The Role of Labor Unions in Immigrant Integration

BY Samuel Dodini, Alexander Willén and Julia Li Zhu

DISCUSSION PAPER

Institutt for samfunnsøkonomi
Department of Economics

SAM 24/23
ISSN: 0804-6824
December 2023

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Samuel Dodini, Alexander Willén, and Julia Li Zhu*

December 22, 2023

Abstract

We examine if unions narrow or widen labor market gaps between natives and immigrants. We do so by combining rich Norwegian employer-employee matched register data with exogenous variation in union membership obtained through national government policies that differentially shifted the cost to workers to join a union. While union membership significantly improves the wages of natives, its positive effects diminish substantially for Western immigrants and disappear almost entirely for non-Western immigrants. The effect of unions on native wages, and the role of unions in augmenting the native-immigrant wage gap, is nonexistent in competitive labor markets while it is substantial in markets characterized by a high degree of labor concentration. This implies that unions act as a countervailing force to employer power in imperfect markets and can ameliorate the negative labor market effects of labor market concentration, but only for natives. Using unions as a means to empower workers and solve market failures caused by imperfect competition in the labor market, therefore, is likely to lead to a significant increase in societal inequality.

JEL Codes: J1, J5, J6
Keywords: Unions, Migration, Inequality

*Dodini: Department of Economics, Norwegian School of Economics and CESifo (samuel.dodini@nhh.no). Willén: Department of Economics, Norwegian School of Economics, UCLS, IZA, and CESifo (alexander.willen@nhh.no). Zhu: Department of Economics, Norwegian School of Economics (julia.zhu@nhh.no).
This project was partially funded by the Research Council of Norway through its Centers of Excellence Scheme, FAIR project no. 262675, and through its Young Researcher Talent Scheme, grant no. 334912.

1 Introduction

Unions represent one of the most powerful labor market institutions across the OECD, and they have played a pivotal role in shaping the structure of the modern labor market. Originally established as a means to correct the imbalance in bargaining power between employers and employees through the monopolization of labor supply, unions operate by restricting the supply of labor to firms in order to raise employee wages and advance the collective interests of their members.

The theoretical ability of unions to counteract the power of employers suggests a key role for unions in affecting the labor market integration process of immigrants and the native-immigrant wage gap. However, the direction of this effect is ambiguous. On the one hand, immigrants face lower levels of individual bargaining power than natives, and the application of group-level bargaining to individuals should disproportionately benefit those who face weaker individual-level bargaining power.[1] Thus, unions may contribute to a narrowing of the native-immigrant wage gap. On the other hand, immigrants and natives may not be treated equally in the local bargaining process: unions may prioritize the interest of native workers more than that of immigrant workers, they may be less able to combat challenges specific to immigrant workers, they may struggle to reach and engage immigrant communities, and they may choose to allocate their resources towards other aspects of their operations. In such cases, unions may exacerbate inequalities between the two groups. A lack of exogenous variation in union membership among natives and immigrants linked to detailed longitudinal panel data has left this question unanswered by existing research.

We provide a detailed analysis of the role of unions in influencing the native-immigrant labor market differential. First, we examine the causal effect of union membership on wages of natives and immigrants. Second, we explore the extent to which any wage differences in union membership across these groups extend to other dimensions of workers' careers: hours worked, job security, work environment, and promotion possibilities. Third, we investigate whether geographic distance between the sending country and the host country affects the extent to which unions impact immigrants. Fourth, we study to what extent our findings are influenced by the labor market power that employers possess, noting that the ability of unions to influence worker outcomes is limited in competitive markets due to the absence of supernormal profits and rents. Finally, to better understand the mechanisms behind our findings, we perform a set of auxiliary analyses in which we rule out alternative explanations and provide suggestive evidence on the pathway through which our effects operate. We con-

[1] Less familiarity with the regulatory framework of labor markets, greater language barriers, greater exposure to discriminatory and predatory hiring practices of firms, workplace segregation, and fewer outside options, are all factors that may affect immigrants more than natives in terms of their individual bargaining power (e.g., Dustmann and Glitz (2011); Algan et al. (2010); Dustmann et al. (2010); Chiswick (1978); Lehmer and Ludsteck (2011); Åslund and Skans (2010); Cutler et al. (2008); Hirsch and Jahn (2015)).

clude the analysis by providing insights on the aggregate reduced-form impact of all these effects on the overall wage inequality between natives and immigrants. For identification, we exploit exogenous shifts in national tax policy that reduced the cost of joining a union by increasing subsidies for union dues. These changes impact all worker types and therefore provide an ideal setting for examining the effects of union membership on natives and immigrants and measuring how these effects shape aggregate inter-group inequality.

The core contribution of this paper is to combine two of the most central features of modern labor markets – immigrants and unions – to examine the role of core social institutions in closing or augmenting economic disparities across demographic groups. Our results highlight that the effect of unions on worker wages differs greatly depending on the workers' geographic background and that these differences extend to a set of core career outcomes. Understanding the role of unions in augmenting existing labor market gaps between immigrants and natives is of key importance, helping inform policy discussions and efforts to promote inclusive labor markets and immigrant integration.

To perform our analysis, we use detailed employer-employee matched data from Norway covering all firms and regions in the country, including information on union membership, union dues, and each worker's occupation. We combine these data with information from various population-wide administrative registers, such as the central population register, the education register, the tax and income register, the social benefit registers, and the residency and workplace location registers. Consequently, we can construct an extensive panel covering the universe of Norwegian workers and much of their demographic, education, labor, welfare, and employer information.

In addition to the rich register data, we conducted a survey on a nationally representative sample of more than 5,000 workers in Norway. The survey asks about workers' ranking of core career amenities and their perceptions of unions' ability to influence these amenities. The survey also examines the price sensitivity of union membership through hypothetical scenario analyses, asking if workers would reconsider joining (leaving) the union if the net-of-subsidy union dues decreased (increased) by a randomized amount.[2] Importantly, the survey includes detailed information on immigrant background, allowing us to separately analyze the different union perceptions and preferences of natives and immigrants.

We begin by presenting descriptive evidence on native and immigrant workers in Norway and on the dynamics of labor union membership across these groups. This includes illustrations of the distribution of union member age, the persistence of union membership over time, unionization trends across industries, and the union earnings premium. Next, we present our survey results to document how immigrants and natives value different types of

[2]We use the price sensitivity questions as a means to externally verify that changes in membership price are likely to generate shifts in membership probability for both natives and immigrants – something that we also examine formally via the linked employer-employee data.

work amenities and what they believe unions can do for their careers. Finally, we use the survey results to provide external validation of our first-stage effect on the price sensitivity of union membership.

After the descriptive results and survey evidence, we estimate the causal effect of unions on immigrants and natives. To overcome the selection issue – that union membership is not randomly given to individuals – we rely on exogenous and differential price changes in the cost for workers to join labor unions. Assuming that union membership is a normal good, a drop in the price of union membership should generate an increase in the quantity demanded for that good. Thus, individuals who were not union members will become more likely to join a union following these price changes as the net cost of enrolling declines.

The price changes in union membership fees come from a series of national government subsidy reforms that provide direct tax deductions to individuals who choose to join labor unions. Specifically, the cap on the maximum amount a worker could deduct to offset their union dues quadrupled over seven years. These changes generated significant shifts in the net price of union membership among workers at firms whose tax deductions were previously bounded by the maximum deduction cap (Barth et al., 2020). As the caps were relaxed over time, the cost of joining the union at these firms fell. These changes provide us with exogenous variation in the incentive to join a union depending on the firm at which the worker was employed. Using an instrumented difference-in-differences design in which we compare individuals at high and low subsidy firms over time as a function of the subsidy bite, we can recover the causal effect of union membership for those who were induced to join the union by these price changes. By comparing the change for a native worker to the change for an immigrant worker within this estimation framework, we can recover the within-firm change in the native-immigrant gap due to union enrollment (since we incorporate firm fixed effects in all our specifications).

Our analysis provides four key insights. First, and consistent with prior union research, we identify a significant wage premium associated with union membership. Specifically, the average worker experiences a union wage premium effect of approximately 0.10 log points, which is slightly smaller but similar to the typical 0.10 through 0.20 log point effect that has been found in prior work (e.g., Farber et al. (2021); Sojourner et al. (2015); Card et al. (2004)). However, in contrast to prior work, we show that the union wage premium is unevenly distributed across workers depending on their geographic background. Specifically, while native workers enjoy a union wage premium of approximately 0.10 log points, Western immigrants experience a much smaller wage premium effect of 0.05 log points, and non-Western immigrants do not experience any short-term wage premium from joining a union. This suggests that unions contribute to a widening of the average native-immigrant wage gap among similar workers and thereby exacerbate inequalities between the two groups.

Second, we show that the heterogeneous wage effect of unions on natives and immigrants extends to another core objective of unions: employment protection. Specifically, while unions provide increased layoff protection for natives as well as immigrants, the protection bestowed upon natives is considerably larger than that provided to immigrants in general, and to non-Western immigrants in particular. These findings suggest that part of the economic disparities between natives and immigrants that exist in Norway – a country praised for its socioeconomic equality and fight against discriminatory labor market practices – is due to the differential impact that core social institutions have on different demographic groups.

Third, the only career dimension for which we find that unions may contribute to a narrowing of the native-immigrant labor market gap is sick leave usage. Specifically, union take-up has a large negative effect on the amount of sick leave benefits taken, and this effect is considerably larger among non-Western immigrants. The interpretation we find most consistent with this result is that unions help improve the work environment of non-Western immigrants such that they feel less inclined to utilize the sick leave insurance system. That this effect loads on non-Western immigrants rather than natives could be due to this group having a lower degree of individual bargaining power and being more likely to be exposed to exploitation practices from employers. The application of group-level bargaining and union protection may therefore have a larger positive marginal effect on their work environment.

Fourth, by examining the differential impact of union membership on natives and immigrants across labor markets with different employer market power (proxied by the Herfindahl–Hirschman index at the occupation - local labor market level), we show that the career effects of union membership are considerably larger in concentrated markets. This is consistent with the idea that the ability of unions to influence worker outcomes is limited in competitive markets due to the absence of supernormal profits and rents (e.g., Dodini et al. (2022)). Importantly, while prior research shows that labor market concentration has negative effects on worker wages and other outcomes, our analysis shows that union membership partially counteracts such negative wage effects for natives (and to a lesser extent, Western immigrants), while non-Western immigrants do not experience meaningful wage gains. By differentially benefiting natives in concentrated markets, union membership increases inequality between natives and immigrants in concentrated markets while having little effect on inequality in more competitive markets. Using unions as a means to empower workers and solve market failures caused by imperfect competition in the labor market, therefore, is likely to lead to a significant increase in societal inequality.

