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Article

Unionization, licensure and workplace variation in pay inequality between immigrants and natives

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Abstract

Organizational research has revealed considerable variation in immigrant–native pay inequalities across workplace contexts. However, less is known about how broader labor market institutions intersect in the local dynamics of wage setting between employees of immigrant and native backgrounds. We argue that union density and higher shares of employees in licensed occupations in workplaces constrain organizational opportunity structures for unequal pay according to immigrant backgrounds. Our analysis of longitudinal linked employer–employee administrative data for the Norwegian labor market shows that the wage gap between immigrants and natives decreases with increasing workplace unionization, but almost exclusively for immigrants who are union members. Next, licensure raises pay at the individual and workplace levels, although any reduction in immigrant–native pay gaps is contingent on immigrants' access to licensed jobs. Our findings support the claim that institutional regulation in the workplace reduces the organizational scope of unequal pay based on immigrant status.

Key words: relational inequality theory, occupational licensure, labor unions, immigrant–native pay gaps, register data.

JEL classification: J31 Wage Level and Structure • Wage Differentials, J51 Trade Unions: Objectives, Structure, and Effects, J44 Professional Labor Markets • Occupational Licensing

1. Introduction

Immigrants and their native-born children typically earn less than native-born majority workers in ethnically diverse countries in Europe and North America (Heath and Cheung, 2007; Algan *et al.*, 2010; Alba and Foner, 2015). Prior research traces immigrant–native pay gaps all the way to the workplace level, where employees work for the same employer (Joshi *et al.*, 2006; Aydemir and Skuterud, 2008; Barth *et al.*, 2012; Åslund *et al.*, 2014; Tomaskovic-Devey *et al.*, 2015; Melzer *et al.*, 2018; Grinza *et al.*, 2020; Dostie *et al.*, 2021; Peters and Melzer, 2022; Han and Hermansen, 2023). Wage differentials between coworkers in the same occupation account for about one-third of the pay gap between similarly qualified immigrants and natives (e.g. Han and Hermansen, 2023), which makes the workplace important to the study of inequality.

Relational inequality theory (RIT) argues for the salience of categorical distinctions in the distribution of workplace resources (Peters and Melzer, 2022). According to this perspective, immigrants earn less because they belong to lower-status groups who, on average, lack affiliation with more powerful actors in the workplace (Baron and Bielby, 1980; Stainback *et al.*, 2010). However, workplaces and employers relate to wider labor market regulations and institutions that can affect social relationships and pay structures, constrain wage setting and curb inequality-generating processes affiliated with different status groups in the workplace.

In this study, we place licensure and unionization under the lens because these two encompassing labor market institutions have legal enforcement and cover a substantial share of employees and, by extension, workplaces (Drange and Helland, 2019). Immigrants' and natives' wages tend to be comparable in jobs subjected to these institutions (Gomez *et al.*, 2015; Redbird, 2017; Drange and Helland, 2019). However, we know less about how these labor market institutions influence wage-setting processes within workplaces, where they span multiple occupations that possibly overlap with ethnic divisions. Against this background, we ask how the size of immigrant–native wage gaps varies with the workplace shares of licensed and unionized employees.

Our key contribution is, first, to investigate how economy-wide labor institutions interfere with workplace wage setting. Licensure and unions are both rent-extracting institutions but rely on different strategies to raise wages (Weeden, 2002). The two institutions diverge in the degree of inclusiveness in access to positions and redistributional properties, which makes an interesting comparison to whether they mute or exaggerate immigrant–native pay gaps in the workplace. Unions gain strength through broad engagement and collective agreements in the workplace, and licensed employees, in contrast, gain strength through exclusivity. Whereas unionization restricts in-group bias, licensure may enable it because monopolies issue control over organizational resources. Therefore, these institutions can have different implications for wage inequality in the workplace. This is especially relevant considering the relative decline in unionization (Bhuller *et al.*, 2022) and growth in licensure (Bryson and Kleiner, 2019) in the USA and European labor markets. Second, we theorize that unionization and licensure draw on different justifications in workplace negotiations that can both blur and focus categorical distinctions and investigate whether the size of immigrant–native wage gaps is contingent on whether immigrants are licensed or union members. Third, rent extraction can increase inequality, especially if immigrants have less access to more profitable positions. Because we map the size of immigrant–native wage gaps for

the workplace representation of licensed workers contingent on the immigrant employee's licensure status, we can provide evidence of whether wage premiums are shared within the organization or remain in the hands of licensed workers. To gain knowledge of how labor market regulations can curb immigrant–native pay gaps is highly relevant to the current context of high immigration and rising inequality.

To address these questions, we analyze unique longitudinally linked employer–employee administrative data for the Norwegian labor market, with information on unionization and licensure at both the workplace and employee levels. This provides evidence of (a) how these institutions affect the size of the immigrant–native pay gap and (b) to what extent this is contingent on immigrants' representation within the same institutions. Thus, we identify aspects of insider–outsider relationships in these respects more precisely than in earlier research (Tomaskovic-Devey *et al.*, 2015; Melzer *et al.*, 2018; Grinza *et al.*, 2020).

2. Theoretical framework

In this section, we first outline the basic tenets of relational inequality theory. Subsequently, we discuss why the degree of union density and share of licensed employees in the workplace may generate organizational variation in wage inequality between immigrants and natives, and how these institutions may depend on individual coverage. Finally, we argue that the less integrated first-generation immigrant workers who were born abroad will benefit more from institutional regulation at the workplace relative to the second-generation children of immigrants.

2.1 Claims-making and the relational creation of inequality at work

RIT identifies claims making, which primarily operates through social relationships in the local workplace, as a central inequality-generating mechanism. The premises of RIT are, first, that "proximate networks of social relationships" are where the social world is created and, second, that such networks of social relationships play out and are embedded in organizations (Tomaskovic-Devey and Avent-Holt, 2019, p. 4). Employees make claims on their workplace's resources, such as wage raises or promotions, while employers evaluate the legitimacy of such claims based on the integrity, status and power of the employees making these claims (Tomaskovic-Devey and Avent-Holt, 2019). Employees draw on two types of resources in their claims: internal distinctions particular to the workplace and externally legitimated distinctions, which include both ascriptive (e.g. gender and ethnicity) and achieved (e.g. educational qualifications, union membership and occupational licensure) statuses. Such claims may be made collectively (e.g. by labor unions) and individually (e.g. Sauer *et al.*, 2021). These processes of claims-making work through the mechanisms of exploitation and social closure. The results are often that certain employees or groups of employees gain access to larger shares of the workplace's resources, such as wages, promotions and benefits.

In RIT, social closure is understood as a situation in which "one group excludes, intentionally or not, another categorical distinct group from accessing some organizational resource" (Tomaskovic-Devey and Avent-Holt, 2019, p. 135). This exclusion may be based on *out-group* bias and a desire to exclude out-groups. Discrimination against immigrant employees may exemplify this form of closure. The other side of the same coin is labeled *opportunity hoarding* and constitutes closure based on *in-group* bias, that is, the desire to

preserve resources for one's own in-group rather than a desire to exclude members of any out-group. According to Tomaskovic-Devey and Avent-Holt (2019, p. 136), in-group bias is more predominant in contemporary settings than out-group bias.

The two kinds of closure are not mutually exclusive, and RIT predicts that "when categorical distinctions come to strongly overlap and correlate with each other within a given workplace, inequalities attached to such status groups should become larger and more rigid" (Avent-Holt and Tomaskovic-Devey, 2014, p. 391). The RIT framework recognizes that the opportunity for claims-making may be restricted by circumstances external to the workplace, such as unions (e.g. Sauer *et al.*, 2021, p. 936; Jung *et al.*, 2022), and that employees and workplaces are embedded in institutional contexts, such as legal regulations, which can curb discriminatory practices (Tomaskovic-Devey and Avent-Holt, 2019; Tomaskovic-Devey *et al.*, 2020). RIT does, however, insist that most inequality-generating processes happen at the workplace and have been criticized for awarding interactions at the organizational level too much weight (Reisel *et al.*, 2019, p. 93). To address this criticism and increase our understanding of the immigrant–native pay gap, we combine RIT with theories of social closure at the occupational level.

2.2 How unionization and licensure can mute immigrant–native pay gaps in the workplace

Legal and institutional regulations in the workplace environment may condition the legitimacy of claims and weaken the salience of categorical distinctions (Petersen and Saporta, 2004, p. 67; Tomaskovic-Devey and Avent-Holt, 2019; Sauer *et al.*, 2021). *Unionization* and *licensing* are central institutional regulations that span industries and workplaces, and they provide employees with a reference for industrial, occupational or union average wages and benefits. Research has established that unionization and licensure significantly influence overall wage inequality and reduce immigrant–native pay gaps (Metcalf *et al.*, 2001; Rosenfeld, 2014; Bol and Weeden, 2015; Tomaskovic-Devey *et al.*, 2015; Bol and Drange, 2017; Helland *et al.*, 2017; Melzer *et al.*, 2018; Koumenta *et al.*, 2022).

Unions can equalize wages in the workplace through multiple avenues. First, collective wage agreements (CWAs) are the main tool in a union's toolbox for wage negotiations, as such agreements equalize wages and reduce exploitation. In Norway, unions can bind employers to a CWA if the workplace share of unionized employees in jobs covered by sectoral agreements is above 10% (The Confederation of Norwegian Enterprise, 2022). Second, unions can equalize wages and working conditions through the local organization of employees in the workplace, because stronger, local unionization give more leverage against employers. CWAs set a lower threshold for negotiated wage increases, and higher unionization rates can increase unions' co-determination over wage development and distribution, as well as strengthen intra- and inter-union cooperation within firms and establishments (Arnholtz and Hansen, 2013). Third, unions can stabilize employment and reduce workplace volatility, which is associated with lower categorical wage inequalities (Jung *et al.*, 2022). Fourth, unions, formal rules and collective agreements reduce the native–immigrant gap in both the opportunity and necessity of eliciting a wage claim (Sauer *et al.*, 2021) and create less variation in claims making to raise wages. Although immigrants, on average, have lower membership rates than natives (Cools *et al.*, 2021), there are no formal barriers to entry, and a unionized workplace encompasses all job incumbents irrespective of

membership status (Elvira and Saporta, 2001). Thus, we propose the following hypothesis regarding how the immigrant–native wage gap will vary with unionization:

Hypothesis 1: Immigrant–native wage gaps are smaller in workplaces with higher union density.

