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Social (Im)mobility in Low-skilled and Low-wage Immigrant Niches[1]

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ABSTRACT

In the last two decades, many labor migrants have arrived in the Nordic countries where they concentrate in certain low-wage and low-skilled jobs – immigrant niches. The article analyzes the scope of social (im)mobility in terms of occupational careers, income change, and job stability for native and foreign-born workers in immigrant niches in the low-skilled and low-wage section of the labor market. The case study is Norway's fish processing industry, where labor immigrants from Central and Eastern Europe have largely replaced Norwegian-born workers in manual jobs since 2004 and now dominate the workplace alongside a smaller number of non-Western immigrant workers. The article uses full population register data (n = 4164, Microdata.no) to analyze differences in workers' social trajectories between 2009 and 2018. Results show significant variation between workers: Norwegian-born (non-immigrant) workers appear to have greater upward social mobility than EU11 immigrant workers, who in turn do better than non-Western immigrant workers.

KEYWORDS

Fish processing / immigrant niche / immigration / immobility / income / Norway / occupation / social mobility

Introduction

In the last two decades, the Nordic countries have seen a large increase in immigration. After the European Union (EU) enlargement in 2004, many labor migrants from the new EU countries in Central and Eastern Europe (CEE) arrived in the Nordic region. Norway, with the highest wages and lowest unemployment, was by far the most attractive destination and received almost half of the CEE migrants (Friberg & Eldring 2013). These immigrants are not evenly distributed in the labor markets of receiving countries but are heavily overrepresented in certain occupations and industries, in this article referred to as 'immigrant niches' (Model 1993; Waldinger 1994; Waldinger & Der-Martirosian 2001).

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This article explores the differential social mobility patterns of immigrants and natives in the labor market context of immigrant niches. The process of niche formation has received much focus in the literature; however, less is known about the social mobility patterns of workers inside of existing immigrant niches. Further, the literature in this field is to a large degree divided: A growing literature discusses the effect of immigration on *natives'* social mobility, wages, and employment (Blau & Kahn 2012; Bratsberg & Raaum 2012; Card 2009), while another strand of literature discusses *immigrants'* social mobility (Akresh 2008; Barbiano di Belgiojoso 2019; Hipólito et al. 2014).

In this paper, we seek to unite these fields of study and compare the social mobility of *both* natives and immigrants employed – at least from the outset – in a typical immigrant niche, that of the low-skilled and relatively low-waged (by Norwegian standards) jobs in Norwegian fish processing industry (FPI). In a few years, the industry has developed into a typical immigrant niche following large-scale recruitment of CEE workers, here referred to as EU11 workers of which the larger part came from Poland and Lithuania. Between 2005 and 2018, the share of EU11 workers in the Norwegian FPI manual labor force rose from 1.5% to 33.7%. Combined with a smaller group of non-Western workers, mainly from Asia (Thailand and Sri Lanka) and Africa (Somalia), immigrants today make up the majority of assembly-line workers in the FPI.

We utilize full population register data (*Microdata.no*) to track social (im)mobility—in terms of occupational careers, income change, and job stability—of 4164 FPI manual workers from 2009 to 2018 to identify (im)mobility patterns of three groups: (1) Norwegian-born workers, whose numbers in the industry have been reduced drastically since 2000; (2) 'new' workers from EU11 countries, whose increasing numbers over have led to the formation of a distinct immigrant niche in the industry; and (3) non-Western workers, whose numbers in the industry have remained stable.

In doing this, we can answer two questions central for the understanding of immigrant niches and ethnic dualization of labor markets. First, what happens to native-born workers in immigrant niches? In the literature on formation of immigrant niches, it is assumed that natives leave to find other and better jobs (Waldinger & Lichter 2003); however, others argue that increasing immigration to a particular industry/occupation might also cause natives to exit the labor market altogether (Bratsberg & Raaum 2012). Second, what happens to the immigrants over time? Is the emerging niche a mobility trap for immigrants (Piore 1972,1979), or are their chances for upward mobility as good, or better (Model 1993; Waldinger 2005) as anyone else's, given equal qualifications?

The findings suggest a clear presence of an ethnic hierarchy in workers' social mobility trajectories. Norwegian-born workers in the immigrant niche are more upwardly mobile than EU11 immigrant workers, who in turn do far better than non-Western immigrant workers. However, substantial social mobility is observed across these categories, and the fortification of the immigrant niche appears to be combined with the niche providing a springboard for a few (EU11) immigrants' job careers and social mobility.

Social mobility and immigrant niches – a literature review

The literature at the intersection of migration and labor market studies has long noted how immigrants often cluster in certain industries, occupations, and workplaces in the

labor markets of receiving Western countries. The phenomenon is variously referred to as 'ethnic economy', 'ethnic/immigrant enclave', 'ethnic/immigrant niche', and others (Chan 2013; Model 1993; Waldinger 1994; Wilson & Portes 1980; Zhou 2013). These concepts address how job positions are often not allocated according to workers' individual skills (human capital); group-level characteristics related to ethnicity and immigrant background often matter more in the recruitment processes. While the concept of enclave is somewhat narrow and refers to clustering of an immigrant/ethnic group in *immigrant owned* business (Wilson & Portes 1980) we apply the broader concept 'immigrant niche', which refer to clusters of immigrants or ethnic/racial minorities in particular jobs. Such niches are typically defined by a 1.5% overrepresentation relative to the overall workforce (Model 1993; Waldinger & Der-Martirosian 2001). When defining the concept of 'job', Waldinger and Der-Martirosian (2001: 238) argue that researchers should be specific and 'pinpoint the intersection of occupation and industry'. An industry often contains a range of very different occupations, including occupations in which immigrants might not be present at all. This is relevant for the case study of this article, the Norwegian FPI, where immigrants are concentrated in manual positions (as machine operators) but not in other FPI occupations, such as white-collar jobs in sales or management. Thus, it would be imprecise to characterize the entire FPI as an immigrant niche; it is the jobs that occur at the intersection between the FPI and the manual, low-wage, and low-skilled occupations that represent the immigrant niche.

Immigrant niches

In this article, we thus focus on the most common type of immigrant niche: low skilled and low-wage immigrant niches (Friberg & Midtbøen 2018). A growing body of literature has discussed how such niches are *formed* from a number of perspectives that are important to a complete understanding of the process: (i) the supply of immigrants, (ii) the incumbent (native-born) labor force, and (iii) the employer's preferences. In the following, we will briefly discuss this literature, and in doing so, we will focus on the implications for social mobility opportunities for different niche workers.