A key question that emerges from our analysis relates to the mechanisms underlying the union's differential impact on natives and immigrants. While we are unable to pinpoint the exact pathway through which our effects operate, we are able to rule out one (ex ante)

expected pathway and provide evidence in favor of another pathway via auxiliary analyses. First, we show that our results are not a consequence of unions being more successful at providing benefits to the majority group at the firm, and thus our results are not due to immigrants being a relatively small group at any one firm. We show this by estimating our baseline model in which we directly examine interactions between the immigrant share at the firm and the union membership status by nativity. Second, we show evidence consistent with the idea that unions are targeting natives because such targeting will maximize overall union revenues. Specifically, we show that more than 90 percent of the within-firm dues that unions collect come from natives. This is not only because natives are more likely to be union members, but also because natives on average earn higher wages and pay higher dues. Thus, if the objective of unions is to maximize profit by collecting as much revenue as possible via dues, a focus on satisfying the needs and desires of natives would be rational. However, alternative interpretations are possible and there are also additional mechanisms through which our effects could operate. Thus, while this paper provides the first estimates in the literature on the direct impact of union membership on the native-immigrant labor market gap and breaks new ground in understanding how social institutions and market structures influence this gap, we also see this paper as opening up a new and important set of research topics on why core labor market institutions, such as unions, treat and influence specific demographic groups differently.

Our paper contributes to the existing literature in several important ways. First, there is a large and continuously growing literature on the integration of immigrants into domestic labor markets (e.g., Rica et al. (2015); Chin and Cortes (2015); Martín et al. (2016); Becker and Ferrara (2019); Dorn and Zweimüller (2021); Brell et al. (2020))[3], and the effectiveness of specific integration programs such as language training, social network facilitation, job search aid and mentoring, and internship and transitional job programs (e.g., Arendt and Bolvig (2020); Arendt et al. (2020); Lochmann et al. (2019); Battisti et al. (2022); Bratu et al. (2020); Butschek and Walter (2014); Ottosson (2022)). These papers have contributed important knowledge to our understanding of migrant integration and the effectiveness of specific integration programs. They provide crucial insights for designing integration policies and augmenting the well-being of migrants as well as ensuring their positive impact on the aggregate economy. This literature is particularly important in light of the rapidly increasing number of global migrants over the past several decades, from 90 million people in 1970 to 128 million people in 1990 and 281 million people in 2020.[4]

We contribute to this field of research by providing the first analysis in the literature on

[3]For the Nordic region, see Schultz-Nielsen (2017) for Denmark; Sarvimäki (2017) for Finland; Bratsberg et al. (2017) for Norway; and Åslund et al. (2017) for Sweden.

[4]See https://worldmigrationreport.iom.int/wmr-2022-interactive/.

the causal effect of one of the most influential and powerful labor market institutions in the world on the integration process of immigrants. While the theoretical ability of unions to counteract the power of employers suggests a key role for unions in affecting the labor market integration process of immigrants and the native-immigrant wage gap, the direction of this effect is ambiguous ex ante. The results from this analysis are important not only for understanding how current market dynamics and institutions interact to shape inequality across social groups but also for understanding how to best design future integration programs in light of existing labor market structures.

Second, there is a long-standing literature on the role of unions, the unions' ability to extract rent from employers, and how they affect aggregate measures of inequality and efficiency (e.g., DiNardo and Lee (2004); Lee and Mas (2012); Frandsen (2021); Sojourner et al. (2015); Card and De La Rica (2006); Bryson (2002); Fortin et al. (2023); Barth et al. (2020); Dodini et al. (2022)). However, very few papers have been able to explore heterogeneous union effects across worker types, and no prior study has examined the role of union membership in generating, or narrowing, labor market disparities between natives and immigrants.

Our contribution relative to this literature is to show that unions can have substantially different effects on workers depending on their migration background, both with respect to the magnitude of the wage premium as well as which career dimensions they influence. We see this paper as opening up a new avenue of research on the heterogeneity of union effects across worker types and the channels through which these effects may occur. Given the role of unions in labor markets – to correct the imbalance in bargaining power between employers and employees – coupled with the fact that different subgroups of workers face different levels of individual bargaining power, such analyses are imperative for disentangling the dynamic effects of unions in the labor market. This has important implications not only for our understanding of unions' role in affecting aggregate measures of inequality in society but also for understanding the distributional impacts of unions across workers.

Finally, there is a rapidly growing literature that has directly measured labor market concentration and then examined how concentration affects wages and employment (e.g., Schubert et al. (2020); Azar et al. (2020b); Qiu and Sojourner (2019); Rinz (2018); Prager and Schmitt (2021); Azar et al. (2020a); Benmelech et al. (2022); Marinescu et al. (2021); Hershbein et al. (2018); Bassanini et al. (2022); Dodini et al. (2020); Barth et al. (2020)). On average, these studies show that labor market concentration reduces worker wages and has negative effects on workers' careers. A smaller set of studies has shown that unions may counteract the power of employers and reduce the negative effects of imperfect competition in labor markets by equipping workers with additional bargaining power (e.g., Dodini et al. (2022); Azkarate-Askasua and Zerecero (2023). This provides a potentially important policy

solution to the increasing market power of firms over the past decades. Our key contribution to this literature is to demonstrate that the countervailing force of unions differs substantially across demographic groups. Specifically, we show that unions can ameliorate the negative labor market effects of labor market concentration, but only for natives. Relying on unions to solve the market failure of imperfect competition in the labor market, therefore, is likely to generate a substantial increase in aggregate inequality.

2 Background

2.1 Immigration in Norway

During the past 50 years, Norway has transitioned from a relatively homogeneous to a heterogeneous society with a substantial immigrant base. Specifically, between 1970 and 2020, the immigrant population has risen from approximately 57,000 to 711,000 (15 percent of the total population). Approximately half of the immigrant population has a Western background while the other half has a non-Western background.[5] Immigrants are spread across all of Norway's municipalities, and even though residential segregation is widespread, it has declines across most of Norway during the past 15 years (e.g., Kornstad et al. (2018)). Figure 1 shows the share of immigrants in municipalities across Norway by immigration status and over time. In 2002, both Western and non-Western immigrants were concentrated in a handful of municipalities; by 2014, most municipalities had experienced a large increase in their immigrant share, especially of non-Western immigrants.

Similar to many other OECD countries, Norway has experienced changing immigration patterns over the last few decades, away from the in-migration of Europeans to the in-migration of individuals from less developed countries. An implication of this shift is that immigrants have become more distinct from natives over time, something that facilitates discriminatory practices among employers and institutions (e.g., Chiswick and Miller (2005)). While there often are several layers of ethnic and racial segregation in a country, both across nativity status and minority groups, it is commonly assumed to be restricted to that between non-Western immigrants and the rest in Scandinavia (e.g., Böhlmark and Willén (2020); Aldén et al. (2015); Grand and Szulkin (2002)).

Figure 2 provides visual illustrations of the Norwegian immigrant population over time (Panel A) and the average earnings of natives, Western immigrants, and non-Western immigrants (Panel B). Panel A shows that the immigrant population in Norway has more than tripled in the past three decades, from below 5 percent to over 15 percent of the total popu-

[5]The ten most common immigrant countries are Poland (97,197), Lithuania (37,638), Sweden (36,315), Somalia (28,696), Germany (24,601), Iraq (22,493), Syria (20,823), Philippines (20,537), Pakistan (19,973) and Eritrea (19,957). Western immigrants are defined as those born in Sweden, Denmark, Finland, Iceland, Belgium, France, Ireland, Luxembourg, the Netherlands, Great Britain and Northern Ireland, Germany, Austria, Switzerland, Israel, the United States, Canada or Oceania (Böhlmark and Willén (2020); Aldén et al. (2015); Korpi et al. (2023)).

lation. This increase almost exclusively comes from non-Western immigrants, from less than 2 percent in the mid-1980s to over 12 percent in 2018. Panel B shows that there are large earnings differences across these groups. On average, Western immigrants earn slightly more than natives and this wage difference has been relatively stable over time. Non-Western immigrants, on the other hand, earn considerably less than natives. This earnings gap appears to have increased in recent years. In Section 4.2, we provide a detailed descriptive analysis of natives and immigrants.

2.2 Unions in Norway

Labor unions have played a key role in the formation of the Norwegian labor market over the past 100 years and represent one of the most powerful labor market institutions in the country. All workers in Norway have the legal right to join a union if they so wish, but this has to be on a voluntary basis (i.e., closed-shop union agreements are not allowed). Similar to other countries, the primary goal of unions is to improve members' rights and work conditions through collective bargaining. Not only do they play a central role in wage negotiations, but they also are involved in decisions related to work environment, non-pecuniary benefits, and hours worked. In addition, they offer mediation and legal help in the event of work disputes. In terms of structure, each individual union is affiliated with a national confederation of trade unions (of which there are four). While there is a range of different unions that workers can join, almost all workers select their union based on their occupation and industry.

Despite a general trend of declining union density across the OECD over the past 20 years, Norway has seen a much less significant drop in union membership compared to most other countries. For example, between 2000 and 2020, unionization in Sweden declined from 81 to 67 percent, unionization in Denmark fell from 75 to 67 percent, and unionization in Finland shrunk from 74 to 59 percent.[6] In Norway, unionization over this period only declined by 4 percentage points (from 54 to 50), and existing research has attributed the much slower decline in unionization in Norway to the government subsidy scheme. Specifically, Barth and Nergaard (2015) estimate that the union density in Norway would have been at least 5 percentage points lower had the government not introduced and raised the union dues subsidies. While approximately 50 percent of the Norwegian workforce are organized members, there is substantial variation both across sectors (79 percent in the public sector and 40 percent in the private sector) and industries (e.g., 70 percent in mining and 20 percent in the hotel and restaurant industry).

The unions' involvement in the wage bargaining process has two layers. First, there are industry-wide collective bargaining agreements that dictate wage floors for all occupations and establish minimum guaranteed wage increases over time. Unions are heavily involved in

[6]See https://stats.oecd.org/Index.aspx?DataSetCode=TUD.

this process, and should negotiations fail, the parties are entitled to take industrial action (e.g., strikes and lockouts). These agreements are usually negotiated every four years. Second, there are local negotiations in which unions bargain with individual employers. During these local negotiations, unions and employers discuss not only firm-specific wage increases for union members but also individual-specific wage increases (e.g., which union members should receive the highest wage increase). These local negotiations usually occur every year.[7] Since the late 1990s, local negotiations have accounted for more than 70 percent of total negotiated wage increases in Norway (Mogstad et al., 2021). Non-union employees do not have the right to bargain, and it is up to the employer to adjust the pay as they deem appropriate.

2.3 Union Tax Deductions

To be a member of a labor union in Norway, workers must make a monthly payment to the organization. These payments are frequently referred to as union dues and are common across all countries in which unions operate. The union dues are used to finance a large range of programs and activities offered by the unions, including (but not limited to) the salaries and benefits of the union leadership, the legal representation offered by the union, lobbying activities, the strike fund, and potential campaign programs.

Union dues are set at the annual meeting of the union, and the amount as well as the calculation of the dues can vary substantially across different unions. For example, while some unions collect a percentage of each worker's pay, others allow the percentage to vary on a sliding scale as a function of worker earnings, and others may set dues to a specific level. On average, dues are typically 1-3.5 percent of a worker's monthly pre-tax income.

The Norwegian government provides a tax deduction for union dues. This tax deduction operates as a direct subsidy for union membership and is automatically entered on an individual's tax return, making it very salient to the worker. Since the early 2000s, the Norwegian government has increased the maximum allowable tax deduction multiple times. The largest increases came during the first decade of the 21st century, in which the maximum deduction was increased by more than 400 percent. The changes in the maximum deduction over time are shown in Figure 3. For our empirical analysis, we use the national government's subsidy changes between 2002 and 2010 – which resulted in a reduction in the cost of joining a union – to construct an instrument for union membership. Assuming that union membership is a normal good, a drop in the price of union membership should generate an increase in demand for that good. Thus, individuals who were not union members will become more likely to join a union following these price changes as the true cost of enrolling has declined.