If we find that union density decreases the size of the immigrant–native wage gap, then an interesting follow-up question is whether this pay-gap reduction applies to all immigrant employees independent of union membership. According to RIT, the interactional power between statuses can accentuate or attenuate salient categorical distinctions in access to organizational resources. A unionized immigrant in an otherwise low-density workplace would lack local union support and leverage against employers. Conversely, a non-unionized immigrant in an otherwise high-density workplace would also lack union support. Although CWAs encompass workplaces, unions can still support the wage claims of members in local-level settlements in hirings and promotions, and influence the criteria for wage allocation (Stokke, 2008; Dølvik and Nergaard, 2012). In this context, being nonunionized could signal a more precarious or volatile employment position, for example, workplace segregation through temporary employment (Refslund, 2021). Although research has not revealed a general membership premium on wages (Barth *et al.*, 2000), Bryson *et al.* (2020) found one for women. This shows that unions can actively support their presumably less powerful members to promote wage and employment relationships. Consequently, we theorize that immigrants can receive an individual membership premium in unionized workplaces beyond the collective benefits of high union representation. In non-unionized establishments, membership in a labor union can have low legitimacy because the employee negotiates individually with the employer, and the union has no formalized role in local wage setting. Thus, any union membership wage premiums in these workplace contexts may reflect other employee characteristics, such as social integration or skill sets (Cools *et al.*, 2021). This leads to our second hypothesis regarding the interaction between unionization and individual union membership:

Hypothesis 2: The immigrant–native wage gap will be lower among unionized workers than among nonunionized workers in workplaces with high union density.

Unlike unions, licensure is not organized around solidarity and a commitment to redistribution. Instead, it is an organization of occupational interests and efficient social closures (Weber, 1922/1978). The main mechanisms for rent extraction are reducing the labor supply, channeling demand to occupations and signaling higher service quality (Weeden, 2002, p. 69). To access a licensed job, the person must document a specific skill set, typically a combination of education and work practice, a certificate of high moral and economic conduct and, for foreign-trained candidates, advanced language skills. Licenses are personal and issued by the government. If a person fails to uphold any licensing criterion, then the issuing government can revoke their license (Drange and Helland, 2019). Employers have limited influence on the supply of licensed personnel. They cannot hire and train persons to licensed jobs without the involvement of educational institutions and sectorial approval authorities, and employers can be prosecuted if they violate these regulations. Thus, licensed occupations are monopolies where only licensed personnel can provide services under the occupations' jurisdiction. Licensure is associated with a wage premium at both the occupational (Bol and Weeden, 2015; Bol and Drange, 2017; Drange and Helland, 2019; Giesecke *et al.*, 2020) and individual levels

(Humphris *et al.*, 2010). Research has also found equal pay levels between immigrants and natives in licensed occupations (Gomez *et al.*, 2015; Redbird, 2017; Drange and Helland, 2019; Rohrbach-Schmidt, 2020; Koumenta *et al.*, 2022).

Because licensure is organized around occupations, not workplaces, it is empirically more ambiguous how and to what extent licensure affects workplace wage setting. Organizations with a high share of licensed employees are likely to operate in monopolized service markets with limited competition (e.g. medical or legal services, electrician firms and real-estate agencies). Research finds that such organizations, which generate rents from the market, are likelier to share profits with all employees (Schweiker and Groß, 2017; Avent-Holt *et al.*, 2019, p. 61). Moreover, Avent-Holt and Tomaskovic-Devey (2010) found that a high percentage of core professional workers—who are often licensed—did not increase the pay gap between core workers and low-wage workers, which suggests that professionals do not collect rents at the expense of lower paid colleagues. As the share of licensed workers in the workplace nears full coverage, immigrants included, we hypothesize the following:

> Hypothesis 3: Immigrant–native wage gaps are lower in workplaces with high shares of employees in licensed occupations.

A reduced immigrant–native pay gap in workplaces with many licensed employees can be contingent on immigrants' licensure status. As previously stated, licensure is not necessarily linked to redistribution because licensure is in-group closure with privileged access to positions, tasks, and possibly revenues. We posit that the claims-making of licensed employees draws on meritocratic principles that emphasize education and experience, not origin, and the norm of equity ("fair share") to increase resources. We expect that licensure overshadows immigrant status in the workplace because licensure can reduce employers' insecurities about immigrants' skill levels (Redbird, 2017; Drange and Helland, 2019; Koumenta *et al.*, 2022). Moreover, a limited labor supply can restrain employers' opportunity to discriminate based on immigrant background. Third, the licensed personnel's control over "esoteric knowledge" (Abbott, 2014) can give them higher social esteem. Licensed workers are not subject to rent destruction in the same way as unlicensed workers because they perform indispensable tasks and are difficult to replace (Schweiker and Groß, 2017, p. 9).

While we do expect licensure to yield a wage premium, especially for immigrants, we also believe that the extent to which licensure reduces the wage gap between immigrants and natives can vary with the share of licensed workers in the workplace and whether the immigrants are licensed. This is because intersectional complexity in the workplace can affect wage claims, and the success of such claims depends on support from influential actors in the organization (Avent-Holt and Tomaskovic-Devey, 2014, p. 385). In a situation where immigrant and licensure statuses intersect to set non-licensed immigrant workers up against native licensed workers, the former can receive less support for wage claims. In other words, the dual situation of opportunity hoarding and exclusion is likely more powerful in workplace contexts where majority employees have (higher status) licensed positions and immigrant employees have (lower status) unlicensed positions. Against this background, we posit the next hypothesis, as follows:

> Hypothesis 4: The immigrant–native wage gap in workplaces with many licensed workers will be lower among licensed workers than among non-licensed workers.

2.3 Why the benefits of unionization and licensure could vary across immigrant generations

The wage gap between natives and immigrant-background workers may vary across immigrant generations. For first-generation immigrants, "bright" ethnic boundaries (Alba, 2005)—where immigrants occupy a highly visible, institutionalized minority status—can be reinforced in workplace contexts due to a lack of linguistic skills, cultural knowledge, educational credentials, training and labor experience acknowledged in their host country (Chiswick and Miller, 2009; Lancee and Bol, 2017). The situation for second-generation immigrants is likely less institutionalized and more mixed (Melzer *et al.*, 2018). Because the second generation has native language proficiency, domestic educational qualifications and better access to cross-cultural networks (Drouhot and Nee, 2019; Heath *et al.*, 2008), the ethnic boundaries between second-generation immigrants and their native peers may become increasingly "blurred" (Alba, 2005). Indeed, research has shown that both individual traits and workplace processes matter more for differences in immigrant–native wage gaps in the second generation compared with first-generation immigrants (Melzer *et al.*, 2018).

Because our main argument is that unionization and licensure diminish pay inequality that departs from categorical distinctions and the "brightness" of ethnic boundaries in the workplace, we expect that the intervention of these institutions will vary for first- and second-generation immigrants. First, because union pay scales and regulations concern jobs, the potential to abolish illegitimate pay differentials better covers second-generation immigrants than first-generation immigrants. The second generation is more dispersed across jobs than the first generation. They are likely more similar to natives in formal qualifications and (unobserved) productivity-related skills. The first generation, in contrast, clusters more in specific job categories—often low-skilled, subordinate positions, which according to RIT tend to widen wage gaps. Here, unions can lift bottom earners. Because the first generation likely has a weaker bargaining position without the support of unions compared with the second generation, we expect that the first generation will obtain a higher membership premium compared with the second generation.

Next, we expect that standardization in the form of a license is more important for first-generation immigrants compared with the second generation. Licensure increases information for employers (Drange and Helland, 2019; Koumenta *et al.*, 2022), which is more significant for them because employers tend to devalue education, skills and experiences acquired abroad.

In summary, we expect that the "sheltering effect" against discrimination provided by unionization and licensure will be more potent for immigrants and that wage disparities relative to natives will be more reduced for them compared to the native-born second generation. This brings us to our next hypothesis, as follows:

> Hypothesis 5: The reduction of the immigrant–native wage gap associated with unionization and licensure will be stronger for first-generation immigrants than for second-generation immigrants.

3. The Norwegian context

Norway is an interesting case for examining how institutional regulations shape organizational variations in labor market success across immigrant generations. The industrial relations and institutional regulation of the labor market are strong (Barth *et al.*, 2014), which strengthens the influence of unionization and occupational licensure on workplace dynamics. Norwegian unions are organized according to professions and occupations, with the potential for multiple unions operating within the same firm (Arndt, 2018; Bhuller *et al.*, 2022). However, a centralized and coordinated two-tier system for wage bargaining limits the potential for inter-union divergence (Barth *et al.*, 2014; Bhuller *et al.*, 2022). Union density is about 40% and 80% in the private sector and public sector, respectively, and unionization heightens with higher levels of education (Nergaard, 2018).

According to Mosimann and Pontusson (2017, p. 450), Nordic unions emphasize wage solidarity and the norm of equalization. Norway has no statutory minimum wage; however, sectoral settlements also serve as a reference for nonunionized firms.[1] Employers can offer higher wages to attract or retain labor, and there is a substantial wage drift with negotiated increases, especially in high-performing firms in the private sector (Bryson *et al.*, 2020). Because of the horizontal organization in occupational and professional unions, the union wage effect simultaneously draws on occupational and workplace levels.

The prevalence of occupational licensure varies across labor market segments. In Norway, about 24% of all employees work in a licensed occupation, though these jobs concentrate within academic and skilled occupations, including skilled manual jobs. Licensure less often applies to jobs in unskilled occupations, mercantile occupations, agriculture and management (see Bol and Drange, 2017).

In Norway, the Equality and Anti-Discrimination Act, first implemented in 2005 (LOV-2005-06-03-33), covers both public and private sector employers and prohibits direct and indirect discrimination based on factors such as ethnicity (including national origin, descent, skin color and language), religion and belief. Affirmative action is allowed, and the law requires active duty for inclusion by employers. Moreover, employment protection legislation is strong (Berglund *et al.*, 2023), which is associated with lower wage inequality (Tomaskovic-Devey *et al.*, 2020).

3.1 Immigration to Norway

Norway has an ethnically diverse workforce, where immigrants and their native-born second generation today make up almost one in five residents. The foreign-born share of the population compares to other major immigrant-receiving countries in Europe, such as Germany, France and the UK, and North America (OECD, 2020; Statistics Norway, 2020).

Recent non-European immigration began around 1970 and comprised young, unskilled male labor migrants from Pakistan, Turkey and Morocco. Norway introduced a moratorium on unskilled labor immigration in 1975, which later became a permanent measure, although family reunification from these origin countries continued. From the late 1970s onwards, refugees and asylum seekers from countries such as Chile, Vietnam, the former Yugoslavia, Iraq, Iran, Sri Lanka and Somalia increased the inflow of migrants (Brochmann and Kjeldstadli, 2008). After the 2004 and 2007 expansions of the European Union (EU), Norway experienced a rapid increase in labor immigration from new member states in Eastern Europe, especially Poland and the Baltic countries.

Immigrants of non-Western origin often find work in low-wage and low-skilled occupations and industries, whereas their second-generation children are less clustered in disadvantaged labor market segments and are often well-represented in higher-paying jobs and workplaces in the mainstream economy (Lillehagen and Hermansen, 2022). While the native-born second generation still encounters employment disadvantages and ethnic discrimination in hiring, there is less evidence of disadvantages in subsequent career outcomes compared with equally qualified natives (Hermansen, 2013; Bratsberg *et al.*, 2014; Midtbøen, 2015; Han and Hermansen, 2023). Despite second-generation labor market progress, this overall pattern could hide considerable local variations in workplace-specific pay gaps relative to native Norwegians (cf. Melzer *et al.*, 2018).