The supply of immigrants is often approached from a social network perspective. As long as a few initial immigrants are in place (Waldinger and Der-Martirosian 2001), the 'magic' of the social network does the rest: migrant networks provide information and contacts and thus guide other migrants to the destination where help finding accommodation, employment, and other kinds of support is available (King 2012). Hiring through networks can also be beneficial to employers since they can outsource recruitment and training to existing migrant workers who will be personally invested in the new workers' performance (Waldinger & Der-Martirosian 2001).

To account for the incumbent (native-born) labor force and explain the employer's preferences, segmented labor market (SLM) theory is applied. In the SLM approach, the labor market is viewed not as a single competitive market but as being composed of different non-competing segments in which rewards for human capital (skills, knowledge, and experience) differ due to institutional barriers (Leontaridi 1998). SLM theory rejects the neo-classical supply-side explanation that divisions and inequalities in the labor market are caused mainly by differences in human capital and productivity. Instead, a more demand-oriented explanation is put forward in which employers and

wider economic conditions play an important role in shaping inequalities in the labor market (Grimshaw et al. 2017).

Piore's (1979) application of dual labor market theory, an elaboration of the SLM perspective, to explain the role of migrants in the labor market is particularly relevant in relation to immigrant niches. He argues that migration is the result of the high demand for migrants in the secondary sector, where jobs are often low-paying and insecure, and workers are subjected to poor working conditions and low probability of advancement. This contrasts with the primary sector, which offers jobs with relatively high wages, good working conditions, chances of advancement, and employment stability (Piore 1972). According to Piore (1979), natives avoid the secondary sector not just because of the described characteristics but also because the jobs have low status. Therefore, when mobility is possible, the existing native workforce leaves for better jobs with higher status (Waldinger & Lichter 2003). Further, the concentration of migrants in certain occupations and industries may cause the jobs to be labeled as 'immigrant jobs', which will reinforce the stigma attached to the jobs and further reduce the supply of native labor (Massey et al. 1993; Waldinger & Lichter 2003). This will again increase the demand for migrant labor. This process of cumulative causation is also discussed by Friberg and Midtbøen (2019), in their qualitative study of the Norwegian fish processing and hotel industry. They argue that an educational revolution and increasing income levels have caused natives to abandon these industries. Meanwhile, immigrants have entered and lowered the status of these jobs further, which reinforces incentives for natives to pursue other jobs.

Waldinger and Lichter (2003) have further theorized the role of the employer. They argue that when employers look for suitable workers, the suitability is often determined based on generalized categorizations of people. The result is hiring queues – the group ranked as most suitable for a type of job is hired first, while the rest follow in order. However, these ethnic hiring queues are not stable or permanent. They change over time, as immigrants become integrated and new groups arrive. Waldinger and Lichter (2003) relate this to migrants 'dual frame of reference' -- migrants compare conditions in the receiving country with conditions back home (Suárez-Orozco & Suárez-Orozco 1995). As long as this comparison is relevant, migrants are willing to accept hard, low-status work, because conditions 'back home' are less attractive. Due to this mindset, they have the 'right attitude', which not only explains why immigrants would want to take on jobs that natives avoid, but also why employers *prefer* immigrants over natives. The findings in the US by Waldinger and Lichter (2003) are largely backed up by studies in the UK (MacKenzie & Forde 2009; Tannock 2015) and in Norway; Scott and Rye (2021) show how UK and Norwegian employers in the horticulture industry strongly prefer to employ CEE migrants due to their superior 'work ethics', which not only outcompetes 'lazy' and 'spoiled' Norwegians but also immigrants from non-Western countries. Examining the hotel and fish processing industry, Friberg and Midtbøen (2018) similarly find evidence of an ethnic employment hierarchy. Employers in these industries view Norwegians as unfit for manual labor, but prefer them in key-positions. Eastern European immigrants, however, are viewed as perfect manual laborers due to their great work ethic and willingness to go the extra mile. However, they were not considered to have the right attitude for customer service or work that involved independent decision-making. Non-Western immigrants were regarded as less desirable and 'last in the hiring queue' (Friberg & Midtbøen 2018:1473). Similarly, Koivunen et al. (2015)

studied recruitment in Finland and found that the ideal worker is of a certain ethnicity. Interestingly, though, this was often disguised as a question of language skills.

These ethnic stereotypes could affect not only immigrants' chances of entering the labor market or where they get their first job, but also their long-term social trajectories and opportunities for social mobility.

Social mobility among immigrants in niches

Very broadly, the concept of social mobility deals with the movement of individuals within social space. We can distinguish between horizontal and vertical social mobility (Sorokin 1927), as well as social mobility between generations (intergenerational mobility) and over the life course (intragenerational mobility) (Hjellbrekke & Korsnes 2012). In this article, intragenerational social mobility is studied and our focus is on vertical social mobility, that is, upward and downward mobility (or immobility) in the social hierarchy, measured by combining information on occupation and income.

In general, there are two main theoretical approaches to the social mobility of immigrants: the assimilation model, based on neoclassic economic theory, and SLM theory (Barbiano di Belgiojoso 2019; Hipólito et al. 2014). The assimilation model predicts a U-shaped pattern of occupational mobility. When migrants first arrive, they experience downward mobility compared to their situation in the home country. This is the result of potential devaluation of their human capital, due to language barriers or their educational credentials not being recognized. Over time, as migrants improve their human capital in the receiving country, they will experience upward mobility (Bansak et al. 2015). In the SLM, however, very limited social mobility is expected for immigrants. In view of Piore (1972), the most defining characteristic of the secondary sector, where most migrants work, is limited upwards mobility. Migrants are particularly likely to be trapped in the secondary sector. He does, however, argue that migrants over time will become more integrated and develop 'status consciousness', but suggests that this shift in attitude toward the jobs market is not complete for first-generation immigrants (Piore 1979).