Importantly, the changes in tax subsidies for union members in Norway led to significant

[7]While a small fraction of firms only are subject to the national industry-wide collective bargaining agreements, more than 80 percent of firms in the Norwegian economy are subject to local bargaining (see Table 4.2 in Dale-Olsen et al. (2018).

changes in the net price of union membership for some workers but not for others (Barth et al., 2020; Dodini et al., 2022). Specifically, these changes only reduced the monetary cost of joining a union for workers whose union dues deduction was previously bounded by the deduction cap. In other words, individuals at firms subject to higher union dues in 2001 could expect a substantial increase in these subsidies compared to individuals at firms with lower union dues in 2001. This generates exogenous variation in the predicted union membership enrollment probability of workers and allows us to examine the causal effect of union membership through an instrumented difference-in-differences design.

2.4 Employment Protection Programs

All legal residents of Norway are automatically enrolled in the country's National Insurance Scheme. This scheme is financed through a national insurance contribution imposed on both employers and employees, and encompasses several welfare programs ranging from old age pension and health-related social insurance to transitional benefits for survivors and funeral grants. Two social security programs are of particular interest to the goal of the current paper – to examine the effect of unions on the native-immigrant labor market gap: Unemployment Insurance (UI) and Sick Leave Benefits (SL).

UI is available to individuals who have had their work hours reduced by at least 50 percent, are registered as jobseekers at the public employment office and submit an employment status form every 14 days, and had an income over a certain minimum amount ($16,500 in 2019) before becoming unemployed (Johnsen et al., 2022). The replacement rate is 62 percent of the annual income the person received before becoming unemployed. The standard entitlement period is 104 weeks during our analysis period. We are interested in UI as a way to better understand the job protection benefits of unions and to what extent they provide differential protection for natives and immigrants (by preventing firms from letting them go and putting them on UI).

SL provides compensation for income loss caused by a temporary illness or injury. The replacement rate is 100% from day one subject to a maximum amount ($62,000 in 2019). To be entitled to SL, an individual must have been in employment for the past four weeks. Long-term sick leave (beyond three days) requires a certificate from a doctor (or chiropractor if the injury is related to the muscular-skeletal system). We are interested in SL as a way to understand how unions impact the work environment of natives and immigrants. However, the direction of this effect is uncertain. On the one hand, unions may improve the work conditions of employees such that they are less likely to use the sick leave system (either because they are less likely to get sick/injured or because they enjoy the work environment more). On the other hand, unions may provide workers with sufficient protection such that they feel more comfortable taking sick leave without being worried about losing their jobs.

We will only observe the overall reduced-form effect of union membership on sick leave. Therefore, while we cannot disentangle the relative size of these two possible (and opposing) effects, we can identify the overall combined effect of the two mechanisms.

3 Conceptual Framework

In this section, we conceptualize the relationship between union representation and the native-immigrant wage gap to provide context for our empirical models and results. As stated above, the bargaining process in Norway can be viewed as a two-step process. In the first step, there are industry-wide collective bargaining agreements that set wage floors and some guaranteed wage increases. In the second step, local negotiations take place in which unions and employers discuss not only firm-specific wage increases for union members but also individual-specific wage increases. We abstract away from the first step by treating the industry-wide wage floors as given and focus on the local negotiations.

We begin by writing down a simple earnings equation for the within-firm market wage of individual i as a function of individual characteristics and union status (abstracting away from any match-specific component):

$$Log(w)_i = X_i\beta + U_i\gamma + \epsilon_i \ , \tag{1}$$

where X_i is a vector of individual characteristics, U_i is a union membership indicator, and ϵ_i is an idiosyncratic error term.

$X_i\beta$ represents the individual-specific wage component and directly links the skills, qualities, and experiences of worker i to the wage compensation received at the firm. For simplicity, we assume that these characteristics perfectly predict the outside option value of the worker, such that the term can be viewed as the strength of the worker's individual bargaining power at the firm.

$U_i\gamma$ is an indicator for whether individual i is a union member and should be viewed as a group-level bargaining component of the wage equation. This variable measures how much individual i benefits from the collective bargaining of the union in terms of wage compensation, above and beyond the level of compensation that the individual worker can secure through his/her individual bargaining power. For simplicity, we do not differentiate between individual union membership and firm-level union density, whose relative importance depends on the extent to which unions can be viewed as a public or a private good. Our stylized results would not change if we adjusted the expression above on this dimension.

The simple framework above provides a helpful starting point for thinking about how unions may impact the native-immigrant wage gap and offers a useful illustration of the theoretical ambiguity associated with this question. Specifically, existing studies demonstrate that immigrants tend to be among the more vulnerable workers in the labor market and

therefore face lower levels of individual bargaining power than natives. For example, prior work has suggested that immigrants may have less familiarity with the regulatory framework, face higher language barriers, experience greater discriminatory and predatory hiring practices of firms, and therefore have worse outside options.[8] Provided that firms act on this differential bargaining power across the two groups (i.e., engage in monopsonistic discrimination), $\beta_{Immigrant} < \beta_{Native}$. Absent union representation at the firm, this difference in individual bargaining power would generate a native-immigrant wage gap at baseline.

Since the marginal benefit of collective bargaining decreases with the level of individual bargaining power, the application of group-level bargaining in the wage negotiation process through unions should disproportionately benefit immigrants who possess weaker individual-level bargaining power. That is, union coverage does not necessarily add to the wage compensation of a worker who already possesses a skill monopoly since that worker has sufficient individual bargaining power to maximize wage compensation, but union coverage does contribute substantially to the wage compensation of workers who have limited individual bargaining power and face substantial wage markdowns. Thus, $\gamma_{Immigrant} > \gamma_{Native}$, and unions should narrow the native-immigrant wage gap.

The above assertion is valid as long as immigrants and natives are treated equally by the union in the bargaining process. However, this may not be the case. Unions may prioritize the interest of native workers (if, for example, the majority of the union dues are collected from natives), they may be less able to combat workplace challenges specific to immigrant workers, they may struggle to reach and engage immigrant communities, and they may choose to allocate their resources and capacity towards other aspects of their operations. In such cases, $\gamma_{Immigrant} < \gamma_{Native}$, and unions would exacerbate inequalities between the two groups.[9]

The above discussion illustrates the theoretical ambiguity associated with the impact of unions on the native-immigrant wage gap. Specifically, if unions are willing *and* able to provide the same benefits to natives and immigrants, then $\gamma_{Immigrant} > \gamma_{Native}$ and the presence of unions should contribute to a narrowing of the native-immigrant wage gap in the labor market. However, if unions either are unable *or* unwilling to provide the same benefits to natives and immigrants, then $\gamma_{Immigrant} < \gamma_{Native}$ and the presence of unions should contribute to a widening of the native-immigrant wage gap. Next, we turn to introducing our data and the empirical research design that we use to causally disentangle which of these two alternatives apply to the Norwegian labor market.

[8] E.g., Dustmann and Glitz (2011); Algan et al. (2010); Dustmann et al. (2010); Chiswick (1978); Lehmer and Ludsteck (2011); Åslund and Skans (2010); Cutler et al. (2008); Hirsch and Jahn (2015).

[9] This discussion bears resemblance with that of which union model most accurately represents union behavior: the median voter theory (Booth (1995)) or the more hierarchical model with a separation between the interests of union functionaries and the rank-and-file membership (Pemberton (1988)). In some contexts, unions exacerbating discrimination may also be a mechanism (Ashenfelter, 1972).

4 Data and Descriptive Evidence

4.1 Data

To carry out our analysis, we rely on population-wide administrative data from multiple registers managed by Statistics Norway. We begin by collecting data from the central population register, which gives us access to key demographic and socioeconomic characteristics of all individuals aged 16 through 74 in the years 2001 through 2015. These data include information on gender, age, education, marital status, country of origin, year of migration, and place of residence and work. Through a unique individual identifier, we follow these workers across the different registers at Statistics Norway and collect additional data crucial to our analysis.

We use the matched employer-employee data to link workers to firms and establishments. These data provide us with information on each worker's employer, work characteristics, work location, establishment, occupation, and contractual hours. To calculate contractual hours, we note that we do not have information on the exact number of work hours before 2015. Rather, we have categories of work hours. To convert these to actual hours, we use the midpoint of each category except for the highest category (30+ hours) which we assign 37 hours. This assignment is based on the observed distributions of hours from the data on detailed work hours we have access to beginning in 2015. This variable, therefore, contains a certain degree of noise. It should also be noted that contractual hours could differ from actual hours due to, for example, overtime work.

We also use the matched employer-employee data to construct measures of promotions. We generate an indicator variable that takes the value of one if a worker shifts to an occupation located higher up on the wage distribution. Since we include firm fixed effects in our main empirical specification, this outcome examines the impact of union membership on within-firm vertical occupation moves. In addition, we construct a variable that takes the value of one if the worker shifts firm to one that is located higher up in the earnings distribution relative to the current firm. While the first promotion variable captures vertical moves within the firm, the second captures vertical moves across firms. Second, we use the tax and transfer registers to collect information on labor earnings, UI, and SL. Labor earnings are measured as pre-tax income (income from labor and self-employment), and UI as well as SL are calculated based on the cumulative amount of benefits received in the calendar year. Third, we use the register-based union membership data set to obtain detailed information on each individual's involvement with labor unions and how much they have paid to remain a union member each year.

We impose two sample restrictions prior to conducting our analysis. First, we restrict our sample to individuals who worked at least 20 hours per week on average. We impose

this restriction to eliminate individuals with a weak labor market attachment and to ensure a more precise measure of the union wage premium. Second, we limit the sample to those with annual earnings that would qualify them for the "1G" designation in the Norwegian benefit system, which is approximately 90,000 NOK (approximately 10,000 USD) based on 2015 values.[10] These restrictions ensure that our effects are not driven by workers without meaningful attachments to the labor market.

We divide the working population into three groups: natives, Western immigrants, and non-Western immigrants. We adopt this categorization of immigrants as Western immigrants are not visible minorities in the country and tend to do as well as natives in the labor market, while this is not the case for non-Western immigrants. Following prior research on this topic in Scandinavia, we define Western immigrants as immigrants with background in Sweden, Denmark, Finland, Iceland, Belgium, France, Ireland, Luxembourg, the Netherlands, Great Britain and Northern Ireland, Germany, Austria, Switzerland, Israel, the United States, Canada or Oceania (Böhlmark and Willén (2020); Aldén et al. (2015); Korpi et al. (2023)). However, we will also show results using other groupings of immigrants.

In addition to the administrative data, we conduct a survey on a sample of 5,200 workers in Norway. The survey provider screens workers on union membership, age, and work history, ensuring that we obtain a sample of both union members as well as non-union members. In the survey, we collect information on the workers' immigrant background, ranking of core career amenities (monetary compensation, job protection, promotion facilitation, and work environment), perception of unions' ability to influence these amenities, and beliefs about whether individual union membership matters above and beyond union presence at the firm (i.e., whether there are private-good components to the union-provided benefits). Finally, we collect information on workers' price sensitivity to union membership by asking whether workers would reconsider joining (leaving) the union if the net-of-subsidy union dues decreased (increased) by a specific amount. We randomize this amount in 500 NOK intervals across workers, from 500 to 2500 NOK (approximately 50-250 USD). We use these responses to validate our first-stage effect for the price sensitivity of union membership and demonstrate that workers consider union-provided benefits across all these amenities to contain substantial private-good components. The full survey is provided in the Appendix.