4. Data and methods

We use longitudinally linked employer–employee administrative data from Norway that cover nearly the entire economy from 2009 to 2018 (Statistics Norway).[2] The data include detailed information on immigrant background, contractual monthly salaries, contractual hours worked, individual union membership and occupational titles, as well as a broad set of variables measuring employee characteristics and workplace demographic composition. *Workplaces* refer to distinct establishments with specific geographic locations where employees work. We use the terms *workplace* and *establishment* synonymously.

We restrict our sample to native-born majority Norwegians, first-generation immigrants (i.e. individuals born abroad), and second-generation children of immigrants (i.e. native-born individuals with foreign-born parents) who were between 25 and 67 years old when observed. Furthermore, we focus on immigrant-background employees from non-Western origin countries, including Eastern Europe, because research has shown that labor market disadvantages primarily affect this population (Hermansen, 2013; Bratsberg *et al.*, 2014; Drange and Helland, 2019). We exclude establishments with under 10 employees and a few employees with missing information regarding key variables. The analytic sample comprised 2 394 244 employees (14 983 572 person years) in 83 669 establishments. Table 1 provides descriptive statistics at employee and workplace levels by immigrant background for our analytic sample. Appendix Table A.1 illustrates zero-order correlations between key variables for the full sample.[3]

4.1 Variables

Our dependent variable is the logarithm of hourly (gross) wages, calculated using information on contractual monthly salaries and contractual hours worked. The advantage of contractual pay is that it does not conflate pay on regular and overtime hours and does not include bonuses. A key goal of our analysis is to assess whether there is differential pay by employers related to immigrant backgrounds. A composite wage measure would camouflage this difference if, for instance, immigrants work more hours to compensate for lower hourly pay.[4] For individuals working multiple jobs, we use the job with the highest contractual monthly salary. All income variables are consumer price index adjusted to the 2018 Norwegian kroner (NOK) before the logarithmic transformation. We obtained similar results using total monthly earnings, including earnings from overtime work and bonuses, as the dependent variable (Appendix Figure A.1).

Table 1. Descriptive statistics by immigrant background

	Natives		First-generation immigrants		Second-generation children of immigrants	
	Mean	SD	Mean	SD	Mean	SD
Earnings						
Hourly wages (log)	5.567	0.386	5.328	0.445	5.424	0.433
Hourly wages (NOK 2018)	292	4488	239	4092	251	414
Unionization and occupational licensure						
Employee unionization	0.68		0.48		0.53	
Workplace unionization (fraction)	0.65	0.27	0.51	0.29	0.54	0.29
Employee licensure	0.25		0.16		0.22	0.30
Workplace licensure (fraction)	0.24	0.29	0.19	0.27	0.21	0.29
Employee characteristics						
Age (years)	44.7	11.3	40.1	9.5	31.6	6.2
Female	0.517		0.480		0.490	
Married	0.462		0.555		0.367	
1 child	0.180		0.202		0.161	
2 children	0.215		0.191		0.175	
3+ children	0.089		0.089		0.074	
Education (years)	13.7	2.8	12.1	4.1	13.7	3.1
Below secondary	0.20		0.24		0.20	
Full secondary	0.33		0.27		0.28	
Tertiary, short	0.34		0.21		0.34	
Tertiary, long	0.14		0.16		0.18	
Not registered	0.00		0.12		0.01	
Employment characteristics						
Potential labor market experience (years)	23.4	12.4	20.5	9.9	12.2	7.6
Seniority in establishment (years)	6.0	4.7	3.7	3.3	3.5	3.0
Occupation (ISCO 1-digit)						
Legislators, senior officials, managers	0.14		0.04		0.08	
Professionals	0.23		0.12		0.24	
Technicians, associate professionals	0.22		0.10		0.22	
Clerks	0.07		0.06		0.11	
Service workers, shop, market sales	0.19		0.27		0.26	
Skilled agricultural, fishery workers	0.00		0.00		0.00	
Craft, related trade workers	0.06		0.11		0.03	
Plant, machine operators, assemblers	0.06		0.09		0.03	
Elementary occupations	0.03		0.19		0.02	
Military occupations and unspecified	0.00		0.00		0.00	
Workplace characteristics						
Workplace immigrant share (fraction)	0.07	0.09	0.31	0.259056	0.20	0.19
Workplace tertiary education share (fraction)	0.47	0.29	0.36	0.264922	0.49	0.28
Workplace female share (fraction)	0.51	0.30	0.50	0.299586	0.52	0.26

continued

Table 1. *Continued*

	Natives		First-generation immigrants		Second-generation children of immigrants	
	Mean	SD	Mean	SD	Mean	SD
Number of employees in establishment	624	2339	381	1122	676	2014
Small establishments (10–49 employees)	0.39		0.36		0.32	
Middle establishments (50–499 employees)	0.44		0.49		0.44	
Large establishments (500+ employees)	0.16		0.14		0.23	
Public sector	0.47		0.34		0.38	
Private sector	0.53		0.66		0.62	
Number of establishments	80 946		55 030		16 294	
Number of establishment-years	419 497		240 683		54 186	
Number of persons	2 069 788		299 559		24 897	
Number of person-years	14 983 572		1 458 337		121 430	

Note: Standard deviations are not presented for discrete variables because the full distribution of responses is shown.

Source: Authors' calculations based on Norwegian administrative data provided by Statistics Norway.

Our key independent variable is immigrant background, measured using information on one's own and one's parents' birth country. Immigrants were born abroad without Norwegian-born parents; second-generation immigrants were born in Norway to two foreign-born parents. Native Norwegians are born in Norway to two Norwegian-born parents. We report the results for immigrant minorities from different geographic regions (Appendix Figure A.4): (a) Eastern Europe, (b) Asia, (c) the Middle East and Greater Arabia, (d) Africa and (e) South America (see Appendix Table A.2 for details on countries of origin within each region).

Information on union membership originates from income tax returns. Union membership fees are deductible, and unions report to tax authorities for their constituency, which enhances the information's reliability (Cools *et al.*, 2021). Information on occupational licensure comes from the Norwegian Occupational Regulations Database, which lists every (approximately 7000) seven-digit occupational title code in Statistics Norway's Standard Classification of Occupations (Statistics Norway, 1998). A job title is licensed if there are legally required education, skills, suitability criteria or financial bonds pertaining to everyone who performs job tasks subject to regulation. To measure the workplace concentrations of unionized and licensed employees, we aggregated the share of employees with each status in workplaces for each calendar year. Figure 1 shows the distribution of workers across workplaces with different shares of unionized and licensed employees by immigrant background.

We included measures of employees' demographic characteristics, human capital, and labor market experience: age in years, sex (female = 1), marital status (married = 1) and number of children below age 20 years (dummies for one, two, three or more children). Educational attainment distinguishes: (a) below full secondary education; (b) completed upper-secondary education; (c) short tertiary education, BA equivalent; (d) long tertiary

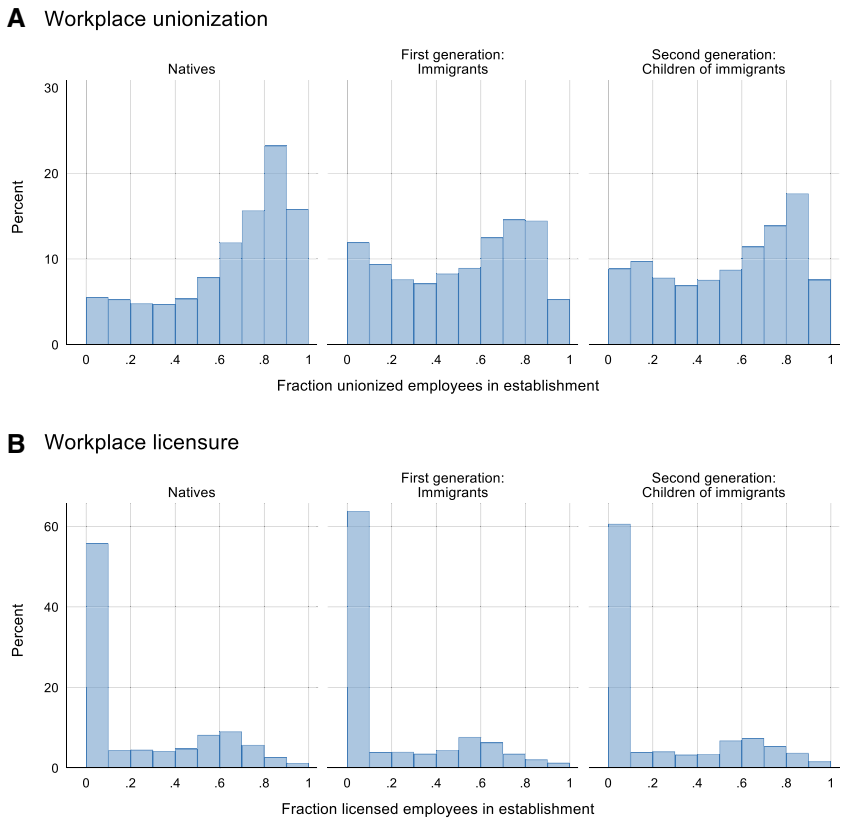

Figure 1. Distribution of individuals across workplaces with different share of unionized and licensed employees by immigrant background.

education, MA equivalent or higher; and (e) no information on educational qualifications. The last category regards 12% of immigrant employees but almost no native and second-generation children of immigrants.[5] Seniority in the current workplace and potential experience in the Norwegian labor market are measured in years and derived from administrative records on individuals' employment histories in Norway. Potential labor market experience is measured as the age above 16 years minus years of completed education for everyone's highest-completed degree. For immigrants arriving as adults, potential experience in the Norwegian labor market (i.e. years since immigration) can be interpreted to measure economic assimilation. To consider occupational sorting, we controlled for one-digit ISCO occupational groups. We also controlled for measures of workplace organizational demographics, following previous studies (Tomaskovic-Devey *et al.*, 2015; Melzer *et al.*, 2018). We included controls for the workplace share of (a) immigrant-origin employees, (b) female employees and (c) employees with tertiary university-level education. Finally, we controlled for organizational size using the logarithm of the number of workplace employees.

4.2 Methods

We estimate linear (OLS) regressions with establishment fixed effects that effectively control for unobserved heterogeneity and omitted variable bias at the workplace level because estimation relies solely on variance within workplaces (Wooldridge, 2010). Because these models absorb all fixed establishment characteristics, the estimated results derives from changes in employee composition in each establishment across years and in individual employees' mobility between establishments over time.

To test whether immigrant–native wage gaps depend on the workplace concentration of union members (Hypothesis 1) or employees in licensed occupations (Hypothesis 3), we interact immigrant background with these workplace-level variables. These models include interaction terms between immigrant background and employee union membership or licensure. Furthermore, we test whether increased workplace unionization (Hypothesis 2) or licensure (Hypothesis 4) reduces wage gaps more among immigrant–origin employees who are union members or working in licensed occupations by including three-way interaction terms between immigrant background, workplace-level and employee-level variables. Finally, our immigrant background measure distinguishes first-generation immigrants from second-generation children of immigrants, allowing us to examine variations in hypotheses 1–4 by generational status (Hypothesis 5).