However, other contributions within the SLM perspective, which focus on ethnic niches and networks, have been somewhat more optimistic about immigrants' possibilities for upward mobility. The article by Wilson and Portes (1980) on the Cuban ethnic enclave found that migrants in the enclave are more upwardly mobile than migrants in the 'regular' secondary labor market. They attribute this to economic expansion, combined with 'the reciprocal obligations attached to a common ethnicity' (Wilson & Portes 1980: 315). Furthermore, Model (1993) argues that the immigrant niches can provide opportunities for social mobility. If new and better occupations develop in an industry or if a group abandons an occupation, the groups already overrepresented will have an advantage in the competition for available positions. A similar argument is made by Waldinger (2005), who argues that, from the point of view of network theory, concentration can be beneficial, as the search for advancement takes a collective, not an individual, form. However, on the other hand, it can be argued that working in an environment surrounded by co-ethnics could also have disadvantages for social mobility, as it can delay the development of language and cultural skills (Fuller & Martin 2012).

Empirical evidence on the social mobility of immigrant workers *in particular niches* is somewhat limited. However, a large number of studies provide findings on the national level. Many studies find support for the U-shaped pattern of occupational mobility, for instance, in Sweden (Rooth & Ekberg 2006) and in the US (Akresh 2008). The SLM 'entrapment' hypothesis is however supported in Spain (Hipólito et al. 2014) and Italy (Barbiano di Belgiojoso 2019). In their study of non-European migrants in Europe, Pereira et al. (2015) mainly find support for the segmentation hypothesis, but also find that there is a small positive effect of duration of stay on occupational mobility, which gives some support to the assimilation model.

In Norway, research on CEE migrants find few signs of wage or occupational assimilation (Bratsberg et al. 2014; Friberg 2015). The findings support the segmentation hypothesis, but it should be noted that the time of residence is still relatively short for this group. Research on wage assimilation among non-Western immigrants finds large differences between cohorts and country groups, but the overall picture is that the wage gap was still large after 12 years (Brovold 2020).

Social mobility among natives in niches

This article discusses not only the social mobility of immigrant workers but also the trajectories of natives. As discussed above, SLM theory assumes that natives leave emerging niches for better jobs. In fact, this is one of the mechanisms that contributes to the very formation of immigrant niches.

However, from the point of view of neoclassic economic theory, increasing immigration to a certain industry will decrease the wages for competing natives and thus also reduce the supply of natives (Bansak et al. 2015). In that case, in a generous social democratic welfare system such as that of the Nordic countries (Esping-Andersen 1990), it is possible to exit the labor market and rely on welfare. Bratsberg and Raaum (2012) studied the effect of immigration on wages and employment in the Norwegian construction industry and found evidence of reduced wages as well as native exit from the labor market. Similarly, Elstad and Heggebø (2020) find evidence of Norwegian-born workers being 'crowded out' by immigrants, meaning that income and employment of (particularly low-educated) native workers was negatively affected. However, other studies suggest that natives respond to immigration by upskilling, for instance, from manual task to communication task (Foged & Peri 2016; Sparber & Peri 2009).

Expectations for this study

Based on the theoretical perspectives presented, native-born workers are expected to be more upwardly mobile than immigrant workers. However, the literature review also suggests that the massive inflow of immigrants to an industry could displace native workers.

Further, we expect to find differences in the social mobility trajectories of EU11 workers and non-Western workers: if large numbers and networks matter for social mobility (Model 1993; Waldinger 2005), one would expect the larger and more homogeneous group of EU11 workers to be more upwardly mobile within the industry than the smaller and more heterogeneous group of non-Western workers. However, most

EU11 workers have been in Norway for a short time, compared to most non-Western workers. According to the assimilation hypothesis, the non-Western workers should have an advantage, as they have had more time to accumulate human capital in Norway. In addition, most of the non-Western workers are refugees and family migrants and therefore have access to free Norwegian language courses, as opposed to EU11 workers, which are mainly labor migrants, and need to pay for such courses themselves.

We can thus formulate two general hypotheses:

H1: Norwegian-born workers are more upwardly mobile than immigrant workers.
H2: EU11 workers are more upwardly mobile than non-Western workers.

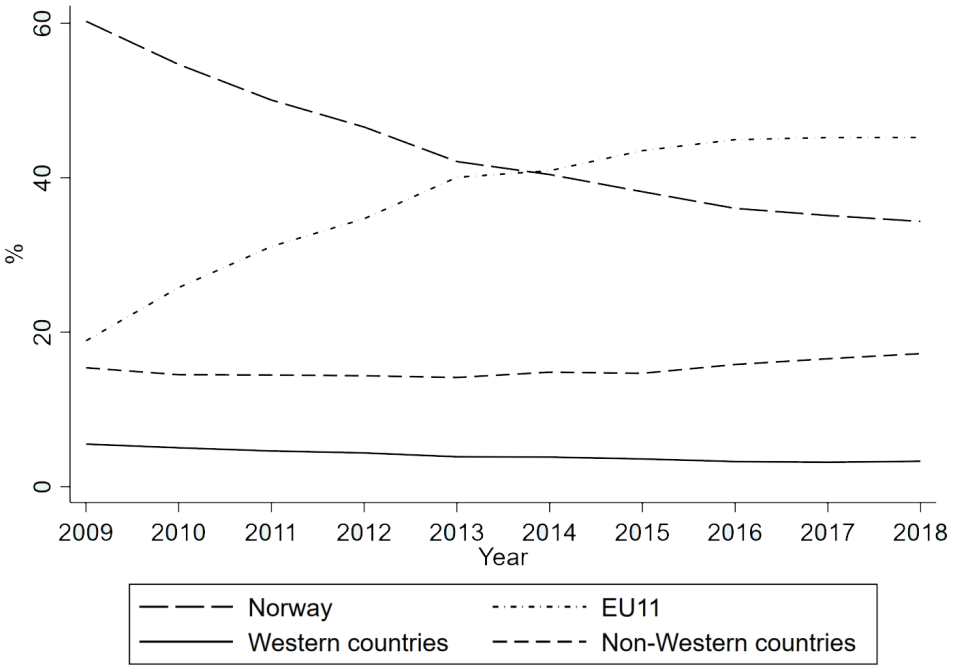
We also pay attention to the effects of education for different groups of workers. We know that EU11 workers have higher levels of education, which they according to neoclassic theory should benefit from. However, SLM theory suggests different returns on human capital for different workers in different segments.