4.2 Descriptive Evidence

Descriptive statistics on natives, Western immigrants, and non-Western immigrants are provided in Table 1.[11] On average, non-Western immigrants are slightly younger than natives

[10]The "1G" designation (also called *Grunnbeløpet*), is used to calculate whether individuals qualify for certain government welfare payments and transfers, and how large those payments should be.

[11]While we present full population statistics in our descriptive analyses, when estimating our causal models, we take a 50% random subsample of the individuals in the data to ease the computational constraints arising when estimating multiple instrumental variables with tens of thousands of fixed effects on 24 million

and Western immigrants (with an average age of 38.6 compared to 43.6 and 42.4), are more likely to be male (56 percent compared to 51 and 55), and have fewer children (1.24 compared to 1.55 and 1.32).

In terms of educational attainment, approximately 37 percent of the non-Western immigrant population has a college degree, while that number is 39 percent for natives and 55 percent for Western immigrants. At the same time, almost 30 percent of the non-Western immigrant population has less than a high school degree compared to 17 percent of natives and 13 percent of Western immigrants. Thus, while Western immigrants appear to be positively selected in terms of educational attainment relative to natives, that is not the case for non-Western immigrants. We should note that educational attainment for immigrants may contain considerable noise because education is self-reported upon entering the country and may depend heavily on how the home country's educational system maps to the Norwegian system. In contrast, educational attainment for natives is documented via individual-level registers administered by the Department of Education and maintained by Statistics Norway.

The educational differences between the groups translate into sizable differences in labor market outcomes. While non-Western immigrants only earn about 80 percent of what natives earn, Western immigrants earn approximately 9 percent more than natives on average. Non-Western immigrants are much more likely to collect unemployment benefits, while all groups are approximately equally likely to receive sick leave benefits. In terms of the characterises of the firms different groups work at, natives tend to work in firms with higher union density, higher share of native workers, and higher labor market power than immigrants, especially non-Western immigrants.

Part of the wage differences across the demographic groups is likely driven by immigrants and natives sorting into different industries and occupations. We show this in Figure 4. Panel A shows that immigrants are less likely to work in the public sector than natives, and conditional on being in the private sector, less likely to work in wholesale/retail and finance. At the same time, immigrants are more likely to work in construction, hotels/restaurants, and real estate. They are approximately as likely to work in manufacturing as natives. Despite these differences across industries and sectors, there is a relatively widespread representation both of natives and immigrants across all industries.

Panel B demonstrates that immigrants, especially non-Western immigrants, are much less likely than natives to work in high-skilled jobs (managers, academic professions, college professions) and office professions. They are much more likely than natives to work in sales and service professions, craftsmen professions, cleaning services, and machine as well as transport operator professions. This occupational and industry sorting behavior of natives and immigrants mirrors the experience of other Nordic and European countries over the past

observations.

several years.

More than half of the native workforce are members of unions (Table 1). In contrast, only 34 percent of non-Western immigrants and 37 percent of Western immigrants are members of unions.

4.3 Survey Results

Before analyzing the role of unions in narrowing or widening labor market gaps between natives and immigrants, it is helpful to examine workers' own perceptions of the influence unions have on their careers and how price-sensitive they are to union membership. To this end, this subsection provides a series of descriptive plots based on results from the survey we introduced in Section 2. These results help us better understand key features of the workforce's perception of unions and what they do as it relates to our analysis. Overall, the survey provides four key results that help interpret the results from our analysis.

First, we asked workers to rank a set of four work amenities based on their own preferences: compensation, job security, work environment, and promotion possibilities. We asked the respondents to assign a budget of 100 "points" to these different bundles of work amenities. Figure 5 shows that the average worker considers monetary compensation to be the most important career component of their jobs, followed by job security, work environment, and lastly promotion possibilities. There is not a substantial difference in the rank order of preferences across nativity status. However, non-Western immigrants appear to place less weight on their work environment relative to natives and more weight on promotion opportunities. Western immigrants have rank preferences very similar to those of natives.

Second, we asked workers to assess the union's ability to positively influence aspect X of their work life on a scale of 0-100. Figure 6 illustrates that the workers' perception of unions' ability to influence the four core career dimensions largely aligns with their individual ranking of these amenities. Specifically, the average worker believes that unions are best able to influence monetary compensation, closely followed by job security, slightly less able to influence the quality of the work environment, and even less capable of affecting the workers' promotion possibilities. There is very little evidence of differences in workers' perceptions of the unions' ability to influence these four work dimensions across nativity status.

Third, we ask non-union members their reasons for not being part of a union. The results from this exercise are shown in Figure 7. Across nativity status, one of the biggest reasons for not joining a union is related to the cost of membership. This is encouraging for the purpose of our analysis, as it suggests an important role for union dues subsidies in shifting the union membership status of workers. Non-Western immigrants are more likely to attribute their non-union status to cost (nearly 25 percent) relative to natives (14 percent). Non-Western immigrants are more likely to doubt a union's ability to influence the workplace relative to

natives (22 versus 17 percent), are more likely to believe that they do not need to be members to enjoy union-bargained work benefits (13 versus 11 percent), and are slightly less likely to believe that unions focus on the wrong dimensions of work (8 versus 7 percent). For Western immigrants, the pattern is slightly different. While they are very similar to non-Western immigrants in attributing their non-union status to cost and a perceived inability of unions to influence the workplace, they are more likely than non-Western immigrants to believe that workers can reap the benefits of unions without having to be members themselves.

Finally, we ask if non-members would consider joining a union if the price was reduced by a hypothetical amount, and we ask if members would consider leaving the union if the price was increased by a hypothetical amount. Figure 8 shows that workers are extremely price-sensitive to union membership. Specifically, more than 50 percent of the surveyed union members would consider leaving the union if the monthly net-of-tax union dues increased by as little as 500 NOK.[12] Similarly, approximately 40 percent of nonunion members would consider joining a union if the net-of-tax union dues decreased by as little as 500 NOK. Even if we interpret these survey results as an upper bound of the true price sensitivity to union membership, this implies that the price elasticity of union membership is substantial. Figure 8 also reveals that there is a large difference across nativity status. Specifically, Western immigrants are more price-sensitive to union membership than natives, and non-Western immigrants are considerably more so. This result also aligns well with the nonunion members' response to why they do not join unions: immigrants were more likely than natives to list price as the main driver behind their decision to not join.

5 Method

5.1 Overview and Intuition

Identifying the causal effect of union membership on worker outcomes is complicated due to selection. Specifically, the decision to join a union is not random and may be correlated with other observed and unobserved characteristics of a worker that also affect the outcomes of interest. Because of non-random selection into unions, it is not possible to say whether correlations between union membership and individual outcomes are causal or not.

To solve this selection issue, researchers need to find a source of variation in union membership that is plausibly uncorrelated with other characteristics of the individuals that also impact the outcomes of interest. This would break the potential bias caused by non-random selection into unions and make it possible to disentangle the effect of unions on outcomes.

We take advantage of exogenous price changes in the cost of union membership. Assuming

[12] When asking this question, we randomly assign an increase between 500 and 2,500 NOK, in 500 NOK increments.

that union membership is a normal good, a drop in the price of union membership should generate an increase in demand for that good. Thus, individuals who were not union members will become more likely to join a union following these price changes as the cost of enrolling has declined.

The price changes we exploit come from the national government-mandated subsidies for union dues discussed in Section 2. The maximum tax deduction for union dues increased by more than 400 percent between 2002 and 2010 and significantly altered the net price of union memberships. A particularly interesting feature of this subsidy policy is that it only reduced the membership price for workers whose union dues were high enough that their deductions were previously bounded by the tax deduction cap, while it had no impact on workers whose union dues were below the deduction cap. As such, individuals at firms subject to higher union dues before 2003 could expect a substantial increase in these subsidies compared to individuals at firms with lower union dues. This enables us to implement an instrumented difference-in-differences design in which we compare individuals at high and low subsidy firms over time as a function of the subsidy bite and the resulting differential union membership take-up.

The thought experiment underlying our research design is to imagine two non-unionized workers (worker A and worker B) of the same age who work in the same industry-occupation in the same year but are based at different firms. Worker A is employed at a firm where the union dues subsidies are bounded by the existing deduction cap, while worker B is employed at a firm where the union dues subsidies are not bounded by the existing deduction cap. As the maximum allowable tax deduction increased over time, the resulting subsidies therefore reduced the cost of joining a union for worker A but not for worker B. As a consequence, provided that union membership is a normal good, worker A will become disproportionately more likely to join a union than worker B due to the change in the policy. We use this differential policy-induced shift in unionization cost to identify the effect of union membership.[13] Importantly, by comparing the change for a native worker at firm A relative to firm B to the change for an immigrant worker at firm A relative to firm B within this estimation framework, we effectively recover the within-firm change in the native-immigrant gap due to union enrollment (since we incorporate firm fixed effects in all our specifications).

[13]Note that this is a simplified example for illustrative purposes only. In reality, increases in the maximum deduction cap affect workers differently depending on their prior dues in three distinct ways. First, workers whose dues were below the old cap ($D < c_0$) experience no change. Workers whose dues were above the old cap but below the new cap ($c_0 < D < c_1$) experience a decrease in their net-of-subsidy union dues of $\tau(D - c_0)$. Workers whose dues were above the new cap ($D > c_1$) face a fixed decrease in their net-of-subsidy union dues of $\tau(c_1 - c_0)$.

5.2 Empirical Implementation

To implement our empirical approach, we first need to calculate the hypothetical cost of joining a union for workers who are currently not members. This is because the union membership database only contains information on union dues for those who are members.

We calculate the hypothetical cost of union membership for non-union members by taking the mean union dues paid by workers in each occupation-industry cell each year and applying this to all non-members. To ensure that all workers are treated equally and to abstract from any information on individual union dues or wages that may be endogenously determined by individual or firm characteristics, we apply this imputed membership cost to union members as well.[14] We then define the union dues of the firm as the average imputed union dues across all workers at the firm.

When constructing our measure, we fix each worker's imputed union due, $\overline{D^0_{f_b}}$, at the first firm in which they appear in their first year in the data (which is 2001 for the vast majority of workers in our sample). The reason for doing this is that firms and unions may endogenously respond to the subsidy legislation by altering the occupations they decide to employ or by changing the union dues directly. Individual union membership may also change the likelihood that workers switch firms. By fixing each worker's imputed union dues at their first year in the data, we remove the risk of these potential biases breaking the exogeneity of our instrument. We adjust this forward to nominal Norwegian crowns, yielding $\overline{D^0_{f_bt}}$. This represents the nominal cost of joining a union for a worker in base firm f_b in year t if that firm's imputed dues grew at the same rate as overall price levels.

Once we have constructed the hypothetical union dues, we can calculate our instrument. Specifically, the subsidy is equal to the lesser of the legislated maximum deduction ($MaxDeduction_t$) and the worker's imputed union dues ($\overline{D^0_{f_bt}}$) multiplied by the applicable tax rate. To isolate changes in the guaranteed *statutory* subsidy from changes in the *realized* subsidy that may depend on marginal tax rates, we multiply the subsidy value by the country's base tax rate (28 percent from 2001 to 2013 and 27 percent from 2014 onward):

$$Subsidy_{f_bt} = T_t \times (min\{\overline{D^0_{f_bt}}, MaxDeduction_t\}) \ , \tag{2}$$

where T_t is the base tax rate in year t.