Our dependent variable is the natural logarithm of hourly wages. Our full model's specifications follow:

$$\begin{aligned}\ln(\text{wage}_{iwt}) = {} & \mu_w + \beta_1 \boldsymbol{i}_i + \beta_2 u_{wt} + \beta_3 u_{it} + \beta_4 l_{wt} + \beta_5 l_{it} + \beta_6(\boldsymbol{i}_i \times u_{wt}) + \beta_7(\boldsymbol{i}_i \times u_{wt}) \\ & + \beta_8(\boldsymbol{i}_i \times u_{wt} \times u_{wt}) + \beta_9(\boldsymbol{i}_i \times l_{wt}) + \beta_{10}(\boldsymbol{i}_i \times l_{wt}) + \beta_{11}(\boldsymbol{i}_i \times l_{wt} \times l_{wt}) + \beta_k \boldsymbol{x}_{it} \\ & + \beta_l \boldsymbol{o}_{wt} + \vartheta_t + \varepsilon_{iwt}, \end{aligned} \tag{1}$$

where subscripts i, w and t refer to individual employees, workplaces and calendar years, respectively. Our interest lies in the estimated coefficients β_1–β_{11}, which model how the log hourly wage gap for first-generation immigrants and second-generation children of immigrants varies by unionization and licensure at the individual and workplace levels relative to comparable natives. The vector $\boldsymbol{i}_i$ captures dichotomous indicators of immigrant background, u_{wt} is the workplace-level share of unionized employees, u_{it} represents a dichotomous indicator of individual-level union membership, l_{wt} refers to the workplace-level share of licensed employees, u_{it} symbolizes a dichotomous indicator of individual-level licensure, $\boldsymbol{x}_{it}$ is a vector of individual-level control variables (i.e. employees' human capital, demographic and employment characteristics), $\boldsymbol{o}_{wt}$ is a vector of workplace-level control variables (i.e. organizational demographic characteristics). μ_w are establishment fixed effects, which absorb all time-invariant characteristics of workplaces, ϑ_t are year fixed effects and ε_{iwt} stands for the employee-specific error term. For within-workplace correlations, we clustered robust Huber–White standard errors at the establishment level (Wooldridge, 2010).

5. Results

Table 2 estimates OLS regressions of how immigrant–native gaps in log hourly wages vary by workplace unionization and licensure. Model 1 reports unadjusted immigrant–native wage gaps, while Model 2 presents the adjusted immigrant–native wage gaps net of

Table 2. Results from OLS regressions predicting immigrant-native hourly wage gaps by unionization and occupational licensure at the workplace and individual levels

	Model 1	Model 2	Model 3	Model 4	Model 5
Immigrant background					
Natives	Ref.	Ref.	Ref.	Ref.	Ref.
First-generation immigrants	−0.239***	−0.091***	−0.091***	−0.141***	−0.138***
	(0.004)	(0.001)	(0.001)	(0.003)	(0.003)
Second-generation children of immigrants	−0.143***	−0.035***	−0.035***	−0.074***	−0.067***
	(0.004)	(0.002)	(0.002)	(0.004)	(0.005)
Unionization					
Workplace unionization			−0.007	−0.009	−0.028***
			(0.005)	(0.005)	(0.005)
First generation × Workplace unionization				0.025***	0.016*
				(0.005)	(0.006)
Second generation × Workplace unionization				0.021**	0.000
				(0.007)	(0.010)
Employee unionization			−0.017***	−0.022***	−0.041***
			(0.001)	(0.001)	(0.002)
First generation × Employee unionization				0.046***	0.032***
				(0.003)	(0.005)
Second generation × Employee unionization				0.035***	0.011
				(0.004)	(0.008)
Workplace unionization × Employee unionization					0.032***
					(0.003)
First generation × Workplace unionization × Employee unionization					0.026***
					(0.007)
Second generation × Workplace unionization × Employee unionization					0.046***
					(0.013)
Occupational licensure					
Workplace occupational licensure			0.076***	0.075***	0.079***
			(0.010)	(0.010)	(0.010)
First generation × Workplace licensure				−0.003	−0.007
				(0.005)	(0.006)

continued

Table 2. *Continued*

	Model 1	Model 2	Model 3	Model 4	Model 5
Second generation × Workplace licensure				−0.004	0.001
				(0.009)	(0.010)
Employee occupational licensure			0.030***	0.026***	0.031***
			(0.001)	(0.002)	(0.003)
First generation × Licensure employee				0.059***	0.049***
				(0.003)	(0.005)
Second generation × Licensure employee				0.049***	0.058***
				(0.006)	(0.013)
Workplace licensure × Employee licensure					−0.011
					(0.007)
First generation × Workplace licensure × Employee licensure					0.019
					(0.011)
Second generation × Workplace licensure × Employee licensure					−0.020
					(0.025)
Individual controls	No	Yes	Yes	Yes	Yes
Workplace controls	No	Yes	Yes	Yes	Yes
Establishment fixed effects	No	Yes	Yes	Yes	Yes
Number of person-years	14 983 572	14 983 572	14 983 572	14 983 572	14 983 572
R^2	0.033	0.468	0.469	0.470	0.470

Source: Authors' own calculations on administrative data provided by Statistics Norway.

Note: Coefficients from OLS regressions. Huber-White robust standard errors clustered at the level of establishments presented in parentheses. Model 1 includes the indicators of immigrant background and controls for year fixed effects. Model 2 adds controls for workplace and individual employee licensure, plus individual controls, which include gender, age (squared), marital status, number of children, educational attainment, potential labor market status (squared), seniorty with current employer (squared), and occupation (one-digit ISCO-88 codes), and workplace controls, which include workplace share of immigrant-origin employees, workplace share of employees with tertiary education, workplace share of women, and workplace size, and establishment fixed effects. Model 3 adds the measures of workplace and employee unionization and occupational licensure. Model 4 adds separate interaction terms between immigrant background and workplace and employee unionization and occupational licensure. Model 5 adds the three-way interaction terms between immigrant background and workplace and employee unionization and occupational licensure. The full set of estimated coefficients for Model 5 is reported in Appendix Table A.3.

$^{*}P < 0.05$, $^{**}P < 0.01$, $^{***}P < 0.001$.

education, occupational class, sociodemographic characteristics of individual workers, workplace-level demographics, and establishment fixed effects. Model 2 adds the key predictor variables of unionization and licensure among individual employees and the workplace-level share of unionized employees and licensed employees. Model 3 introduces the interaction terms between immigrant background and workplace-level and employee-level variables measuring unionization and licensure. Model 4 adds three-way interaction terms.[6]

Model 1 depicts that first- and second-generation immigrants experience an unadjusted wage disadvantage of –0.239 log points and –0.143 log points. Model 2 reports a wage gap relative to natives of –0.091 log points for first-generation immigrants and –0.035 log points for second-generation immigrants after adjusting for all observed characteristics at the level of employees and workplaces, including establishment fixed effects. Model 3 shows that average immigrant–native wage gaps are identical after additional controls for unionization and licensure at the employee and workplace levels. Model 3 reports that unionized workers, on average, have an almost 2%-less hourly wage than non-unionized workers. However, workplace union density is not systematically related to wages ($b = –0.007$, $P > 0.05$). Furthermore, licensed workers earn approximately 3% more than non-licensed workers, with a positive relationship between workplace licensure and wages ($b = 0.076$, $P < 0.001$).

Our key question is how immigrant–native pay gaps vary between workplace contexts characterized by disparate union coverage and licensure and whether such variation interacts with employees' individual union membership and licensure status. To test this, Model 4 introduces separate interaction terms between immigrant backgrounds, unionization and licensure at the employee and workplace levels. For natives, these results show that union membership relates to approximately 2% lower wages and the impact of workplace unionization nears zero and is not statistically significant ($b = –0.009$, $P > 0.05$). Interaction terms convey that unionized immigrants experience a membership premium compared to natives. The wage gap relative to natives among unionized workers is approximately 4.6% and 3.5% less among first- and second-generation immigrants, respectively. At the workplace level, interaction terms show union density raises the wages of first-generation ($b = 0.025$, $P < 0.001$) and second-generation immigrants ($b = 0.021$, $P < 0.01$) compared to natives, implying immigrant–native wage gaps are smaller in highly unionized workplaces than in organizational settings where few employees are union members.

Turning to licensure, Model 4 depicts licensed native workers earn approximately 2.6% more than non-licensed workers. Increased shares of licensed workers in the workplace positively relate to native workers' wages ($b = 0.075$, $P < 0.001$). For first- and second-generation immigrants, the wage gap relative to natives is about 6% and 5% among licensed workers, respectively. At the workplace level, small and non-significant interaction terms find first-generation ($b = –0.003$, $P > 0.05$) and second-generation immigrants ($b = –0.004$, $P > 0.05$) experience very similar wage benefits from higher workplace licensure to natives. This suggests immigrant–native wage gaps are relatively

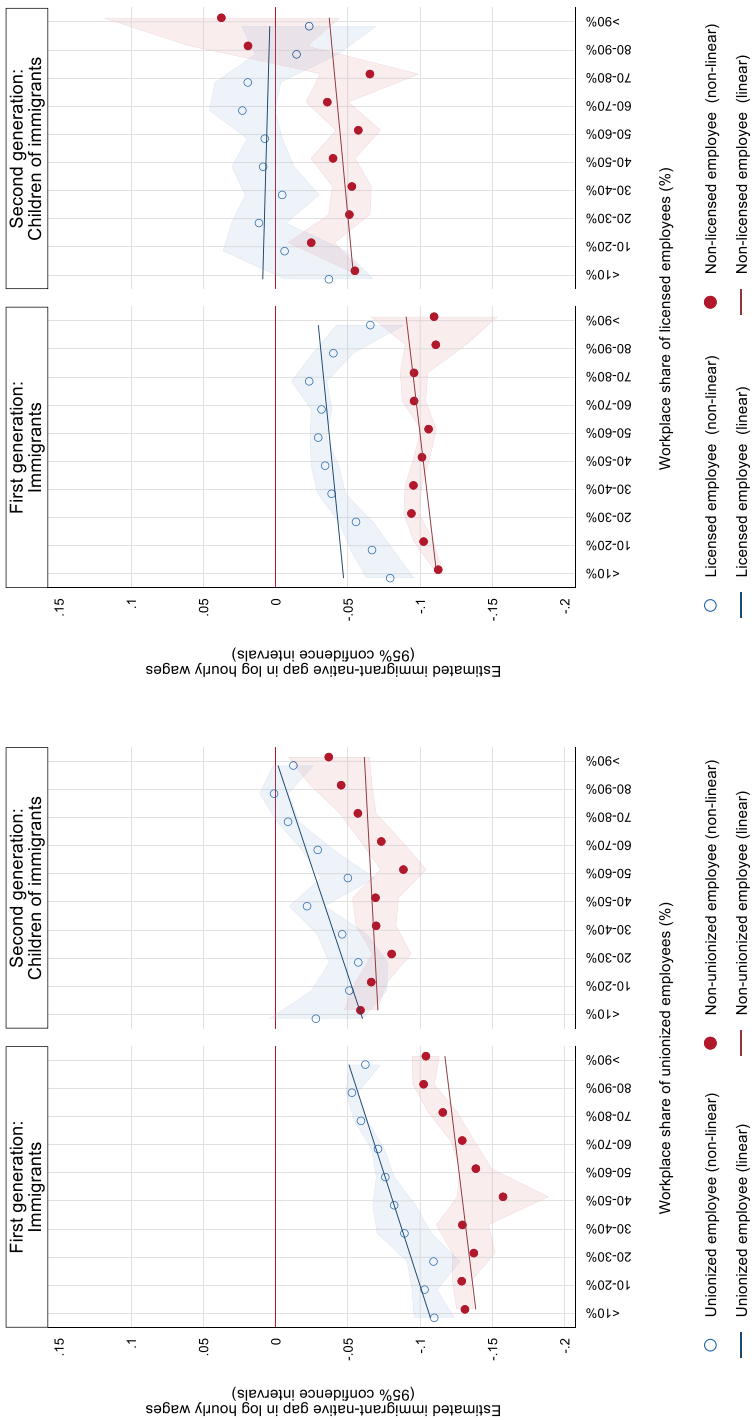

Figure 2. Predicted immigrant-native gaps in hourly wages by workplace and employee unionization (a) and workplace and employee occupational licensure (b).