The Norwegian fish processing industry

The present article explores the effects of immigration background on workers' social (im)mobility in immigrant niches through a case study of the Norwegian FPI. The industry employs about 10,000 workers. The analysis focuses on the low-skilled manual workers who constitute most of the workforce (73%), that is, the workers who perform the manual tasks required to process seafood products (slaughtering, filleting, and packing).[1] In official statistics, these workers are classified as 'food and related products machine operators'. These jobs were traditionally manned by local workers but have been increasingly filled by immigrant workers since the 1960s, first from Scandinavian countries and later from the non-Western countries (Henriksen 2020; Ødegård & Andersen 2011). However, the most profound change in the workforce composition took place after the EU enlargement in 2004 (and then again in 2007 and 2013), which gave workers from 11 former Communist regimes access to Western European labor markets.[2] EU11 workers were hardly present in the Norwegian FPI as late as 2005; however, their presence among machine operator workers rose to 18.9% in 2009 and further to 45.2% in 2018. In the same period (2009–2018, the period studied in this article), the share of Norwegian machine operators dropped from 60.2% to 34.3% (Figure 1). These developments exemplify the formation of an immigrant niche.

The Norwegian FPI immigrant niche has many of the characteristics of the secondary labor market, as described by Piore (1979). The jobs require few formal credentials, are often physically demanding and monotonous, and generally confer low social status. Wages are relatively low and have been regulated through the extension of collective agreements since 2015, which implies a minimum wage of 19.3 euros (The Norwegian Labour Inspection Authority 2020). There have also been several documented cases of substandard wages and working conditions in the industry (Henriksen 2020). Nevertheless, the Norwegian FPI does not reflect all the characteristics of the prototypical secondary labor market. There is a strong presence of trade unions in the industry. Further, the Norwegian Working Environment Act (2019, §14–9) states that employees shall be permanently hired. However, in practice, deviations from this rule

Figure 1 Machine operators in Norway's fish processing industry by birth-country group



are notably plentiful. For instance, Stachowski and Rasmussen (2021) found that the use of short-term and part-time contracts has become the norm in recent years, creating insecurity for immigrant workers in the Norwegian FPI.

In total, the Norwegian FPI represents an instructive critical, though not statistically representative, case for the study of social (im)mobility in immigrant niches in Nordic labor markets (Yin 2009).

Materials and methods

The analysis was based on data provided by the *Microdata.no* platform (created by Statistics Norway and Norwegian Centre for Research Data), which provides access to register data on employment, income, educational attainment, and other variables for the Norwegian residential population. The material allows for an estimation of occupational careers, income change, and job stability of FPI workers and how these vary between Norwegian-born workers, EU11 workers, and non-Western immigrant workers.

Study population

The study population consisted of FPI machine operators in Norway in 2009. In that year, a total of 9350 persons were registered as FPI-employees,[3] of whom 8211 had a

known occupation[4] and 5988 were employed as 'food and related products machine operators'.[5] These 5988 constitute the gross sample in the analysis.

The sample was further modified based on the following exclusionary characteristics. First, approximately 8.5% of the gross sample was dead (1.4%) or living outside of Norway (7.1%) by 2018 and was thus excluded. However, note that among those who had left Norway, EU11 workers are heavily overrepresented (60%), as the free mobility within the EU allows them to travel back and forth easily.[6] Second, persons older than 61 years in 2018 were excluded from the analyses, as they had reached the Norwegian age limit for early retirement; most of these individuals (90.0%) were born in Norway. Third, a small number of workers (n = 230) were born in Western countries other than Norway or the EU11 and were excluded from the analysis. Fourth, about 50 persons were excluded from the analysis due to missing values on occupational status in 2018. In conclusion, the net sample consisted of 4164 persons working as machine operators in the Norwegian FPI in 2009, who were alive and still living in Norway and under the age of 62 in 2018, and had not been born in a Western country other than Norway and the EU11.

Notably, *Microdata.no* includes persons registered as 'residing' in Norway with registered FPI jobs. In effect, short-term seasonal workers, and workers in staffing companies, who are largely immigrants and perhaps the most vulnerable group of FPI workers, were not included in the material. Their exact numbers are unknown, but Henriksen (2020) estimates that the workforce increases with 18–24% in the season. Their opportunities for social mobility are presumed to be worse than other FPI workers, though further research (and additional material) is required to capture their (im)mobility patterns. However, their exclusion is not likely to impact conclusions concerning the main FPI labor force and the relationship between immigration background and social (im)mobility patterns.

Social (im)mobility (dependent variables)

Three dependent variables related to social mobility were analyzed: (1) occupational career, (2) income change, and (3) job stability.

First, workers were sorted into four mutually exclusive occupational outcomes based on their occupational status in 2018:

(i) Same occupation (i.e., FPI machine operator)
(ii) New occupation within FPI
(iii) New industry
(iv) Outside the workforce or unemployed

The first outcome (machine operator in the FPI) represents social immobility and the fourth (outside workforce) indicates downward social mobility – this group is almost exclusively people who are unemployed/inactive but does also include a few people (5%) with student activity in 2018. Both outcomes 2 and 3 suggest social mobility: Its direction (upward or downward) is not necessarily clear; however, our data on income show that both outcomes on average clearly indicate upward mobility. In the logistic regression analysis, all four variables were dichotomized.

Second, income was measured as occupational income, that is, employment income (which includes sickness benefits and parental benefits) and net capital income. The dependent variable 'change in income' measured the difference in income between 2018 and 2010. Income in 2010 was adjusted for inflation using 2018 as a base. The year 2010 was used as the year of reference since many of the immigrant workers first came to Norway in 2009 and had thus not received a full year of income in 2009.[7]

The third dependent variable measured workers' labor market attachment over time (2010–2018). Workers who had lived outside of Norway at any time between 2009 and 2018 were excluded. Inspired by Heggebø and Elstad (2019), five mutually exclusive categories were constructed: stable, somewhat stable, middle, weak/unstable, and labor market outsiders.

(i) *Stable*: Income higher than 339,000 NOK (3.5 base amounts, 35,684 EUR) every year from 2010 to 2018. The threshold value is slightly lower than the average wage for a full-time employee in the lowest-paid occupations in Norway, and everyone with a full-time job should fall in this category.
(ii) *Somewhat stable*: Income higher than 35,684 EUR in a minimum of five of the nine years.
(iii) *Middle*: Not fully employed but have not experienced a significant (20%) drop in income during the period (i.e., permanent part-time employees).
(iv) *Weak/unstable:* Income higher than 35,684 EUR in a maximum of four of the nine years and have experienced a significant drop in income (20%) at least twice during the period.
(v) *Labor market outsiders*: Income lower than 49,000 NOK (5,158 EUR) for all nine years or registered as receiving 100% disability benefit in 2018.