The identifying variation in our subsidy measure comes from differences in the occupation-industry mix of the firm in each worker's base year combined with changes in the legislated maximum deduction over time.

It is important to note that high union dues may not be randomly assigned across firms.

[14] Encouragingly, the correlation between the imputed and non-imputed union dues for workers who are members is close to 1.

Rather, differences in baseline union dues may reflect other factors that also are correlated with our outcomes of interest. However, even though we show that there is very little correlation between baseline firm characteristics and the intensity of the treatment (Appendix Table A1), we also emphasize that a relationship between these factors and potential outcomes does not compromise identification. The reason is that our empirical design is akin to an instrumented difference-in-differences design in which we compare individuals at high and low subsidy firms over time as a function of the subsidy bite. We, therefore, do not need these firms to be identical in the base year – we only need them to trend similarly to each other absent the policy shift. We show strong supportive evidence of this assumption in the next subsection.

Having obtained our subsidy measure, we calculate the net-of-subsidy union dues by subtracting the value of the subsidy from the gross imputed baseline union dues ($ND_{f_bt} = \overline{D^0_{f_bt}} - Subsidy_{f_bt}$). This changes within a worker's base firm over time only through the subsidy channel and represents our instrument. Using this instrument, we estimate the following equations:

$$\begin{aligned} y_{iocf,t+1} = \alpha + \beta_1 \hat{U}_{iocft} + \beta_2[\hat{U}_{iocft} \times WI_i] + \beta_3[\hat{U}_{iocft} \times NWI_i] + \beta_4 WI_i + \beta_5 NWI_i \\ + \gamma_t + \zeta_{a_b} + \eta_a + \iota_{oc_b} + \kappa_{oc} + \lambda_{f_b} + \phi_f + \delta_{i\bar{U}} + \epsilon_{iocft}, \end{aligned} \tag{3}$$

$$\begin{aligned} U_{iocft} = \tau + \pi_1 ND_{f_bt} + \pi_2[ND_{f_bt} \times WI_i] + \pi_3[ND_{f_bt} \times NWI_i] + \pi_4 WI_i + \pi_5 NWI_i \\ + \gamma_t + \zeta_{a_b} + \eta_a + \iota_{oc_b} + \kappa_{oc} + \lambda_{f_b} + \phi_f + \delta_{i\bar{U}} + \mu_{iocft}, \end{aligned} \tag{4}$$

where Equation 4 represents the first-stage and Equation 3 represents the second-stage.

In Equation 4, U_{iocft} is the union membership status of individual worker i in occupation-industry cell oc and firm f in year t. The instrument, ND_{f_bt} is assigned to individuals as described above. We interact the instrument with dummies for whether the individual is a Western immigrant (WI_i) or non-Western immigrant (NWI_i) to examine the differential effects of the instrument on individual's union status depending on immigration background.[15] Additionally, we include fixed effects for both current as well as baseline characteristics. Specifically, t is year fixed effects, a (a_b) is age (baseline age) fixed effects, oc (oc_b) represents occupation-industry (at baseline) fixed effects, and f (f_b) are firm (at baseline) fixed effects.

The $\delta_{i\bar{U}}$ coefficient is an indicator for whether the worker was an "always-taker" (i.e., a union member throughout our sample period). We account for always-taker status for two reasons. First, always-takers are employed in the same firms, occupations-industry cells,

[15] In practice, following Wooldridge (2010), the interactions between each nativity group (i.e. Western and Non-Western immigrants) and the net dues (ND_{f_bt}) serve as instruments for the interaction between nativity group and union membership, resulting in three combined instruments for three endogenous treatments.

and years as marginal union members and contribute to variation in the fixed effects for all of these cells. Second, while always-takers contribute to variation in the fixed effects, they contribute nothing to identification because there is no variation in union membership among this group. Not accounting for always-takers means that the estimated first-stage coefficient of the instrument will be smaller because there is no variation in the union membership choice of always-takers, leading to larger second-stage estimates.

In Equation 3, $y_{iocf,t+1}$ represents an outcome of interest for individual i at time $t+1$ and β_1 measures the average effect of union membership for all workers on that outcome using the net union dues ND_{f_bt} as an instrument. β_2 and β_3 are the estimates of interest and measure the differential effect of union membership depending on worker i's immigration status within the same firm, industry-occupation, and age cells. We measure outcomes in $t+1$ to capture the effect of the union with a full year of membership, as individuals could choose to join a union partway through the year. All fixed effects included in Equation 3 are also included in Equation 4. We cluster the standard errors at the individual worker level since this is the level of treatment assignment.[16]

5.3 Assumptions and Threats to Identification

Identifying variation in the instrument comes from differences in the occupation-industry mix of each worker's base firm combined with changes in the tax policy over time.

The thought experiment underlying our research design is to imagine two non-unionized workers (worker A and worker B) of the same age who work in the same industry-occupation but are based at different firms. Worker A is employed at a firm where the union dues are above the existing deduction cap, while worker B is employed at a firm where the union dues are below the existing deduction cap. As the deduction cap is raised over time, the cost of joining a union decreases for worker A but not for worker B. As a result, worker A will become disproportionately more likely to join a union than worker B. We use this differential policy-induced shift in unionization cost to identify the effect of union membership. Our models also include the additional dimension in which we compare the differences in outcomes if the workers at firm A and firm B are native-born Norwegians versus if the workers at firm A and firm B are immigrants. This enables us to recover the within-firm change in the native-immigrant gap due to union enrollment.

Our estimation strategy is akin to an instrumented difference-in-differences design. Therefore, four assumptions need to be met to claim unbiased causal effects. First, we do not need high and low-exposure firms to be similar in the base year (though we show that they are), but we do require that workers in low-exposure base firms can be used as a credible coun-

[16]The correct level at which to cluster may be debatable given the fact that treatment take-up is individual, while instrument exposure is at the base firm level. When we (more conservatively) cluster at the level of base firms, the relative differences between immigrant groups continue to be statistically and economically significant (Table A6).

terfactual to workers at high-exposure base firms in the absence of the subsidy changes (the common trend assumption). In other words, exposure to the instrument cannot predict the potential outcomes of workers associated with these firms. Second, workers must respond to changes in union membership price (the relevance criterion). Third, the union dues subsidies can only affect individual career outcomes through their effect on membership probability (the exclusion restriction). Finally, there can be no defiers (the monotonicity assumption).

With respect to the relevance assumption, we will show directly in the next section that workers are highly responsive to changes in union membership price, and that this assumption therefore is met. In terms of the exclusion restriction, this cannot be tested directly. However, given the fact that these subsidy schemes were imposed across the entire country by the national government, and because identifying variation comes from pre-implementation differences across firms, we can think of no other pathway through which the union dues subsidy may impact workers' outcomes. With respect to the monotonicity assumption, this cannot be tested directly in the data either. However, the only way for this assumption to be violated would be if union membership is a Giffen good at certain prices, something we find highly unlikely.

Lastly, in terms of the common trends assumption, Figure 9 shows how union membership (first-stage) and earnings (second-stage) evolved over time for workers whose base firm had larger reductions in their net union dues between 2002 and 2010 (the top quartile) relative to smaller reductions in net dues (the bottom quartile). These are in Panels A and B, respectively. These panels show parallel trends within and across immigrant groups as a function of exposure to the subsidy. Workers whose base firms experienced a higher exposure are not on a different path than those in lower-exposure base firms both within nativity categories or across categories. Therefore, those at low-exposure base firms can be appropriately used as a counterfactual for those at high-exposure firms in the absence of subsidy expansion, even when considering trends within the same demographic groups. This provides strong support for a causal interpretation of the results we present in the next section.

When examining this figure, two things are worth noting. First, not all variables in our set of combined registers are available prior to 2001, so we cannot estimate a full event study model. Thus, these are raw trends that account only for base firm fixed effects. The fact that there is evidence of parallel trends despite not being able to fully saturate our model is encouraging and supports our identification strategy. One of the reasons why we observe such clear parallel trends, even without including our rich set of fixed effects from our main model, is that these firms are very similar to each other at baseline and that there is little correlation between baseline characteristics and later treatment intensity (see Appendix Table A1). Second, our main interest lies in understanding the differential effect of union enrollment among natives and immigrants through our instrumented difference-in-

differences approach. Thus, the common trends assumption discussed above is actually a stricter assumption than what is required (due to the level of saturation of our estimating model), as any bias from non-parallel trends (which we find no support for) also would have to differentially affect natives and immigrants in order to threaten the causal interpretation of our results.

Examining Panels A and B of Figure 9, we also see preliminary suggestive raw evidence of a first-stage effect of the subsidy increases on union density, as well as a second-stage effect on worker wages. Specifically, we show that the union density gap between high- and low-subsidy firms increases substantially for each of our three groups (natives, Western immigrants, and non-Western immigrants) over the analysis period. This is particularly pronounced for non-Western immigrants. We also show that the earnings gap between high- and low-subsidy firms increases for each of our three groups (natives, Western immigrants, and non-Western immigrants) over the analysis period. Interestingly, the earnings gap between high- and low-subsidy firms increases the most for natives, a bit less for Western immigrants, and very little for non-Western immigrants. This implies that union membership may exacerbate wage inequality between these groups. However, we emphasize that these are raw trends that account only for base firm fixed effects.

Overall, our estimates of the causal effects of union membership using this instrument will represent the local average treatment effect (LATE) among the "compliers," i.e. those who joined a union as a result of the subsidy-induced reduction in the costs of joining a union based on where people were working at the beginning of their time in the sample.

6 Results

6.1 First-stage

Table 2 shows the effect of our instrument on the probability that workers enroll in unions, using the empirical specification outlined in Equation 4 on the sample with non-missing log total earnings in time $t+1$. The first row of Table 2 demonstrates that a 1,000 NOK increase in tax deductions generates an increase in the probability that a native worker enrolls in a union by 11 percentage points. This suggests that there is a sizeable price elasticity of union membership for marginal union members in Norway. It is a similar degree of responsiveness to that estimated in Barth et al. (2020); Dodini et al. (2021), and is in the same range as results from the survey of Norwegian workers' self-reported responsiveness to union dues.[17]

Rows 2 and 3 show that the price elasticity of union membership for marginal Western immigrants in Norway is the same as that of natives, while the price elasticity of union membership for marginal non-Western immigrants is slightly higher than that of natives.

[17]Specifically, the survey shows that 35% of the non-unionized native workforce would consider joining a union if the dues fell by 500-2,500 NOK per month.

This result is largely consistent with our survey evidence on the price sensitivity to union membership (Figure 8)[18]. That the price elasticity of union membership for marginal union members is relatively similar across immigrants and natives is interesting in light of the large differences in baseline union enrollment shown above, but helps reinforce the idea that the subsidy change had a large effect on workers propensity to unionize irrespective of geographic background. The last row shows the Kleibergen-Paap F-statistic. With a value that exceeds 150, this provides support for the relevance criterion required for causal inference in our setting.