Note: Estimates based on three-way interaction in Model 5 in Table 2. In both panels, the horizontal red line at zero refers to the native Norwegian reference category.

similar across workplace contexts, with different concentrations of employees in licensed occupations.

Finally, Model 5 adds three-way interaction terms that allow us to assess whether the influence of unionization and licensure at the workplace level varies by immigrant-background employees' union membership and licensure status. For easier interpretation, Figure 2 summarizes adjusted predictions of how immigrant–native wage gaps vary by combinations of individual employees' union membership and workplace union density (Figure 2a), and employees' licensure and workplace licensure (Figure 2b). In each panel, plotted separately for first- and second-generation immigrants, vertical axes depict the estimated immigrant–native hourly wage gaps in log points, while horizontal axes show the workplace share of unionized employees (Figure 2a) and the workplace share of licensed employees (Figure 2b). Blue (unionized and licensed employees) and red (nonunionized and nonlicensed employees) lines display the size of wage gaps relative to natives (horizontal red lines at zero) at different levels of workplace unionization and workplace licensure for first- and second-generation immigrants. The linear estimates (lines) are from our full-model specification (Model 5 in Table 2); nonlinear estimates (dots) originate from an identical model specification. We use a set of dummy variables to measure 10% intervals of the workplace shares of unionized and licensed employees.

Figure 2a emphasizes immigrant–native wage gaps are considerably smaller at higher levels of workplace unionization among unionized first- and second-generation immigrants. For unionized first-generation immigrants, wage gaps are predicted at approximately 10% in workplaces lacking unionized coworkers. It is only approximately 5% in workplaces with all unionized coworkers. For second-generation immigrants who are union members, predicted wage gaps reduce from about 5% in workplaces with no unionized coworkers to about zero in workplaces with full union coverage. In contrast, there are less-varied wage disparities among nonunionized first- and second-generation immigrants, who, respectively, earn about 14–12% and 6% less than natives, regardless of the degree of workplace union coverage. We only observed a positive, although weak, estimate for workplace union density among nonunionized first-generation immigrants. In summary, the benefits of workplace union coverage are primarily observed among immigrant-background workers who are union members. These findings partially support Hypothesis 1 and fully support Hypothesis 2. Gradients' steepness is similar across generations and does not support Hypothesis 5.

Figure 2b displays considerably less variation in sizes of estimated immigrant–native wages gaps across workplace contexts for a share of licensed employees. First-generation immigrants in licensed occupations earn, on average, about 5% less than natives. In contrast, nonlicensed immigrants earn about 10% less than comparable natives regardless of the share of licensed coworkers. The immigrant–native pay gap diminishes with increasing shares of licensed co-workers for licensed and nonlicensed immigrants, though this trend is not statistically significant. For the second generation, the predicted wage gap relative to native coworkers nears zero for licensed workers. Those in nonlicensed occupations earn about 5% less than native coworkers. These gaps' size is largely identical, regardless of the share of licensed employees at workplaces. Overall, this suggests the benefits of licensure primarily operate at the individual level and to a lesser degree extend

to non-licensed immigrant employees through workplace-wide organizational dynamics. Such findings do not support Hypotheses 3 or 4. Moreover, first- and second-generation immigrants reap relatively similar wage premiums of licensure, contradicting Hypothesis 5.

To put the numbers into context, the total wage premium for licensure and unionization for a fully covered first-generation immigrant equals to 17% and 3.8%, respectively. These premiums are comparable to 16 and 4 years of labor market experience. The corresponding numbers for second-generation immigrants are 15% and 2%, respectively, which equals to 13 and 2 years of labor market experience.[7]

5.1 Variation across labor market segments and by world region of origin

To investigate our findings' consistency, we repeat estimations from the final model specification across labor market contexts, defined as white-collar and blue-collar occupations, private and public sectors and employer size, and for immigrants according to geographic region of origin, corresponding to Eastern Europe, Asia, Latin America, Middle and North Africa and Sub-Saharan Africa.

We summarize the main findings from these robustness analyses in Appendix Figures A.2–A.5. The immigrant–native wage gap is the smallest for union members in unionized workplaces across all contexts. The relative decrease in wage gaps according to union status is most pronounced in white-collar occupations, in the private sector and in large establishments (500+ employees). Interestingly, for first-generation immigrants, being a union member in a nonunionized workplace is equal to or better than being unorganized in a unionized workplace, except among white-collar employees.

For licensure, immigrant–native wage gaps are smallest for licensed immigrants in workplaces with many licensed coworkers. The exception is blue-collar workers, where immigrants earn relatively more if they have a licensed job among unlicensed co-workers. Moreover, we observed a licensure workplace-level effect in white-collar occupations, in the private sector and in small establishments.

Across most international regions of origin, immigrant–native wage gaps are smallest for unionized immigrant-background employees in highly unionized workplaces. Licensure measures displayed slightly less consistency across origin groups. While the smallest immigrant–native gaps are found among licensed workers, the role of workplace-level licensure is mixed, corroborating findings showing wage gains due to licensure are based on individual merit, with little spillover to the organizational level.

6. Discussion and conclusions

To understand the sources of immigrant–native pay inequality and to identify policy measures to curb these disparities are of paramount importance in high-income countries who experience high-level immigration. This study has explored how the organizational prevalence of licensure and unionization contributes to workplace variations in pay inequalities between immigrant-origin and native workers. Licensure and unionization are two labor market institutions that influence wages. Because both have legal

enforcement and strong normative foundations for claims making in the workplace, we theorized these institutions could mute socio-relational processes of workplace ethnic divisions, especially if immigrant-background workers are unionized or work in licensed occupations.

Our first main result is that the wage gap between immigrants and natives decreases with increasing workplace unionization but almost exclusively for immigrants who are union members. This result modifies existing research that promotes unions as a collective good (Barth *et al.*, 2000). Because high workplace unionization likely corresponds to collective wage agreements, with legal enforcement and specification of job-specific wage boundaries, workplace unionization should efficiently constrain employers' latitude to offer wages outside the appropriate range for the job (Petersen and Saporta, 2004). Moreover, because unions are committed to employees' interests and combatting workplace discrimination (Elvira and Saporta, 2001; Mosimann and Pontusson, 2017), we expected reduced immigrant–native wage gaps in workplace contexts with a strong, unionized collective. Thus, the weak union density wage premium for unorganized immigrants is more surprising than the fact that organized immigrants capitalize on increased union density in the workplace.

One explanation for why union density premiums mostly channel through individual membership is because we investigate wage relationships within workplaces. Union density could increase the enforcement of set agreements, as unions want to avoid exploitation and pressure toward low-wage work. The main mechanism for this is CWAs. For unorganized immigrants, CWAs and bargaining coverage are likely more important than density. Robustness analyses support this interpretation, as union membership–union density effects are more pronounced in labor market segments with large initial immigrant–native wage gaps (e.g. the private sector, large-sized firms and white-collar occupations). Hence, union density efficiently curbs inequality-generating processes, where they might unfold. The lower impact of public-sector unionization can be interpreted corresponding with Sauer *et al.* (2021), who show public sector employment, CWAs and formal rules reduce opportunity and participation in claims making. Less opportunity to negotiate means unions have less leeway to influence the redistribution of wages outside set agreements.

The mutual reinforcement of union membership and density among immigrants suggests that immigrants are more dependent on the direct support that unions provide to their members to ensure fair pay. Unions can advocate for decent entry-level wages and individual wage adjustments and influence internal promotions. This finding clearly displays the relational character of wage setting and illustrates how unions can counteract categorically-based inequality in the workplace by supporting the wage claims of lower status individuals. This observation offers important insights into the brokering role of unions, and it corroborates a recent study that showed similar effects for women (Bryson *et al.*, 2020).

Our second main result is that licensure raises pay both at the individual and workplace levels. However, unlike union density, any reduction in immigrant–native wage gaps largely operate at the individual level for licensed employees, and less through

workplace-wide organizational dynamics. Hence, there is limited compensatory redistribution to immigrants who work alongside many licensed co-workers. We find evidence of lower immigrant–native wage gaps among nonlicensed immigrant workers in some areas of the labor market, such as small- and medium-sized establishments, the private sector and white-collar occupations. One explanation could be that these are organizational contexts in which rent sharing across licensed and nonlicensed colleagues is likelier (Schweiker and Groß, 2017; Avent-Holt *et al.*, 2019). Additionally, we find no evidence of strengthened social closure, that is opportunity hoarding, among licensed workers as a function of workplace-level licensure—except in the public sector, where nonlicensed immigrants with many licensed colleagues experience the largest wage gaps compared to natives. More rigid budgets and pay systems can limit rent sharing across jobs in the public sector. Hence, this finding resembles the situation predicted by RIT that status-group inequalities tend to enlarge when they overlap (Avent-Holt and Tomaskovic-Devey, 2014).

Immigrants in licensed jobs efficiently close the wage gap with native colleagues. Possible explanations are first that the license documents that the incumbent have acquired skills and knowledge according to national, occupational standards, which for immigrants also include documentation of language skills. This increases information to employers. Next, licensed workers' statutory right to practice the occupation reduces competition from nonlicensed workers and it reduces employers' discretion in hiring. Third, their occupational niche may anchor wages at the occupational level and be an important external legitimation of their wage claims that overrule their categorical status as immigrants (Gomez *et al.*, 2015; Drange and Helland, 2019). Fourth, because immigrants can be, or at least are perceived to be, more internationally mobile, it is conceivable that this "mobility threat" gives them greater bargaining power with employers (Grinza *et al.*, 2020, p. 184). Yet, licensed immigrants in workplaces with few licensed coworkers display low wage gaps to native colleagues in blue-collar occupations but larger wage gaps in white-collar occupations and in the private sector. This signals that the legitimacy and recognition of licensure in workplace bargaining is context dependent, for instance, in relation to workplace skill structure.