Country of birth (key independent variable)

The following analyses distinguished between three groups based on workers' country of birth:

(i) Norwegian-born workers.
(ii) EU11 workers,[8] most of whom were born in Lithuania (39%), Poland (37%), and Latvia (14%).
(iii) Non-Western workers, i.e., workers born in Africa, Asia, Latin-America, and Oceania, excluding Australia and New Zealand, and European countries not part of the European economic area (EEA). The group was very heterogeneous, with most workers have been born in Thailand (22%), Sri Lanka (13%), and the Philippines (11%).

Notably, EU11 and non-Western immigrant workers represented distinct categories in many regards. In addition to geographic and cultural proximity of EU11 immigrants to Norway compared to non-Western immigrants, the two groups have different reasons for immigration. Most of the EU11 workers were registered as 'labor migrants' in administrative registers, meaning that 'work' was recorded as the main reason for immigration. In contrast, immigrants from non-Western countries were mainly 'family' migrants or refugees and had not usually arrived in Norway with plans to work in the

FPI. When refugees and their families arrive, they have the right and obligation to attend a two-year introduction program, including Norwegian language and society lessons (Hernes & Tronstad 2014). Labor migrants are not included in any such programs and are expected to fend for themselves.

Control variables

Several control variables were used in the analysis to isolate the unique effects of birth country on social mobility. EU11 migrants were significantly younger than the other groups. Further, while men were overrepresented among Norwegian-born and EU11 migrants, females were overrepresented among workers from non-Western countries.

Education level in 2018 was divided into three levels: low (compulsory education or no registered education),[9] medium (completed upper secondary education), and high (education at the university or college level).[10] Few Norwegian-born workers in the FPI (6.2%) had higher education. A much larger proportion of immigrant workers held higher education: 27.9% and 17.2% of EU11 and non-Western immigrants, respectively. However, 46.6% of Norwegian-born workers has finished upper secondary school, compared to 37.7% of EU11 workers and 22.9% of non-Western workers. Further, *student activity* in the period (2009–2018) was a dichotomous variable indicating course activity at any level in the Norwegian Standard for Classification of Education.

Finally, *change in working hours* was measured as the change (from 2010 to 2018) in number of hours the person had agreed to work per week in the employment contract. Thus, absence due to sickness, vacation, or overtime did not affect numbers. See Table A in appendix for descriptive statistics for all variables.

Linear and logistic regression models

The analysis was performed using linear and logistic regression models. In the logistic regression models, both average marginal effects (AMEs) and log-odds ratios (LnORs) were reported. AME values are easier to interpret substantively than LnOR values, as they straightforwardly express the average effect of independent variables on the probability that $y = 1$. AMEs are also preferable, as LnORs are not comparable across models with different independent variables (Mood 2009). Although stepwise regression models are not presented in this article, the results of different model specifications are frequently commented on, including models with interaction effects. These models can be found in the Appendix.

Patterns of social (im)mobility in the Norwegian fish processing industry

Occupational trajectories

Of the 4164 persons working as machine operators in the Norwegian FPI in 2009, one-third (35.0%) had the same employment nine years later. The remaining two-thirds

(65.0%) had found new occupations either within the FPI (10.2%) or another industry (35.5%), or they were not currently working (19.2%) (Table 1). These numbers demonstrate the overall high turnover rate in the industry.

Table 1 Occupational outcomes in 2018 by birth-country groups as percentages

	Norway	EU11	Non-Western	Total
Machine operator, FPI	30.8	44.5	38.3	35.0
New occupation in FPI	13.7	7.0	2.0	10.2
New industry	39.3	27.8	31.1	35.5
Not working	16.3	21.1	28.7	19.2
Total	100 (n = 2553)	100 (n = 825)	100 (n = 778)	100 (n = 4164)

$Chi^2 = 202.4$, $p < 0.001$.

There were notable differences between the birth-country groups. EU11 workers were overrepresented among those still employed as FPI machine operators after nine years (44.5%), as were non-Western workers, though to a lesser degree (38.3%). However, it is interesting that, within all groups, workers were more likely to have left their FPI operator positions than to have stayed.

Over the nine-year study period, about one-tenth (10.2%) of the FPI machine operators found other jobs within the same industry, which in most cases represents a promotion. This trajectory was far more likely for Norwegian-born workers than for EU11 workers (13.7% vs. 7.0%). Almost no non-Western workers experienced such upward occupational mobility (only 2.0%). The Norwegian workers were also more likely to find new jobs in industries other than the FPI. On the other hand, EU11 workers and, even more so, non-Western workers were overrepresented among those not working in 2018.

The next sections elaborate on the results using logistic regression modeling (Table 2). Model 2.1 estimates workers' likelihood of staying in the FPI as machine operators over the nine-year study period. Controls for workers' age, gender, and education level did not affect the overall results. The model revealed that EU11 and non-Western workers were 18.1% and 7.2% more likely, respectively, to remain operators in the FPI compared to Norwegian-born workers. Further, the model shows that older workers had a higher probability of remaining in FPI machine operator positions. There were no significant gender effects.

Overall, workers with higher education were about 7.3% less likely, while workers with medium education (finished upper secondary school) were 3.8% more likely to stay in their jobs, compared to workers with only compulsory education. However, analysis of the different country groups (See Table B in Appendix) show that educational effects were significant only for Norwegian-born workers. This result is notable, as it suggests that educational qualifications of non-Norwegian workers are irrelevant to their employment mobility.

Model 2.2 estimates the likelihood of having acquired another occupation within the FPI. EU11 and non-Western immigrant workers were 7% and 14.5%, respectively,

Table 2 Determinants for occupational outcomes (2018): Logistic regression (*n* = 4164)