6.2 Compensation

In terms of monetary compensation and contractual work hours, Columns (1) and (2) of Table 3 show the effect of union membership on total labor earnings and contractual hours worked for natives, Western immigrants, and non-Western immigrants. These results are based on Equations 4 and 3 introduced in Section 5. Looking across the columns, several things are worth noting.

First, and consistent with existing work on the union wage premium, we identify a significant wage premium associated with union membership among natives (row 1 of Column (1)). Specifically, the average native worker experiences a union wage premium effect of approximately 0.1 log points, which is similar to the typical 0.1 through 0.3 log point effect that has been found in prior work (e.g., Farber et al. (2021); Sojourner et al. (2015); Card et al. (2004)).

Second, we find that the union wage premium is unevenly distributed across workers depending on their geographic background. Specifically, while native workers enjoy a union wage premium of approximately 0.1 log points, Western immigrants experience a much smaller wage premium effect of 0.04 log points, and non-Western immigrants do not experience any short-term wage benefit from joining a union. This result suggests that unions contribute to a widening of the native-immigrant wage gap and thereby exacerbate inequalities between the groups.

Third, the differential wage effects of union membership across natives and immigrants do not appear to exclusively operate through an impact on the total number of hours worked. Specifically, while row 1 of Column (2) shows a four-hour increase in work time among natives as a consequence of union membership, rows 2 and 3 show that Western and non-Western immigrants benefit almost as much. Thus, the differential compensation effect identified in Column (1) is not exclusively due to unions causing a reshuffling of work hours across natives

[18]Our survey shows that about 42% of non-unionized Western immigrant workers would consider joining a union if the dues fell by 500-2,500 NOK per month, slightly higher than the responses from native workers, whereas about 60% of the non-unionized non-Western immigrant workers say they would consider joining a union if the dues are reduced by 500-2,500 NOK per month.

and immigrants.[19]

6.3 Worker Protection

In terms of worker protection, Columns (3) of Table 3 shows the effect of union membership on the amount of unemployment benefits received. Given the relatively generous and flexible unemployment insurance system of Norway, we use these results as a way to disentangle the employment protection effect of union membership.

Row 1 of Column (3) shows that natives experience a reduction in UI benefits of approximately 14,000 NOK (USD 1,400) as a consequence of joining a union. This is a sizable amount, demonstrating large positive fiscal externalities for workers associated with union membership.

Row 2 of Column (3) shows that Western immigrants enjoy a smaller employment protection effect from union membership, with a reduction in total UI benefits of around 12,500 NOK. Thus, similar to our findings for the compensation effects of unions, Western immigrants appear to benefit less from union take-up than natives.

Turning to non-Western immigrants, row 3 of Column (3) shows that union membership has a much smaller effect on the total amount of UI benefits that they receive (approximately 7,800 NOK). This result either suggests that unions prioritize the compensation and protection of natives over immigrants in the negotiation process with firms, or that the unions are unable to offer the same benefits to immigrants due to other reasons (e.g., less leverage over firms with respect to these workers).

6.4 Work Environment

Column (4) of Table 3 provides estimates of the union membership effect on the work environment of employees, which we proxy with sick leave usage of individuals. Row 1 shows that the amount of SL benefits taken by natives is unaffected by union enrollment (negative but not statistically significantly different from zero). Interpreting sick leave take-up as a proxy for the work environment, these results suggest that the work environment is relatively unaffected (for natives) as a consequence of union representation.[20]

The point estimate in row 2 of column (4) suggests that unions affect the sick leave usage of Western immigrants to an even lesser extent than natives, with a point estimate of only about 400 NOK (combining the $Union$ and $Union * WesterImmigrant$ coefficients). However, neither the effect on natives nor on Western immigrants is statistically significantly different from zero. We interpret this to suggest that unions have a similarly small and

[19]If we look directly at hourly wages, we obtain a premium of approximately 0.06 for natives and 0.00 for non-Western immigrants. However, as noted in the data section, the hours variable is imputed from a categorical variable and represents contractual hours rather than actual hours, so we encourage some caution when interpreting the results relying on hours.

[20]We note that Dodini et al. (2023) document significant heterogeneity in sick leave effects of unions across worker age. This is beyond the scope of the current paper.

negligible impact on the work environment – as proxied by sick leave usage – on natives and Western immigrants.

For non-Western immigrants, row 3 of Column (4) shows that the amount of sick leave benefits non-Western immigrants use declines substantially following union enrollment. The interpretation we find most consistent with this result is that unions help improve the work environment of non-Western immigrants such that they are less inclined to utilize the sick leave system. That this effect loads on non-Western immigrants rather than natives could be due to this group having a lower degree of individual bargaining power and being more likely to be exposed to exploitation practices from employers (e.g., by being assigned riskier tasks or being assigned to a riskier environment).[21] The application of group-level bargaining and union protection may therefore have a larger positive marginal effect on their work environment. However, we emphasize that this explanation is speculative and not one that we can fully disentangle in the data. We, therefore, encourage some caution with respect to this result.

6.5 Career Progression

Concerning career progression, row 1 in Columns (5) and (6) show that unions have a positive effect on the probability that a native worker gets promoted to a higher-paying position but a negative effect on the probability that a native worker switches to a higher-paying firm. This promotion and lock-in effect is not economically meaningfully different among Western and non-Western immigrants. This suggests that the differential compensation effect union membership generates for natives and immigrants is not driven by unions successfully helping natives to disproportionately advance their careers, but rather by unions being able to secure different wage benefits for immigrants and natives despite them being equally likely to enjoy vertical moves within the company.

7 Extensions

7.1 Interaction with Labor Market Power

A union's ability to extract rent from firms and reallocate those rents to members depends fundamentally on two factors: (1) the existence of abnormal profits at the firm and (2) the bargaining power of the union. Both of these factors are strongly related to the labor market power – or monopsony power – that the employer possesses. Specifically, in a labor market characterized by strong monopsonistic competition, there will be significant rents for unions to extract (due to the presence of abnormal profits) but the union's ability to

[21] Less familiarity with the regulatory framework, higher language barriers, greater exposure to discriminatory and predatory hiring practices of firms, workplace segregation, and fewer outside options, are all factors that may affect migrants more than natives in their individual bargaining power (e.g., Dustmann and Glitz (2011); Algan et al. (2010); Dustmann et al. (2010); Chiswick (1978); Lehmer and Ludsteck (2011); Åslund and Skans (2010); Cutler et al. (2008); Hirsch and Jahn (2015)).

extract these rents will be minimal (due to the lack of viable employee outside options that can be used as leverage). In a more competitive market, on the other hand, there will be minimal rents, but the unions' ability to secure those rents will be greater. The potential for differential effects across labor market concentration also suggests that the union effect on the native-immigrant labor market gap may differ considerably as a function of the labor market concentration of the market within which they operate. Given the ongoing trend towards greater market concentration across most of the OECD over the past several years, understanding the dynamic effects of unions across market concentration is of great independent interest.

Table 4 provides results from estimating our baseline regression in which we interact the treatment variable with a dummy variable that indicates high labor market concentration (above median HHI). To ease interpretation, we show the overall marginal effect of union membership by labor market concentration (the raw coefficients are provided in Table A3).[22] Several results are worth highlighting.

First, the results demonstrate that the union membership benefits are considerably larger in concentrated markets and that there are no statistically significant earnings benefits from individual union enrollment in perfectly competitive markets. This is consistent with the idea that the available rents that the union can extract from firms are considerably larger in concentrated markets (Dodini et al., 2022). Second, the results show that the differential effects of unions on natives and immigrants grow as concentration increases because union membership disproportionately rewards natives (and to a lesser extent, Western immigrants) in concentrated labor markets over non-Western immigrants. This implies that unions act as a countervailing force to employer power in imperfect markets and can ameliorate the negative labor market effects of labor market concentration, but only for natives. Relying on unions to solve the market failure of imperfect competition in the labor market may, therefore, generate substantial wage inequality between groups. This result highlights another important dimension of the labor market concentration debate that has been overlooked in the literature.[23]

[22]HHI is the sum of squared employment shares across firms in each occupation and labor market, and ranges from 0 to 1. A value of 1 implies a perfectly concentrated market with only one employer, and a value of 0 implies a perfectly competitive market. We fix each firm's HHI at the first year in which the firm appears in the data. In our analysis sample, the median HHI is approximately 0.05.

[23]One concern with our specification is that there could plausibly be immigration group-specific time-varying shocks that bias our estimates. To examine this, we perform a supplemental analysis in which we include immigration status by year fixed effects to all analyses. The results for the baseline model with additional fixed effects are shown in Table A2. Overall, the results do not significantly change from the baseline specification quantitatively or qualitatively. Similarly, the results for the marginal effect of union membership by labor market concentration with additional fixed effects are shown in Table A5, and they do not differ meaningfully from the baseline model.

7.2 Expanded Immigrant Categorizations

In our baseline analysis, we divided the working population into three groups: natives, Western immigrants, and non-Western immigrants. We pursued this categorization of immigrants as Western immigrants are not visible minorities in the country and tend to do as well as natives in the labor market, while this is not the case for non-Western immigrants. It is also consistent with recent work on this topic in Scandinavia (e.g., Böhlmark and Willén (2020); Aldén et al. (2015); Korpi et al. (2023)).

If geographic proximity to, and similarity with, the host country are driving the differential effects across immigrants and natives, it is of course possible to impose even finer levels of immigrant categorization. For example, we can divide Western immigrants into those who originate from Scandinavia and those who originate from outside of Scandinavia. Scandinavian migrants are similar to Norwegians not only in their cultures and institutions but also in their languages.

The results from this exercise are shown in Table 5. Looking across the columns and rows of Table 5, it becomes apparent that similarity to the host country appears to play an important role in the ability of immigrants to reap the benefits of union representation. Specifically, across all outcomes, immigrants from Scandinavia benefit just slightly less than natives from union take-up, non-Scandinavian Western immigrants benefit slightly less still, and non-Western immigrants benefit the least. This result suggests that unions contribute to a widening of the native-immigrant wage gap and thereby exacerbate inequalities between societal groups, with the historically least disadvantaged immigrant groups (Scandinavians) experiencing the smallest increase in the native-immigrant gap and the historically most disadvantaged immigrant groups (non-Western immigrants) experiencing the largest.

7.3 Mechanisms

A key question that emerges from our analysis is what are the mechanisms underlying the union's differential impact on natives and immigrants? We present evidence from auxiliary analyses that rule out one key pathway and provide support for another. First, we show that our results are not a consequence of unions being more successful at providing benefits to the majority group at the firm, and thus that our results are not due to immigrants being a relatively small group at any one firm. We obtain these results by estimating our baseline model in which we directly examine interactions between the union membership status and whether the firm has an above-median (as measured across all firms in our sample in the base year) share of native workers at their workplace (89 percent). The results are shown in Table A4. For ease of interpretation, the marginal effects for each subgroup are shown in Table 6. Overall, there is no evidence to show that non-Western immigrants benefit more from working at firms with a higher share of immigrant workers, especially in terms

of total earnings, hours, and unemployment benefits. In fact, the opposite is true: non-Western immigrants benefit when they constitute a smaller share of their firm's workers. This is a surprising result. One explanation for this finding could be that discriminatory firms hire non-Western immigrants to a much smaller extent and that marginal non-Western immigrants are highly capable but undervalued, such that union membership helps them more. However, this is not a hypothesis we can explore with the data we have. It is also worth noting that only about 3 percent of all non-Western person-year observations are at firms with more than 89 percent natives, constituting an exceptionally small share of the total sample. This suggests that the baseline results we find do not seem to be due to unions' lack of understanding and ability to engage immigrant workers.