Finally, we document that unionization and licensure reduce the wage gaps between natives and second-generation immigrants. Because the second generation has acquired educational credentials, language skills and cultural competencies that should be comparable to those of natives, this suggests that organizational status distinctions and the relative "brightness" of ethnic boundaries (cf. Alba, 2005) also apply to them. Both unionization and licensure reduce the salience and adverse labor market consequences of their visible ethnic minority status. Accordingly, future research should consider whether workplace unionization and licensure improve a broad range of immigrant-origin employees' career outcomes, such as hiring and firing, internal promotions and access to managerial positions and workplace authority.

This study contributes to a recent strand of research that documents how the differential sorting of immigrants and natives across firms, establishments and jobs makes considerable contributions to immigrants' wage disadvantages, but also reveals a key role for employers' wage-setting policies within workplaces (Aydemir and Skuterud, 2008; Barth *et al.*, 2012; Åslund *et al.*, 2014; Tomaskovic-Devey *et al.*, 2015; Melzer *et al.*, 2018; Dostie *et al.*, 2021; Peters and Melzer, 2022; Han and Hermansen, 2023).

The literature has documented that variations in workplace-specific pay gaps often correlate with specific organizational processes, such as immigrants' enhanced access to workplace authority and managerial representation (Tomaskovic-Devey *et al.*, 2015; Melzer *et al.*, 2018; Peters and Melzer, 2022). Simultaneously, another strand of research finds reduced immigrant–native pay distinctions in unionized or licensed occupations (Gomez *et al.*, 2015; Redbird, 2017; Drange and Helland, 2019). Drawing on insights from both strands, our findings highlight how variations in workplace-specific wage gaps between immigrants and natives are structured by regulatory institutions in the labor market and how the benefits of individual employees' union membership and licensure status interact with organizational dynamics. An important distinction between the two institutions is that unionization, both at the workplace and the employee level, lessens the native–immigrant wage gap, whereas licensure only shelters the licensed immigrant employees. As rent-extracting institutions, licensure and unionization rely on different strategies (Weeden, 2002). Unions gain strength through broad engagement and collective agreements in the workplace, and often prioritize low pay jobs in negotiations which benefits the minority employees. Unions, thus, compress wage differences. Licensure, in contrast, enhances the licensed workers' claims-making vis-à-vis employers, but does not support wage redistribution to unlicensed employees. Thus, a likely explanation is that licensed workers, unlike unions, have limited incentives or utility for redistribution.

While RIT recognizes that industry-wide occupational wage norms and institutional regulations limit the scope of organizational wage setting, the theory has been criticized for downplaying the relative importance of workplaces' institutional environment, such as industrial and legal standards (Reisel *et al.*, 2019). Actors' ability to generate inequality depends on the opportunity structure for discrimination (Petersen and Saporta, 2004), and regulations are an efficient means to combat inequality (Midtbøen, 2015; Drange and Helland, 2019). The consistency of our estimates across industries and workplaces supports the notion that workplaces' institutional environments condition internal wage dispersion and reduce the scope of unequal pay based on immigrant status. A key lesson from our study is that the strong emphasis on workplaces as the location for inequality-generating processes in RIT (Tomaskovic-Devey and Avent-Holt, 2019, p. 138) can be deepened by integrating insights into broader regulatory mechanisms described in the literature on occupational closure (e.g. Weeden, 2002).

A policy implication of our study is to intensify efforts to heighten unionization among immigrant-origin workers. Because unionization is more widespread than licensure, the sheltering effect of workplace unionization will cover many more immigrants. Therefore, it is likely to have a stronger equalizing effect on overall pay gaps relative to natives. Because immigrant-background workers are underrepresented as union members (Cools *et al.*, 2021), raising rates of union membership appear to be a promising way to augment their status in the labor market and workplaces. Additionally, with one exception, we find no evidence of widening immigrant–native wage gaps in response to a greater concentration of licensed workers. Correspondingly, licensure affects immigrants' earnings primarily through less access to licensed jobs (Alecu and Drange, 2019; Koumenta *et al.*, 2022) and the exploitation of non-licensed complementary workers.

A strength of our study is its estimation of establishment fixed-effects models, as they address concerns about unobserved heterogeneity at the workplace level. We lack a similar

control for unobserved characteristics at the individual level. However, our comprehensive controls for individual human capital, occupation and other employment characteristics suggest that unobserved skill bias should be strongly reduced. Furthermore, because our main findings also apply to native-born children of immigrants in the second generation, unobserved skills regarding immigration (e.g. language proficiency and cultural familiarity) should be less relevant.

Our analyses cover the Norwegian labor market with its solid industrial relationships, compressed wage structure and strong anti-discrimination and employment protection legislation that could strengthen the regulatory role of unions and licensure for immigrant–native pay gaps. Future research should explore these questions within institutional contexts where the labor market is less regulated than in Scandinavian welfare-state economies. Furthermore, we explored the consequences of unions and licensure as separate entities. An avenue for future research is to delve deeper into how these two institutions interact, especially in sectors such as health and education, where licensure and unionization combine in professional associations.

Notes

1. Collective agreements have been legally extended in some industries since 2004 due to the "social dumping of wages" after a high inflow of migrant workers from new EU Member States (Friberg *et al.*, 2014).
2. Between 2009 and 2014, data provide information on all job observations for public-sector employees and a large representative sample of approximately 70% of private-sector jobs. The private-sector sample originates from the population of all firms. The sampling unit is the firm level, and data include all ancillary establishments and employed individuals. The private-sector sample is stratified by industry and number of employees. All large employers are sampled, though smaller firms are selected with decreasing sampling probability based on the number of employees. After 2015, data cover the entire private sector.
3. Notably, all variables based on average employee characteristics at the workplace level were measured before imposing restrictions for the analytic sample.
4. We have repeated the analyses with different composite wage and wage income measures and obtain similar results.
5. Additional analyses illustrate our main results are robust when we exclude individuals with missing information for educational attainment.
6. Appendix Table A.3 reports the full set of coefficients.
7. See Appendix tables for calculations.

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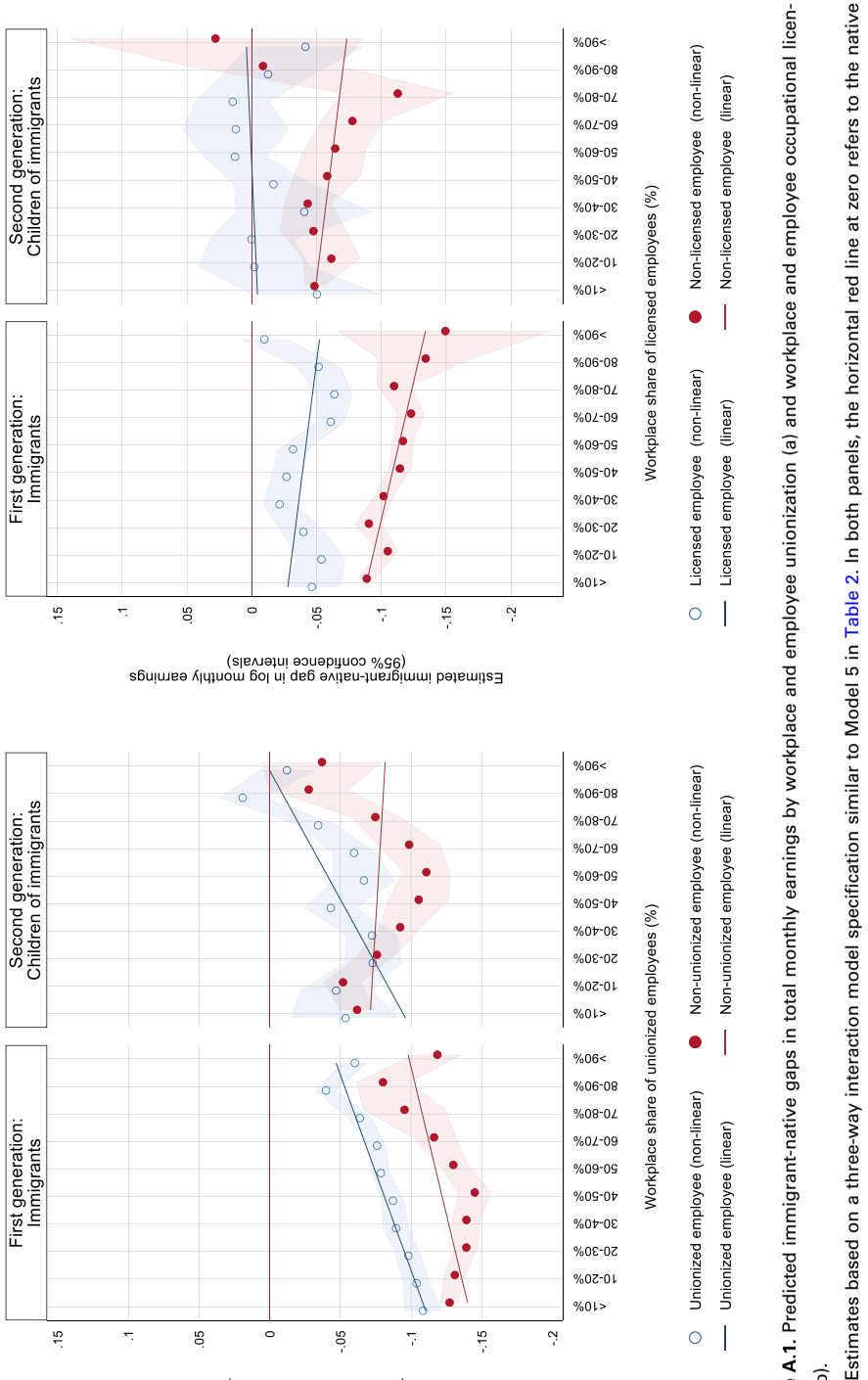

Figure A.1. Predicted immigrant-native gaps in total monthly earnings by workplace and employee unionization (a) and workplace and employee occupational licensure (b).

Note: Estimates based on a three-way interaction model specification similar to Model 5 in Table 2. In both panels, the horizontal red line at zero refers to the native Norwegian reference category.