	Model 2.1: Machine operator, FPI		Model 2.2: New occupation, FPI		Model 2.3: New industry		Model 2.4: Not working	
	LnOR	**AME**	**LnOR**	**AME**	**LnOR**	**AME**	**LnOR**	**AME**
Country of birth (Ref. = Norway)								
EU11	0.832*** (0.088)	0.181 (0.018)	–0.816*** (0.158)	–0.070 (0.013)	–0.851*** (0.095)	–0.181 (0.019)	0.529*** (0.110)	0.078 (0.016)
Non-Western	0.365*** (0.089)	0.079 (0.019)	–1.704*** (0.239)	–0.145 (0.021)	–0.381*** (0.093)	–0.081 (0.020)	0.648*** (0.102)	0.097 (0.015)
Age	0.036*** (0.004)	0.008 (0.001)	0.387*** (0.063)	–	–0.054*** (0.004)	–0.012 (0.001)	–0.129** (0.042)	–
Age2			–0.004*** (0.001)	–			0.002*** (0.0005)	–
Male	–0.100 (0.068)	–0.022 (0.015)	1.207*** (0.128)	0.103 (0.011)	–0.283*** (0.069)	–0.060 (0.015)	–0.075 (0.082)	–0.011 (0.012)
Education (Ref. = Low)								
Medium	0.173* (0.072)	0.038 (0.016)	0.461*** (0.115)	0.039 (0.010)	0.120 (0.073)	0.025 (0.016)	–0.755*** (0.093)	–0.112 (0.014)
High	–0.334** (0.114)	–0.073 (0.025)	0.613** (0.189)	0.052 (0.016)	0.412*** (0.110)	0.088 (0.0232)	–0.489*** (0.131)	–0.073 (0.019)
Student in period							0.386** (0.125)	0.058 (0.019)
Constant	–2.482*** (0.191)		–11.762*** (1.396)		2.083** (0.185)		0.913 (0.921)	
Pseudo R2	0.035		0.102		0.056		0.041	

FPI, fish processing industry.
(Standard errors in parenthesis).
***Sig ≤ 0.001, **Sig ≤ 0.01, *Sig ≤ 0.05.

less likely to be in this category. The effect of age took the shape of an inverted 'U'. AMEs cannot capture this effect (which is why they are not presented in Table 2), but calculations of predictions for different age groups show that the probability of mobility within the FPI was highest for workers 35–45 years old. The probability of mobility was also higher for males (10.3%) and workers with medium (3.9%) and high education (5.2%). Analysis of the different country-groups (See Table B in Appendix) revealed that among Norwegian-born workers, people with medium education were most likely to be mobile within the FPI, while for EU11 workers, people with higher education were most likely to be mobile within the FPI.

Model 2.3 estimates the probability of working in a new industry in 2018. EU11 workers were 18.1% less likely to be in this group than Norwegian-born workers. Workers from non-Western countries were 8.1% less likely to be in this group. Further,

the results show that younger people and females were more likely to work in a new industry. There was also a statistically significant effect of higher education, although closer analysis (See Table B in Appendix) showed that the effect was only significant for Norwegian-born workers.

Model 2.4 measures the probability of not working in 2018 and found the differences between country groups to be statistically significant. EU11 workers were 7.8% more likely to not work compared to Norwegian-born workers, while non-Western workers were 9.7% more likely to not work. The effect of age was U-shaped, which suggests that the youngest and oldest workers had the highest probability of not working in 2018. Workers with both medium and high education were less likely to not work. However, separate analyses of the country groups (Table B in Appendix) revealed that the effect of education was significant for Norwegian-born workers and irrelevant for EU11 workers. Among non-Western workers, only medium education 'protected' against not working. Finally, student activity in the period did, for obvious reasons, increase the probability of not working.

We have also checked if the length of residence in Norway has any effect on occupational outcomes. The variable is not included, as it would exclude the Norwegian-born workers. Length of residence has no effect on occupational outcomes. The only exception is a small positive effect for EU11 workers on the probability of getting a new occupation in the FPI.

In conclusion, the results presented in Table 2 demonstrate strong and statistically significant differences in occupational outcomes between the birth-country groups that could not be explained by age, gender, or educational level. The next section examines how these occupational outcomes are related to income changes.

Income differences and change

There were clear income differences between the birth-country groups. Table 3 presents the mean incomes in 2010 and 2018 by country of birth.

Table 3 Average income (in 1000 euros) in 2010 and 2018 by country of birth (n = 4164)

	Norway	EU11	Non-Western
2010	41.6	37.0	35.5
2018	45.0	38.4	32.3
Change 2010–2018	3.4	1.4	–3.2

The mean income of Norwegian-born workers in 2010 was 41,600 euros – significantly higher than the non-Norwegian workers, even though almost all of them were working in the same occupation in the same industry. Linear regression (See Table C in Appendix) suggested that these differences could not be explained by age, sex, education level, or number of working hours. These inequalities were strengthened by 2018. Norwegian-born workers saw a larger income increase than EU11 workers, and non-Western workers had their yearly incomes reduced, in part because many of them were not working in 2018. Excluding those unemployed in 2018, all groups experienced an increase in

income, though not by the same amount. To examine these patterns further, linear regression was used to study changes in income from 2010 to 2018. Separate models are presented for workers who remained FPI machine operators, those who changed occupations in the FPI, and those who changed industries.

Table 4 Determinants for income change from 2010–2018 (in 1000 euros): Linear regression

	Model 4.1: FPI machine operators	**Model 4.2: New FPI occupation**	**Model 4.3: New industry**
Country of birth (Ref = Norwegian)			
EU11	–1.763*	3.196	–3.692*
	(0.821)	(5.843)	(1.829)
Non-Western	–1.231	–1.918	–3.950*
	(0.846)	(8.758)	(1.772)
Age	–0.337***	–0.824***	–0.391***
	(0.036)	(0.227)	(0.071)
Male	1.669**	–0.288	3.673*
	(0.640)	(4.563)	(1.308)
Education (Ref = Low)			
Medium	2.085**	–4.128	–1.605
	(0.674)	(4.001)	(1.389)
High	1.381	2.495	5.618**
	(1.118)	(6.541)	(1.987)
Change in working hours	0.225***	0.206	0.327***
	(0.031)	(0.223)	(0.037)
Constant	19.738***	51.008***	25.488***
	(1.883)	(11.652)	(3.447)
Adjusted R2	0.098	0.029	0.105
n	1458	425	1479

FPI, fish processing industry
(Standard errors in parenthesis)
***Sig ≤ 0.001, **Sig ≤ 0.01, *Sig ≤ 0.05

Workers who remained FPI machine operators received an average increase in income of 5405 euros. Model 4.1 shows that after controlling for other variables, there were some differences in income change between the country groups; however, the differences were not large. EU11 and non-Western immigrant workers increased their incomes by 1763 and 1231 euros less than Norwegian-born workers. The difference was only significant at the 5% level for EU11 workers.

As shown in Table 1, Norwegian-born workers were about twice as likely to move from their assembly-line jobs to other positions in the FPI. In most cases, this represented a promotion and, on average, a profitable career change in terms of wages (12,642 euro increase). Model 4.2 suggests that EU11 workers saw the largest increase in income; however, this pattern was not statistically significant.