Second, we show evidence consistent with the idea that unions are targeting natives because such targeting will maximize overall union profits. Specifically, we show that more than 90 percent of the within-firm dues that unions collect come from natives (Figure 10). This is not only because natives are more likely to be union members, but also because natives on average earn higher wages and pay higher dues. Thus, if we assume that the objective of unions is to maximize profit by collecting as much in dues as possible, a focus on satisfying the needs and desires of natives would be rational. However, we emphasize that this is our interpretation of the findings and that alternative interpretations are possible. Specifically, we are not able to say with certainty the likelihood of this mechanism driving our results; there are also additional mechanisms through which our effects could operate that we are unable to explore. Thus, while this paper provides the first estimates in the literature of the union's impact on the native-immigrant labor market gap and breaks new ground in understanding how social institutions and market structures influence this gap, we also see this paper as opening up a new and important set of research topics on why core labor market institutions, such as unions, treat and influence specific demographic groups differently. We see it as a crucial area for future research to disentangle the mechanism behind the effects we find.

7.4 Unions and Earnings Inequality

To estimate the overall impact of unions on earnings inequality across groups, we perform a simple back-of-the-envelope calculation. Our estimates hold fixed the distribution of employment across occupations, industries, and firms. Thus, we can highlight how much of the native-immigrant earnings gaps are attributable to differences after holding these characteristics fixed. First, from Table 1, we calculate the average actual earnings gap between natives and non-Western immigrants (467,859.1-377,230.4=90,628.7). Second, we take the union earnings premium estimated from the baseline model (point estimate of Union from Table 3) and calculate natives' average earnings had they not been

union members (467,859.1/1.104=423,785.4). We do the same for non-Western immigrants (377,230.4/0.998=377,986.4). Third, we calculate the simulated average earnings of natives as the weighted average of earnings from non-union members and from union members had they not been in the union (0.44*467,859.1+0.56*423,785.4=443,177.8). We do the same for non-Western immigrants (0.66*377,230.4+0.34*377,986.4=377,487.4). Then, we can calculate the simulated average earnings gap between natives and non-Western immigrants (443,177.8-377,487.4=65,690.4). Finally, we can calculate the percentage of the earnings gap between natives and non-Western immigrants that unions contribute to (90,628.7-65,690.4/90,628.7=0.275). In other words, about 27.5 percent of native and non-Western immigrant earnings gap can be explained by differential rates and returns to union membership within firms and industry-occupation cells.[24]

8 Discussion and Conclusion

Labor unions are among the most influential and powerful institutions within Western economies, and have played a key role in shaping the modern labor market. Originally established as a way to combat poor labor standards and protect workers with little individual bargaining power through group-level negotiations, unions have also oftentimes cooperated with the government and employers' associations in socioeconomic and labor market decision-making processes.

In this paper, we provide the first comprehensive analysis of the role of union membership in affecting the native-immigrant labor market gap. To perform our analysis, we rely on exogenous price changes in the cost for workers to join labor unions in an instrumented difference-in-differences framework.

We find that the union wage premium is unevenly distributed across workers depending on their migration background. Specifically, while native workers enjoy a union earnings premium of approximately 0.1 log points, Western immigrants experience a much smaller premium of 0.05 log points, and non-Western immigrants do not experience any short-term earnings premium from joining a union. We show that the heterogeneous wage effect of unions on natives and immigrants extends to another core objective of unions as well: employment protection. Interestingly, the only work dimension for which we find a meaningful positive differential effect for non-Western immigrants relates to sick leave. Specifically, union membership has a large negative effect on the probability of taking sick leave as well as on the amount of sick leave benefits taken. The interpretation we find most consistent

[24] Alternatively, we estimate the predicted values of total earnings from regressions 4 and 3 for each group, holding individual characteristics constant. We then assign union membership to all workers and no workers, respectively, and calculate the predicted total earnings for each group. The same patterns emerge – the earnings gap between natives and immigrants is smaller if no one is a union member and larger if everyone is a union member. In terms of magnitudes, this alternative approach delivers similar numbers. Thus, union membership widens the earnings gap between natives and immigrants.

with this result is that unions help improve the work environment of immigrants such that they feel less inclined to utilize the sick leave system. That this effect loads on non-Western immigrants rather than natives could be due to this group having a lower degree of individual bargaining power and being more likely to be exposed to exploitation practices from employers in the absence of union membership.

By examining the differential impact of unions on natives and immigrants across labor markets with different employer market power, we show that the union membership benefits are considerably larger in concentrated markets. This is consistent with the idea that the ability of unions to influence worker outcomes is limited in competitive markets due to the absence of supernormal profits and rents. Additionally, our analysis shows that union membership partially counteracts such negative wage effects for natives (and to a lesser extent, Western immigrants), while non-Western immigrants do not experience meaningful gains. By differentially benefiting natives in concentrated markets, union membership increases inequality between these groups in concentrated markets while having little effect on inequality in more competitive markets. From a policy perspective, this strongly implies that it is insufficient to rely on unions as a means to solve the market failure of imperfect competition in the labor market for immigrants, and calls on policymakers to rely on alternative or supplemental, policies in order to prevent the negative welfare effects of monopsony power.

The core contribution of this paper is to combine two key features of modern labor markets – immigrant workers and labor unions – to examine the role of core social institutions in closing or augmenting economic disparities across societal groups even within the same firms, occupations, and industries. Our results highlight that the effect of unions on worker wages differs greatly depending on the workers' geographic background and that these differences extend to a large set of career outcomes. This result suggests that unions contribute to a widening of the native-immigrant wage gap and thereby exacerbate inequalities between the two groups. Understanding the role of unions in augmenting existing labor market gaps between immigrants and natives is of key importance, helping inform policy discussions and efforts to promote inclusive labor markets and immigrant integration.

A key question that emerges from our research is what are the mechanisms underlying the union's differential impact on natives and immigrants? Is it because unions prioritize the interest of native workers over that of immigrant workers? Is it because they are less able to combat challenges specific to immigrant workers? Or is it because they struggle to reach and engage immigrant communities? One argument that speaks in favor of the unions wanting to prioritize the interest of natives is that the majority of within-firm dues that unions collect come from natives. This is not only because natives are more likely to be union members, but also because natives on average earn higher wages. However, this is speculative, and we are not able to say with certainty the likelihood of this mechanism driving our results. While

this paper provides the first estimates in the literature of the union's impact on the native-immigrant labor market gap and breaks new ground in understanding how social institutions and market structures influence this gap, we also see this paper as opening up a new and important set of research topics on why core labor market institutions, such as unions, treat and influence specific demographic groups differently. We see it as a crucial area for future research to disentangle the mechanism behind the effects we find.

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Tables

Table 1: Summary Statistics by Immigration Status

	Natives	Western Immigrants	Non-Western Immigrants
Age	43.55	42.35	38.58
Gender (1=male, 2=female)	1.49	1.45	1.44
Number of children	1.55	1.32	1.24
Years since arrival	-	19.57	12.14
Education (%)			
Less than high school	0.17	0.13	0.30
High school	0.45	0.33	0.33
College	0.39	0.55	0.37
Earnings	467,859.10	506,224.50	377,230.40
Hours	33.36	33.61	32.26
Union	0.56	0.37	0.34
Always union	0.34	0.19	0.12
Firm union density	0.53	0.47	0.41
Share of native workers at firm	0.897	0.798	0.721
Firm labor market power (HHI)	0.09	0.08	0.06
Unemployment benefit	2,694.01	3,917.02	7,265.04
Conditional unemployment benefit	54,304.26	62,039.57	65,407.83
Sick leave	12,040.22	11,796.49	11,661.74
Conditional sick leave	50,240.86	51,967.67	50,968.28
N	24,077,182	1,104,143	2,109,938

Source: Authors' calculations of Norwegian registry data from 2001 to 2015. Education statistics of immigrants are self-reported. Earnings are measured as pre-tax income from labor and self-employment. Firm labor market power (HHI) is the sum of squared employment shares across firms in each occupation and labor market, and ranges from 0 to 1. A value of 1 implies a perfectly monopolistic market, and a value of 0 implies a perfectly competitive market. We fix each firm's HHI at the first year in which the firm appears in the data. Unemployment benefit and sick leave benefit are calculated based on the cumulative amount of benefits received in a given year. Conditional unemployment and sick leave benefits are calculated from those who receive positive amounts.

Table 2: First-Stage Results

	(1) Union Membership
Net due (1,000 NOK)	-0.1140***
	(0.0053)
Net due×Western immigrant	-0.0015
	(0.0024)
Net due×Non-Western immigrant	-0.0138***
	(0.0020)
Observations	11,641,139
Kleibergen-Paap F	158.17

Source: Authors' calculations of Norwegian registry data from 2001 to 2015.
Notes: Estimates come from the specification in Equation 4 with Log total earnings as the regression outcome. Standard errors are clustered at the individual level. The model includes fixed effects for year, immigrant status, base and current occupation-by-industry cell, base and current firm, and always union status.

Table 3: Effect of Union Membership on Career Outcomes
Baseline Specification

VARIABLES	(1) Log total earnings	(2) Hours	(3) Unemployment benefits	(4) Sick leave benefits	(5) Promotion	(6) Firm upgrade
Union	0.104**	4.339***	-14,906***	-6,801	0.124***	-0.123***
	(0.0438)	(0.844)	(1,875)	(5,284)	(0.0248)	(0.0255)
Union×Western Immigrant	-0.0644***	-0.456**	2,247***	6,420***	0.00449	0.0230***
	(0.0172)	(0.229)	(563.0)	(1,471)	(0.00637)	(0.00674)
Union×Non-Western Immigrant	-0.102***	-0.338	7,121***	-14,553***	-0.0163	-0.0114
	(0.0250)	(0.384)	(1,045)	(2,528)	(0.0107)	(0.0115)
Observations	11,641,139	10,748,291	12,536,194	12,552,783	12,593,963	12,593,963
Kleibergen-Paap F stat	158.17	122.33	164.94	165.27	164.53	164.53

Source: Authors' calculations of Norwegian registry data from 2001 to 2015.
Notes: Estimates come from the two-stage least squares specification in Equations 3 and 4. Standard errors are clustered at the individual level. Outcomes are measured in year *t+1*. The model includes fixed effects for year, immigrant status, base and current occupation-by-industry cell, base and current firm, and always union status. Current union status is instrumented by the base firm's net union dues.