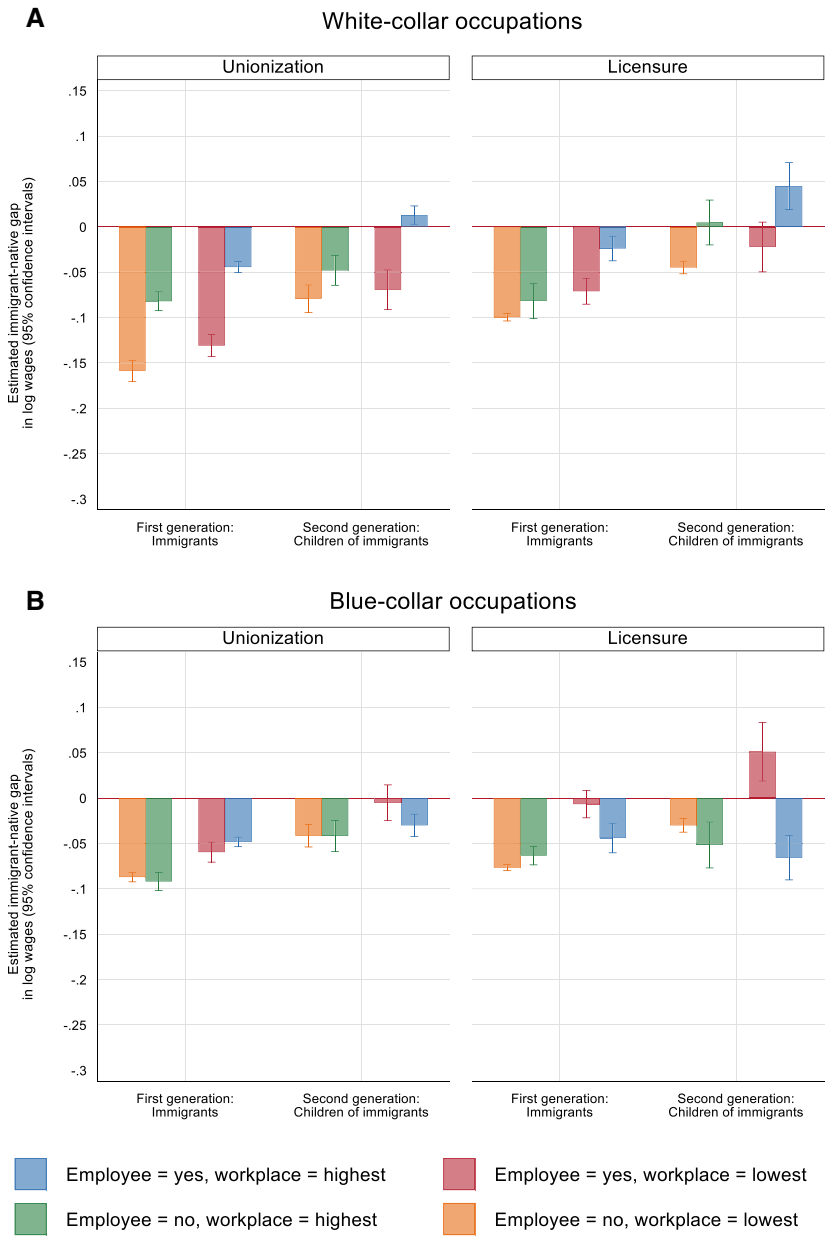

Figure A.2. Predicted immigrant-native wage gaps for employees in white-collar and blue-collar occupations.

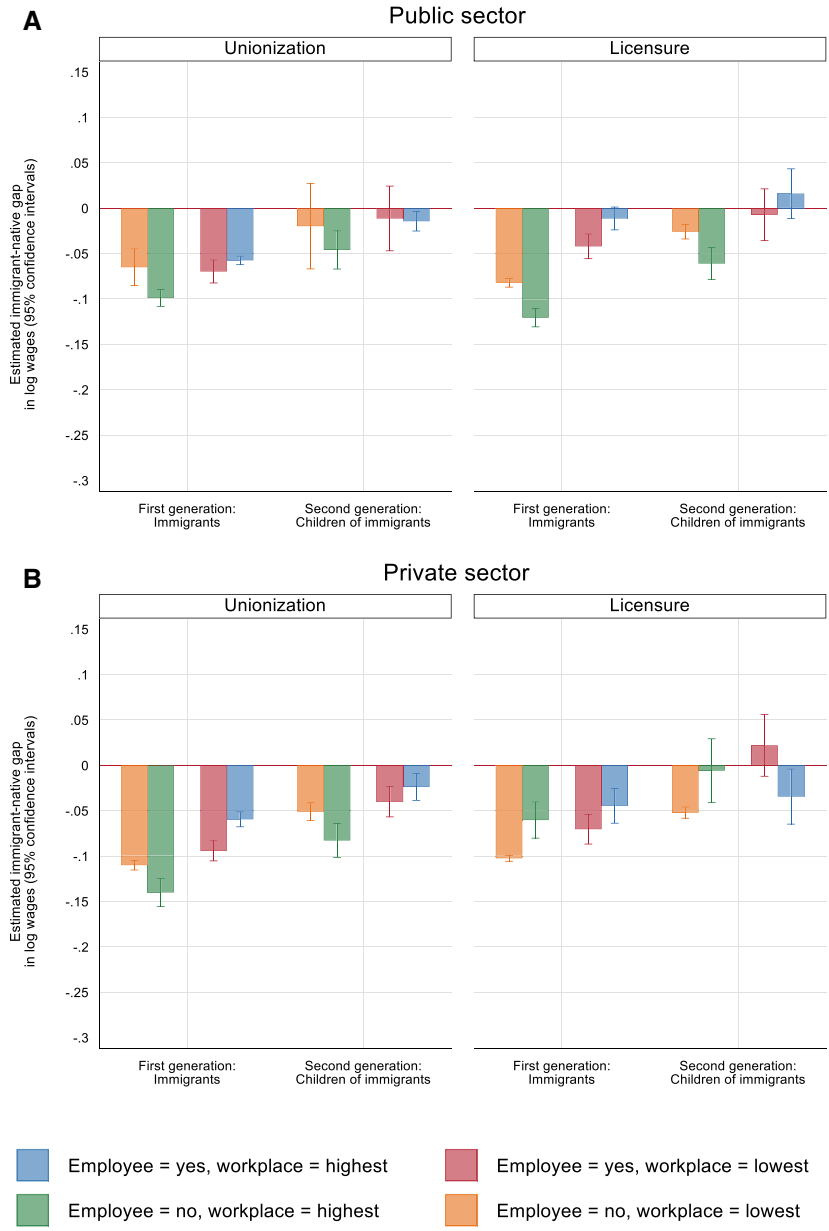

Figure A.3. Predicted immigrant-native wage gaps for employees in the public and private sectors.

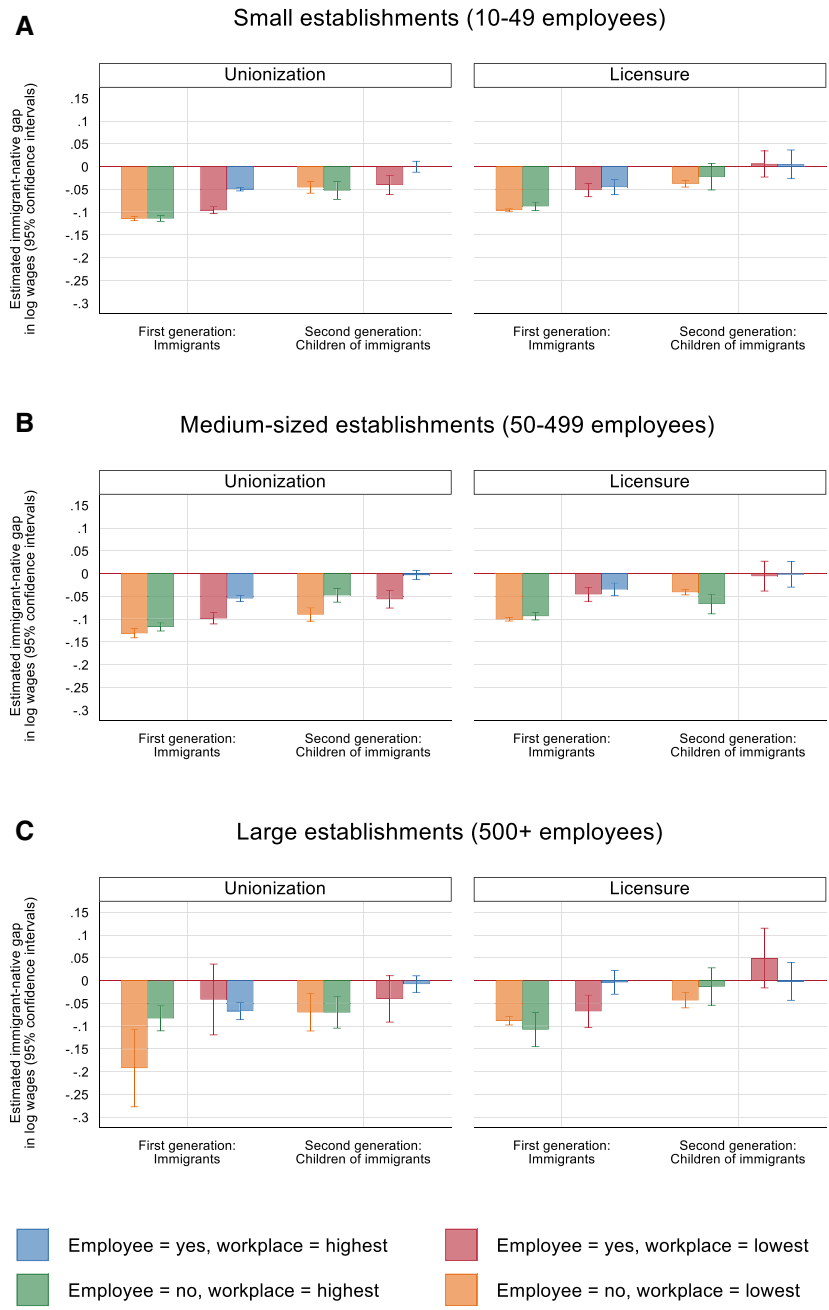

Figure A.4. Predicted immigrant-native wage gaps for employees in small, middle and large establishments.

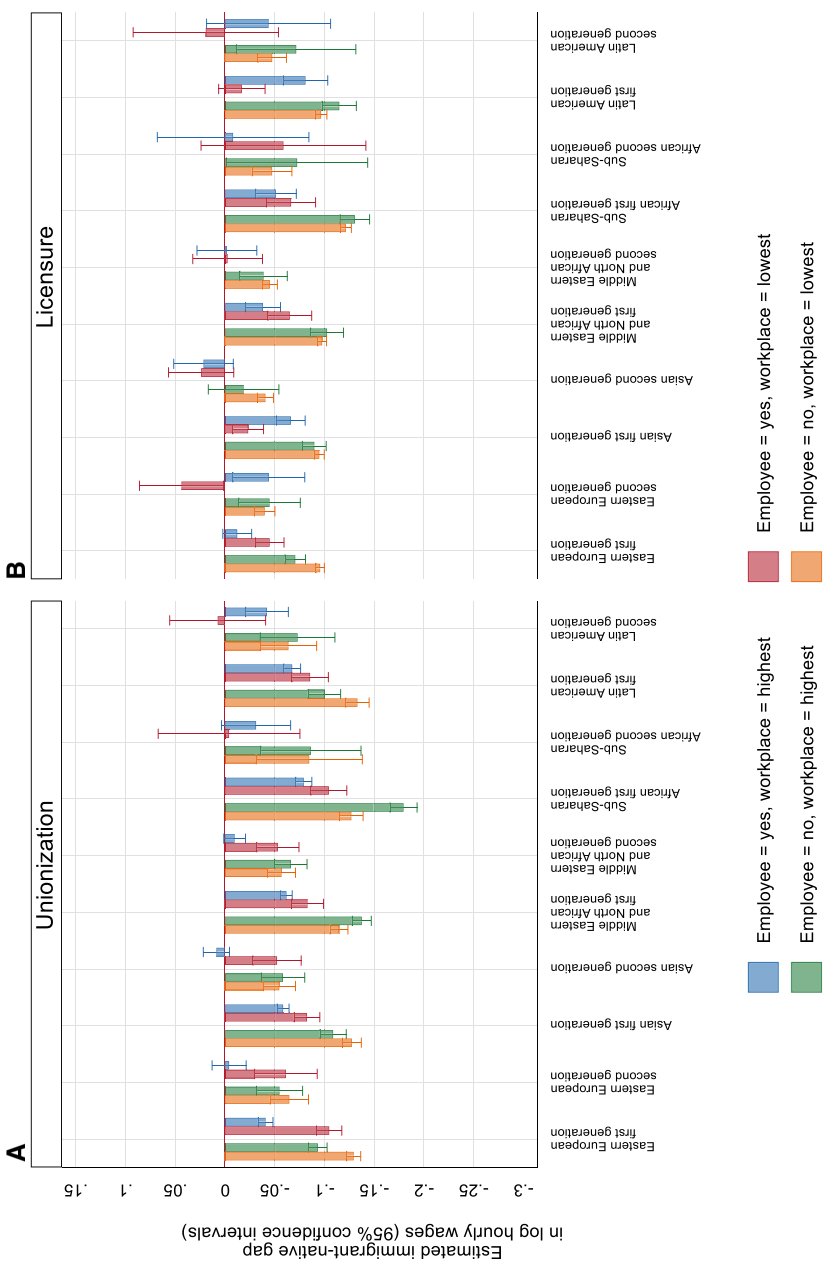

Figure A.5. Predicted immigrant-native wage gaps separately for immigrant-origin employees from different regions of origin.