On average, moving from a machine operator job to a job in a new industry was profitable (9645 euro increase). However, model 4.2 shows that there were substantial differences in how this job change impacted wage developments. This move was far less beneficial for EU11 and non-Western workers. This likely reflects how Norwegian-born workers leave the FPI for more attractive jobs in other industries, while immigrants more often relocate to similarly low-paid jobs.

The results presented in models 4.1–4.3 include control variables that largely confirm expectations, for instance, that age is negatively related, and increase in number of working hours is positively related to income changes. Further, among those who are still FPI machine operators, workers with medium education received the largest increase in income, while high education was the most beneficial for workers leaving the industry. However, these education effects were not present for EU11 workers.

Long-term attachment to the labor market

Table 5 displays the labor market attachments of the three country groups over time. Although the proportion of unemployed was quite high in 2018 (See Table 1), fewer workers are long-term labor market outsiders. Very few workers[11] from the EU11 were categorized as outside the labor market. Workers from Norway and non-Western countries dominated this category, and most of them were receiving disability benefits. It is assumed that this difference was due to the lower age and shorter residence of EU11 workers.

Table 5 Labor market attachment over time (2010–2018) as percentages

	Norway	EU11	Non-Western	Total
Stable	42.5	32.9	21.5	36.7
Somewhat stable	25.9	36.2	32.7	29.2
Middle	7.6	8.2	9.7	8.1
Weak/unstable	18.0	20.9	30.4	20.9
Labor market outsiders	6.3	(*)	6.4	5.3
Total	100 (n = 2544)	100 (n = 796)	100 (n = 767)	100 (n = 4119)

$Chi^2 = 181.6, p < 0.001$.

* Too few observations to estimate.

Results from the four other categories suggest a hierarchal pattern in which Norwegian-born workers had the most stable attachment, followed by EU11 workers and finally workers from non-Western countries. However, the difference between EU11 workers and Norwegian-born workers was not particularly large, especially if the difference between stable and somewhat stable is not emphasized. Workers from non-Western countries, however, had a significantly less stable attachment to the labor market.

The results for the general population are worth mentioning. Most of the workers in the population (86.5%) had a full-time contract in 2009, but less than 36.7% had a stable full-time job in the years that followed. When we compare the results for the FPI with the study by Heggebø and Elstad (2019) of all workers in Norway (using the same operationalization, age limit, and time-period), it is clear that all FPI workers, regardless

of immigrant background, had a much more precarious labor market attachment than the Norwegian population in general.

Discussion and conclusion

Overall, there are strong correlations between workers' immigrant/native background and their social mobility trajectories in the immigrant niche of the Norwegian FPI, and with a distinct hierarchical structure: Norwegians at the top, EU11 workers in the middle, and non-Western workers at the bottom. Our general hypotheses have thus been strengthened. In the following, we discuss the different patterns of (im)mobility between the groups and its implications.

Waldinger (1994) stresses the importance of understanding the groups of workers who are being replaced by a new ethnic group in studies of niche formation. For a niche to emerge and grow, the existing workforce must exit for some reason. In this paper, we contribute to the literature on formation of immigrant niches by answering the crucial question; What happens to native born workers in immigrant niches? The findings illustrate how Norwegian-born workers largely leave the Norwegian FPI for more favorable jobs within or more often outside the FPI. Relatively few left the labor market or became unemployed. Overall, the findings are in line with the assumption of Waldinger and Lichter (2003) about natives' upward mobility. Further, our analysis contributes to the literature on the effects of immigration on native workers. Although this analysis does not directly measure the *effect* of the massive increase in EU11 immigrants on natives' social mobility, the findings imply that migrant workers are not displacing native workers, at least not to a large degree. However, future research should examine how previous immigrants are affected in niches, as our findings, along with previous research (Bansak et al. 2015; Blau & Kahn 2012; Friberg & Midtbøen 2018), suggest that non-Western immigrants might have been negatively affected by the inflow of EU11 workers.

Further, we contribute to the literature by comparing the social mobility patterns of natives with different immigrant groups. In line with SLM theory, immigrant workers were far more likely to experience *immobility*, meaning that they remained in FPI machine operator jobs. An important implication in this regard is that it is not only high recruitment of immigrant workers that sustains and amplifies the immigrant niche, but also their subsequent mobility patterns. The immigrant workers were also more downwardly mobile, with a high proportion not working in 2018 and unstable labor market attachment over time as clear indicators.

An important finding is that the more disadvantaged position of immigrants in the FPI is not helped by their higher education level. While Norwegian-born workers benefit from both medium and high education levels, education has little effect for non-Norwegian born workers. Thus, what should be a clear advantage appears to have a little effect. According to SLM theory, different returns on human capital (such as education) are a clear indicator of labor market segmentation (Leontaridi 1998). The migrant workers are somehow 'stuck' in the secondary labor market, where their education is not rewarded. In addition to discrimination, there are several possible barriers for these highly educated migrants that could be discussed, the most important of which is probably poor Norwegian language skills (not helped by their work in an immigrant niche). One of the limitations in this study is that the data does not allow us to control

for language skills. However, we know that non-Western immigrants on average have better Norwegian language skills than EU11 workers (Barstad & Molstad 2020), but as our results show, this does not appear to give any advantages to this group.

However, the findings suggest that the niche cannot simply be categorized as a mobility trap, as some immigrants manage to find a new occupation both within and outside the FPI and increase their incomes. There are, however, clear differences between EU11 and non-Western workers.

First, EU11 workers seem to have an advantage over non-Western workers within the FPI. They are far more likely to advance within the industry. Among their new occupations is manufacturing supervisors, clerical support workers, and aquaculture workers. Nevertheless, the findings revealed that EU11 workers who left the FPI experienced poor increase in income and saw no benefit from their education. Thus, EU11 workers appear to benefit more from mobility *within* the FPI and less from leaving the industry. Such patterns could work to sustain the niche while at the same time being a consequence of a possible advantage of the EU11 workers (high numbers and network effects) compared to the non-Western workers in the niche (Model 1993; Waldinger 2005).

Second, non-Western workers, despite their longer time of residence, are far more likely to experience downward mobility compared to EU11 workers. While assimilation theory argues that immigrants over time will accumulate country-specific human capital and therefore advance in the labor market, we find little evidence of such mechanisms in this analysis. Length of residence has no effect on occupational outcomes, which means that non-Western workers have no advantage due to their longer experience. We argue that in the context of an immigrant niche, longer residence time might not be a good indicator for country-specific capital accumulation. Further, hard manual labor, perhaps becoming increasingly hard and competitive during the last decade (Stachowski & Rasmussen 2021), tends to make workers exhausted over time.

