−0.001
	(0.044)	(0.046)
Black US born		
Private	−0.069***	−0.131***
	(0.015)	(0.013)
Public	−0.129***	−0.035
	(0.030)	(0.032)
Black 1st gen		
Private	−0.086*	−0.136***
	(0.034)	(0.025)
Public	−0.040	−0.088
	(0.080)	(0.066)
Black 2nd gen		
Private	−0.064	−0.047
	(0.055)	(0.056)
Public	−0.034	−0.160
	(0.141)	(0.221)
Other US born		
Private	−0.041	−0.048+
	(0.032)	(0.029)
Public	−0.055	−0.056
	(0.070)	(0.055)
Other 1st gen		
Private	−0.087	−0.184***
	(0.062)	(0.038)
Public	−0.045	−0.064
	(0.312)	(0.205)
Other 2nd gen		
Private	−0.160*	−0.023
	(0.069)	(0.064)
Public	−0.372***	−0.566***
	(0.100)	(0.083)

Table 4. (Cont.) Ethnic and migrant gaps in private and public sectors for professional or managerial jobs. Source: US Census Bureau (2016).

	Professional or Managerial Job (women sample)	*Professional or Managerial Job (men sample)*
Ref categories: White US born in the private and public sectors		
Asian US born		
Private	−0.030	−0.094*
	(0.069)	(0.048)
Public	−0.057	0.190
	(0.102)	(0.199)
Asian 1st gen		
Private	−0.093***	−0.027
	(0.020)	(0.018)
Public	−0.169**	−0.011
	(0.057)	(0.050)
Asian 2nd gen		
Private	0.106**	0.100*
	(0.041)	(0.039)
Public	−0.287**	−0.005
	(0.103)	(0.105)
Observations	28220	30856

Notes: Standard errors in parentheses; estimated gap by ethnicity (White; Black; Other; Asian) and migrant status (short $\leq$ 10y; long $>$ 10y; 2nd gen) for 16–64, excluding retired or inactive people with disability; weighted; robust SE; controlling for age, age (squared), education, urbanization, cohabiting, dependent child, f.e. for region; + $p < 0.1$ * $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$. Reference category: White US born citizens in the private and public sectors (e.g., Black 1st gen migrants working in the private sector are compared to White US born citizens working in the private sector).

it shows the likelihood of each migrant group and ethnicity to get a professional or managerial position in the private and public sectors in comparison to the white majority (controlling for age, education, urbanization level, family status, and region).

Results indicate a strong closure of the private sector with little access of minorities and migrants to high-level positions. This pattern appears to be very consistent and significant across the different groups (with a single exception of 2nd generation Asians). However, evidence is more mixed for professional and managerial positions in the public sector, where the estimated gaps with the White majority are often insignificant. Even though in several instances we can observe a clear economic disadvantage (e.g., Black female US born, or 2nd generation Asian females), the trend appears to be rather erratic, showing even positive coefficients (the group of 2nd generation Other males is the only one for which this result is significant). Our findings suggest that equity exists in the public sector that extends also to higher level positions, which could potentially lead to more beneficial outcomes in the future.

5. Conclusions

Our results indicate strong and important gains to ethnic minorities employed in the public sector and for those with tertiary degrees. Having a post-secondary qualification increases the chances of both the second generation and migrants to be employed and obtain better positions. The effect tends to be stronger and carries important implications for women, who, as our models suggest experience worse labour opportunities than their male counterpart. The advantage for a degree holder is then likely to translate to better occupational attainment. Occupational attainment gains remain associated with public sector employment, underlying its importance in the fight against inequality and the existence of racial and ethnic hierarchies. Yet, difficulties in the economic integration of migrants exist which are more intense at the beginning (especially for women), when migrants are less likely to have a sure footing in the job market of the host society and lack the connections that can ensure good employment prospects.

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Conflict of Interests

The authors declare no conflict of interests.

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