Table A.1. Zero-order correlation matrix (Pearon's *r*)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(16)	(17)	(18)	(19)
Hourly wages (log)	1.00																	
Employee unionization (0/1)	0.00	1.00																
Employee licensure (0/1)	0.02	0.20	1.00															
Workplace unionization (fraction)	0.05	0.25	0.58	1.00														
Workplace licensure (fraction)	−0.07	0.70	0.21	0.36	1.00													
Workplace immigrant share (fraction)	−0.20	−0.05	−0.14	−0.26	−0.08	1.00												
Workplace tertiary education share (fraction)	0.24	0.15	0.16	0.30	0.22	−0.20	1.00											
Workplace female share (fraction)	−0.17	0.28	0.18	0.27	0.39	−0.02	0.38	1.00										
Workplace number of employees (log)	0.15	0.01	0.16	0.28	0.01	0.00	0.22	−0.12	1.00									
Female (0/1)	−0.17	0.16	0.13	0.16	0.23	−0.01	0.23	0.60	−0.07	1.00								
Age (years)	0.17	0.02	0.15	0.16	0.04	−0.09	0.02	0.03	0.00	0.01	1.00							
Married (0/1)	0.13	0.02	0.05	0.07	0.01	−0.03	0.05	0.02	0.00	0.01	0.30	1.00						
1 child (0/1)	0.01	−0.01	0.00	0.00	−0.01	−0.01	−0.02	−0.02	0.00	0.00	−0.06	0.01	1.00					
2 children (0/1)	0.07	0.01	0.00	0.01	0.00	−0.05	0.04	0.00	0.00	0.01	−0.15	0.13	−0.24	1.00				
3+ children (0/1)	0.05	0.04	0.01	0.03	0.03	−0.03	0.02	0.02	−0.01	0.00	−0.09	0.15	−0.15	−0.16	1.00			
Education (years)	0.33	0.18	0.12	0.19	0.11	−0.19	0.56	0.18	0.16	0.09	−0.10	0.02	−0.01	0.08	0.05	1.00		
Potential labor market experience (years)	0.06	−0.03	0.11	0.10	0.01	−0.04	−0.16	−0.02	−0.05	−0.01	0.95	0.27	−0.06	−0.16	−0.10	−0.38	1.00	
Seniority in establishment (years)	0.13	0.10	0.24	0.25	0.08	−0.12	0.08	0.05	0.16	0.04	0.42	0.16	−0.02	−0.03	−0.02	0.01	0.39	1.00

Note: Pearsons's *r* correlation coefficients.

Table A.2. Regions of origin among immigrants and children of immigrants

	First-generation immigrants			Second-generation children of immigrants		
Regions of origin	*N*	%	Five largest countries of origin	All (*N*)	All (%)	Five largest countries of origin
Eastern Europe	136 151	45.5	Poland (*n*=73 095), Russia (*n*=10 581), Romenia (*n*=10 201), Bosnia-Herzegovina (*n*=8525), Kosovo (*n*=5473)	4285	17.2	Bosnia-Herzegovina (*n*=1070), Kosovo (*n*=973), Poland (*n*=687), Macedonia (*n*=456), Hungary (*n*=297)
Asia	61 655	20.6	Philippines (*n*=14 141), Thailand (*n*=10 986), Vietnam (*n*=7435), India (*n*=7338), Sri Lanka (*n*=6538)	6532	26.2	Vietnam (*n*=2806), India (*n*=1220), Sri Lanka (*n*=956), Philippines (*n*=611), China (*n*=276)
Greater Middle East and North Africa	58 119	19.4	Somalia (*n*=9720), Iraq (*n*=9504), Iran (*n*=9130), Pakistan (*n*=7207), Afghanistan (*n*=5947)	11 670	46.9	Pakistan (*n*=6250), Turkey (*n*=1807), Morocco (*n*=1008), Iran (*n*=1002), Somalia (*n*=506)
Sub-Saharan Africa	28 584	9.5	Eritrea (*n*=9102), Ethiopia (*n*=4653), Ghana (*n*=1639), Sudan (*n*=1550), Nigeria (*n*=1338)	959	3.9	Eritrea (*n*=187), Ethiopia (*n*=106), Ghana (*n*=103), Cape Verde (*n*=87), Gambia (*n*=77)
Latin America	15 050	5.0	Chile (*n*=3951), Brazil (*n*=3062), Colombia (*n*=1372), Mexico (*n*=967), Peru (*n*=962)	1451	5.8	Chile (*n*=1128), Colombia (*n*=47), Peru (*n*=41), Brazil (*n*=35), Argentina (*n*=33)
Total	299 559	100.0		24 897	100.0	

Note: The table shows the number of total number of observations ans separately by gender for each region of origin.

Table A.3. Full set of estimates in Model 5 in Table 2

	Model 5	
	Coef.	SE
Immigrant background		
Natives	Ref.	Ref.
First-generation immigrants	−0.138***	(0.003)
Second-generation children of immigrants	−0.067***	(0.005)
Unionization		
Workplace unionization	−0.028***	(0.005)
First generation × Workplace unionization	0.016*	(0.006)
Second generation × Workplace unionization	0.000	(0.010)
Employee unionization	−0.041***	(0.002)
First generation × Employee unionization	0.032***	(0.005)
Second generation × Employee unionization	0.011	(0.008)
Workplace unionization × Employee unionization	0.032***	(0.003)
First generation × Workplace unionization × Employee unionization	0.026***	(0.007)
Second generation × Workplace unionization × Employee unionization	0.046***	(0.013)
Occupational licensure		
Workplace occupational licensure	0.079***	(0.010)
First generation × Workplace licensure	−0.007	(0.006)
Second generation × Workplace licensure	0.001	(0.010)
Employee occupational licensure	0.031***	(0.003)
First generation × Licensure employee	0.049***	(0.005)
Second generation × Licensure employee	0.058***	(0.013)
Workplace licensure × Employee licensure	−0.011	(0.007)
First generation × Workplace licensure × Employee licensure	0.019	(0.011)
Second generation × Workplace licensure × Employee licensure	−0.020	(0.025)
Control variables		
Workplace fraction of immigrant employees	−0.082***	(0.011)
Workplace share of employees with tertiary education	0.079***	(0.008)
Workplace share of female employees	0.020**	(0.008)
Log number of employees in workplace	0.004*	(0.002)
Female	−0.064***	(0.001)
Age	−0.002**	(0.001)
Age (squared)	0.000***	(0.000)
Educational attainment (ref. = not registered)		
Less than upper secondary	−0.036***	(0.002)
Full upper secondary	−0.018***	(0.002)
Tertiary, short	0.028***	(0.004)
Tertiary, long	0.161***	(0.005)
Married (0/1)	0.023***	(0.000)
Number of children		
1 child	0.020***	(0.000)
2 children	0.034***	(0.001)
3+ children	0.035***	(0.001)
Experience in Norwegian labor market	0.011***	(0.000)
Experience in Norwegian labor market (squared)	−0.000***	(0.000)

continued

Table A.3. *Continued*

	Model 5	
	Coef.	SE
Seniority	0.009***	(0.000)
Seniority (squared)	−0.000***	(0.000)
Occupation (ref. = Unspecified and military occupations)		
Legislators, senior officials, managers	0.309***	(0.023)
Professionals	0.161***	(0.023)
Technicians, associate professionals	0.100***	(0.023)
Clerks	−0.03	(0.023)
Service workers, shop, market sales	−0.017	(0.023)
Skilled agricultural, fishery workers	−0.035	(0.024)
Craft, related trade workers	−0.061**	(0.023)
Plant, machine operators, assemblers	−0.085***	(0.023)
Elementary occupations	−0.067**	(0.023)
Intercept	5.103***	(0.027)
Establishment fixed effects	Yes	
Number of person-years	14 983 572	
R^2	0.470	

OLS regressions predicting immigrant-native gaps in log hourly wages.

Source: Authors' own calculations on administrative data provided by Statistics Norway.

Note: Coefficients from OLS regressions. Huber-White robust standard errors clustered at the level of establishments presented in parentheses. All models control for year fixed effects and 83 669 establishment fixed effects. $^{*}P < 0.05$, $^{**}P < 0.01$, $^{***}P < 0.001$.

Calculations of total wage premium from unionization and licensure (cf. note 7).

The examples refer to a situation with full workplace union density/share of licensed employees and individual coverage for the immigrants. Estimated coefficients are from Appendix Table A.3.

Unionization	
First generation immigrants:	=(exp(−0.028+0.016+−0.041+0.032+0.032+0.026) −1)*100=3.8%
Second generation immigrants:	=(exp(−0.028+0.000+−0.041+0.011+0.032+0.046) −1)*100=2.0%
Licensure	
First generation immigrants:	=(exp(−0.079+−0.007+−0.031+0.049+−0.011+0.019) −1)*100=17.4%
Second generation immigrants:	=(exp(−0.079 + 0.001+−0.031+0.058+−0.011+−0.020) −1)*100=14.8%
Labor market experience	=(exp(0.011+(0.000^2)) −1)*100 = 1.1%

As workplace level union density approach 1, the adjusted, average wage effect for first- and second-generation union members is 3.8% and 2%, respectively.

As workplace share of licensed employees approaches 1, the adjusted, average wage effect for licensed first- and second-generation employees is 17% and 15%, respectively.

The adjusted, average wage effect of one unit (year) change in labor market experience is 1.1%. Hence, union and licensure wage premium are comparable to 3.5 and 1.8 years of labor market experience for unionization, and 15.8 and 13.4 years for licensure.

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