Overall, the findings in this paper show that immigrant niches are strengthened by processes related to social mobility. Roughly speaking, native workers are more often upwardly mobile, EU11 workers are more often immobile, and non-Western workers are more often downwardly mobile. The result is a more ethnically segmented labor market. Although this analysis is limited to the Norwegian FPI, we would expect that findings are not unique to this case but relevant for the Nordic low-wage/low-skilled labor market in general. Increasing ethnic segmentation is a potential threat to the Nordic working life, and related to concerns such as social dumping, increasing inequality, and deteriorating labor standards (Friberg & Eldring 2013). In addition, long-term welfare state dependency, as seen by previous waves of labor migrants (Friberg 2012), is a threat to the Nordic welfare states. Our findings do indicate that there is some cause for concern in this regard, but for the EU11 migrants, it is still too early to tell. The niche is fairly new, and future research can determine if the EU11 remain in their jobs, or perhaps even continues to climb the occupational latter, or if they are simply replaced by new waves of immigrants (or machinery).

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Notes

[1] About one-fifth are employed in jobs as managers, engineers and sales personnel, marketing and public relations professionals, clerical support workers, cleaners, and skilled craft workers. These positions are predominantly held by Norwegian-born employees; for instance, 95.0% of the managers are Norwegian.

[2] Norway is not a part of the European Union but since 1994, part of the European Economic Area (EEA) and, in effect, the common European labor market.

[3] Code 10.2 in Norwegian Standard Industrial Classification 2007, see Statistics Norway (2008).

[4] Through inspection of later data, it is clear that the missing data does not hold a systematic character according to occupation. The missing data is due to a lack of reporting (before 2015, around 10%) in the employee register.

[5] Code 816 Norwegian Classification of Occupations 2008, see Statistics Norway (2011).

[6] The age and gender profile of the EU11 workers no longer in Norway in 2018 is similar to those who stayed, but their income in 2009–2010 is somewhat lower.

[7] All amounts are reported in euros based on average exchange rates between 2009 and 2018 (1 euro = 9.5 NOK).

[8] Poland, Lithuania, the Czech Republic, Hungary, Latvia, Estonia, Slovakia, Slovenia, Bulgaria, Romania, Croatia.

[9] 4.2% had no registered education; almost all of these were immigrants. Most of these workers presumably did not have higher education or had received higher education that was not recognized or approved in Norway.

[10] Based on Norwegian Standard for Classification of Education, see Statistics Norway (2001).

[11] *N* is too low to present this number as a percentage, particularly since Microdata.no adds noise (± 5) to enhance anonymity.

Appendix

Table A Descriptive statistics for all variables (n = 4164)

		Mean	Min/Max.	Freq. (1)	% (1)
Dependent variables	Occupational outcome (2018)				
	Operator FPI			1458	35.0
	New occupation FPI			426	10.2
	New occupation in other industry			1479	35.5
	Not working			797	19.1
	Income 2010 (1000 EUR, 2018 adj.)	39.6	0.0/90.7		
	Income 2018 (1000 EUR)	41.3	0.0/112.1		
	Change in income (2010–2018, 1000 EUR)	1.8	–54.0/65.5		
	Labour market attachment (2010–2018)*				
	Stable			1511	36.7
	Somewhat stable			1201	29.2
	Middle category			332	8.1
	Weak/unstable			861	20.9
	Outside labour market			218	5.3
Key indep. variables	Country of birth				
	Norway			2553	61.3
	EU11 countries			825	19.8
	Non-Western countries			778	18.7
Control variables	Education 2018				
	Low			1962	47,1
	Medium			1685	40,5
	High			523	12.6
	Age (in 2018)	44.6	27/61		
	Gender (males)			2334	56.1
	Student activity (2009–2018)			598	14.4
	Change in working hours (2010–2018)	–5.3	50.8/40.0		

*n = 4119.

Table B Determinants for occupational outcomes (2018) for each birth-country group. Logistic regression, LnOR

	Models B.1: Machine operator, FPI			**Models B.2: New occupation, FPI**		
	Norway	**EU11**	**Non-western**	**Norway**	**EU11**	**Non-western**
Male	–0.138	0.186	–0.265	**1.186*** **	**1.424*** **	**1.513** **
Age	**0.037*** **	**0.023** **	**0.036*** **	**0,441*** **	–0.046	0.541
Age2				**–0.005*** **	0.001	–0.006
Education (Ref = low)						
Medium	0.137	0.209	0.204	**0.593*** **	–0.512	0.414
High	**–1.344*** **	–0.055	–0.027	0.477	0.438	0.675
Constant	–2.440***	–1.349***	–2.084***	–13.154***	–2.309	–16.363*
Pseudo R2	0.039	0.011	0.020	0.077	0.062	0.072
n	2554	829	780	2554	829	780

	Models B.3: New industry			**Models B.4: Not working**		
	Norway	**EU11**	**Non-western**	**Norway**	**EU11**	**Non-western**
Male	**–0.304*** **	**–0.383** *	–0.162	–0.155	–0.307	0.272
Age	**–0.051*** **	**–0.039*** **	**–0.076*** **	–0.098	**–0.222** *	0.027
Age2				**0.002** *	**0.003** *	0.000
Education (Ref = low)						
Medium	0.131	0.006	0.305	**–1.066*** **	–0.097	**–0.660** **
High	**1.020*** **	0.068	0.079	**–1.211*** **	–0.143	–0.173
Student in period				**0.706*** **	–0.611	0.416
Constant	1.900***	0.811	2.640***	0.432	3.409	–2.562
Pseudo R^2	0.060	0.022	0.063	0.051	0.015	0.031
n	2554	829	780	2554	829	780

***Sig < = 0.001, **Sig < = 0.01, *Sig < = 0.05.

Table C Determinants for income (1000 EUR) in 2010. Linear regression

	Income 2010
Country of birth (Ref = Norway)	
EU11	**–4.423*** **
Non-western	**–3.116*** **
Age	**0.344*** **
Male	**10.657*** **
Working hours 2010	**0.609*** **
Education (Ref = Low)	
Medium	**4.518*** **
High	**1.738**
Constant	1.499
Adjusted R^2	0.242
n	4164

***Sig < = 0.001.