Table 4: Marginal Effect of Union Membership on Career Outcomes by Labor Market Concentration

	(1) Log total earnings	(2) Hours	(3) Unemployment benefits	(4) Sick leave benefits	(5) Promotion	(6) Firm upgrade
Natives in Low HHI Firms	0.0575	3.509***	-10,689***	-6,376	0.173***	-0.112***
	(0.0416)	(0.796)	(1,898)	(4,964)	(0.0234)	(0.0242)
Western Imm in Low HHI Firms	-0.0456	2.850***	-6,344***	4,167	0.178***	-0.0760***
	(0.0495)	(0.857)	(2,104)	(5,473)	(0.0259)	(0.0265)
Non-Western Imm in Low HHI Firms	-0.0592	4.255***	3,496	-19,513***	0.139***	-0.0719**
	(0.0557)	(0.976)	(2,593)	(6,357)	(0.0295)	(0.0308)
Natives in High HHI Firms	0.3072***	7.218***	-30,818***	-6,957	0.00847	-0.136***
	(0.0586)	(1.152)	(2,682)	(6,899)	(0.0329)	(0.0340)
Western Imm in High HHI Firms	0.222***	6.945***	-31,293***	3,492	-0.0658	-0.107**
	(0.0865)	(1.466)	(3,897)	(8,970)	(0.0425)	(0.0439)
Non-Western Imm in High HHI Firms	-0.232	2.938	-30,816***	-44,288***	-0.256***	-0.512***
	(0.152)	(2.043)	(6,793)	(15,438)	(0.0742)	(0.0907)
Observations	11,641,139	10,748,291	12,536,194	12,552,783	12,593,963	12,593,963
Kleibergen-Paap F stat	62.41	50.16	65.04	65.53	65.51	65.51

Source: Authors' calculations of Norwegian registry data from 2001 to 2015.

Notes: Estimates represent the marginal effects from the two-stage least squares specification in Equations 3 and 4, and are interpreted independently. Standard errors are clustered at the individual level. Outcomes are measured in year *t+1*. The model includes fixed effects for year, immigrant status, base and current occupation-by-industry cell, base and current firm, and always union status. Current union status is instrumented by the base firm's net union dues. High HHI is an indicator for the worker's firm being above the sample median in local labor market concentration, which we measure at the occupation-local labor market level. In our analysis sample, the median HHI is approximately 0.05.

Table 5: Effect of Union Membership on Career Outcomes
Alternative Immigration Categorization

VARIABLES	(1) Log total earnings	(2) Hours	(3) Unemployment benefits	(4) Sick leave benefits	(5) Promotion	(6) Firm upgrade
Union	0.104**	4.337***	-14,903***	-6,824	0.124***	-0.123***
	(0.0438)	(0.844)	(1,876)	(5,286)	(0.0248)	(0.0255)
Union×Scandinavian Imm	-0.0540**	-0.530*	2,014***	6,969***	0.0180**	0.0217**
	(0.0225)	(0.293)	(758.7)	(2,050)	(0.00863)	(0.00903)
Union×Western Imm	-0.0744***	-0.384	2,469***	5,900***	-0.00876	0.0241**
	(0.0253)	(0.341)	(821.7)	(2,047)	(0.00910)	(0.00975)
Union×Non-Western Imm	-0.103***	-0.338	7,124***	-14,562***	-0.0164	-0.0113
	(0.0250)	(0.384)	(1,044)	(2,528)	(0.0107)	(0.0115)
Observations	11,641,139	10,748,291	12,536,194	12,552,783	12,593,963	12,593,963
Kleibergen-Paap F stat	118.56	91.65	123.63	123.88	123.35	123.35

Source: Authors' calculations of Norwegian registry data from 2001 to 2015.
Notes: Estimates come from the two-stage least squares specification in Equations 3 and 4. Standard errors are clustered at the individual level. Outcomes are measured in year *t+1*. The model includes fixed effects for year, immigrant status, base and current occupation-by-industry cell, base and current firm, and always union status. Current union status is instrumented by the base firm's net union dues.

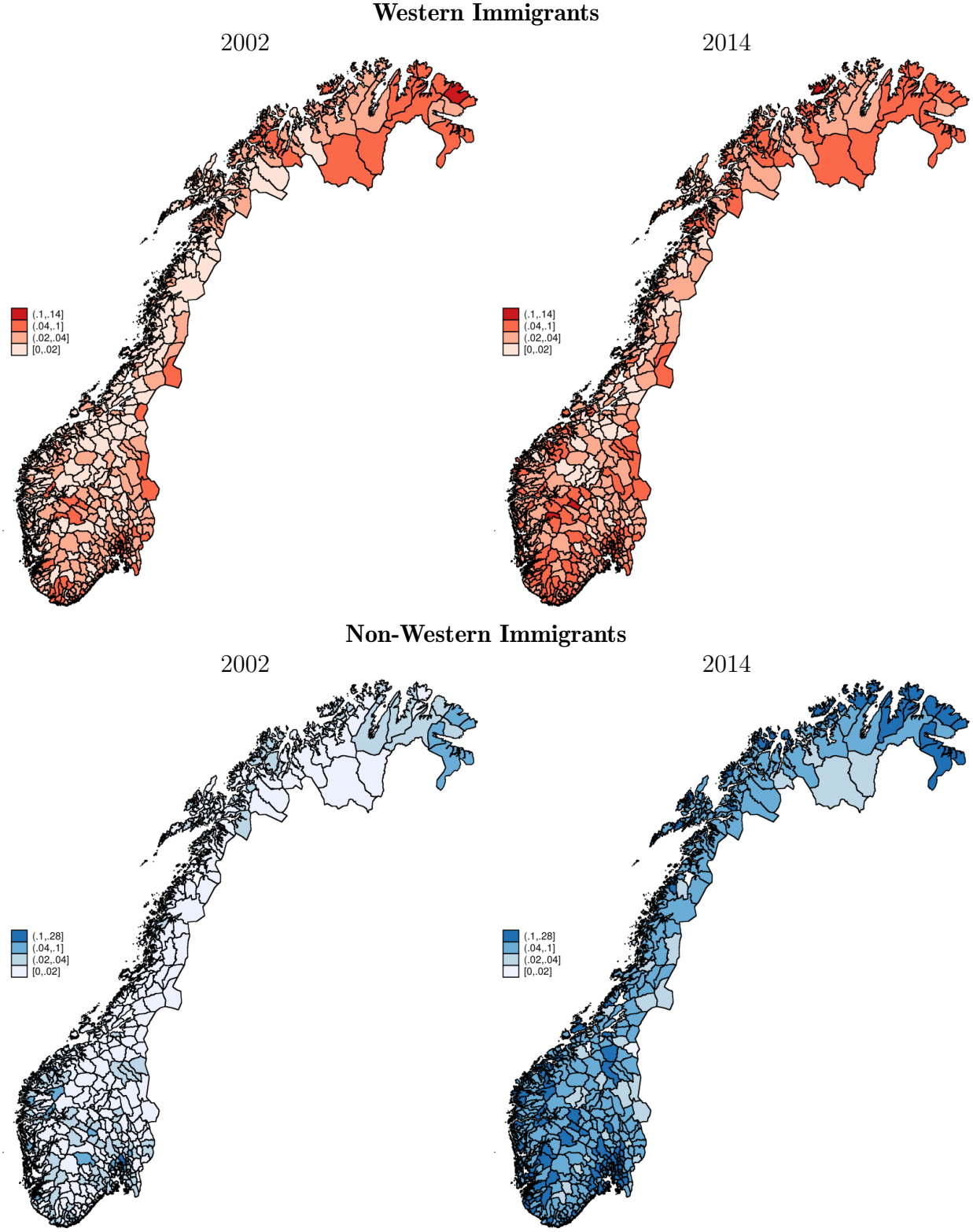
Table 6: Marginal Effect of Union Membership on Career Outcomes by Firms' Immigrant Worker Share

	(1) Log total earnings	(2) Hours	(3) Unemployment benefits	(4) Sick leave benefits	(5) Promotion	(6) Firm upgrade
Natives in Low ImmShare Firms	0.106**	4.770***	-16,869***	-5,881	0.136***	-0.113***
	(0.0442)	(0.862)	(1,914)	(5,318)	(0.0251)	(0.0258)
Western Imm in Low ImmShare Firms	0.0488	4.530***	-16,331***	-1,114	0.120***	-0.114***
	(0.0514)	(0.948)	(2,142)	(5,968)	(0.0281)	(0.0289)
Non-Western Imm in Low ImmShare Firms	0.119*	4.004***	-18,339***	-12,445*	0.121***	-0.193***
	(0.0626)	(1.147)	(2,757)	(7,307)	(0.0342)	(0.0355)
Natives in High ImmShare Firms	0.117***	4.013***	-12,748***	-6,149	0.122***	-0.157***
	(0.0430)	(0.832)	(1,856)	(5,195)	(0.0244)	(0.0252)
Western Imm in High ImmShare Firms	0.0300	3.664***	-8,938***	2,340	0.136***	-0.110***
	(0.0496)	(0.887)	(2,062)	(5,612)	(0.0263)	(0.0274)
Non-Western Imm in High ImmShare Firms	-0.0654	4.598***	844.1	-28,964***	0.0818**	-0.154***
	(0.0607)	(1.086)	(2,631)	(7,014)	(0.0321)	(0.0335)
Observations	11,641,139	10,748,291	12,536,194	12,552,783	12,593,963	12,593,963
Kleibergen-Paap F stat	79.52	60.57	83.03	83.2	82.92	82.92

Source: Authors' calculations of Norwegian registry data from 2001 to 2015.
Notes: Estimates represent the marginal effects from the two-stage least squares specification in Equations 3 and 4, and are interpreted independently. Standard errors are clustered at the individual level. Outcomes are measured in year *t+1*. The model includes fixed effects for year, immigrant status, base and current occupation-by-industry cell, base and current firm, and always union status. Current union status is instrumented by the base firm's net union dues.

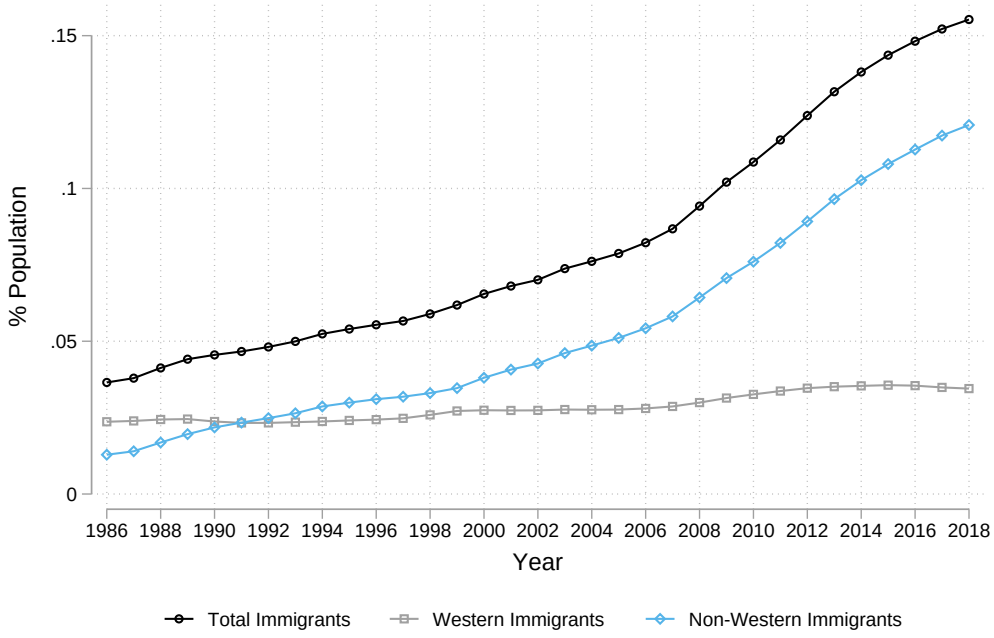
Figures

Figure 1: Share of Immigrants in Municipalities by Immigration Status

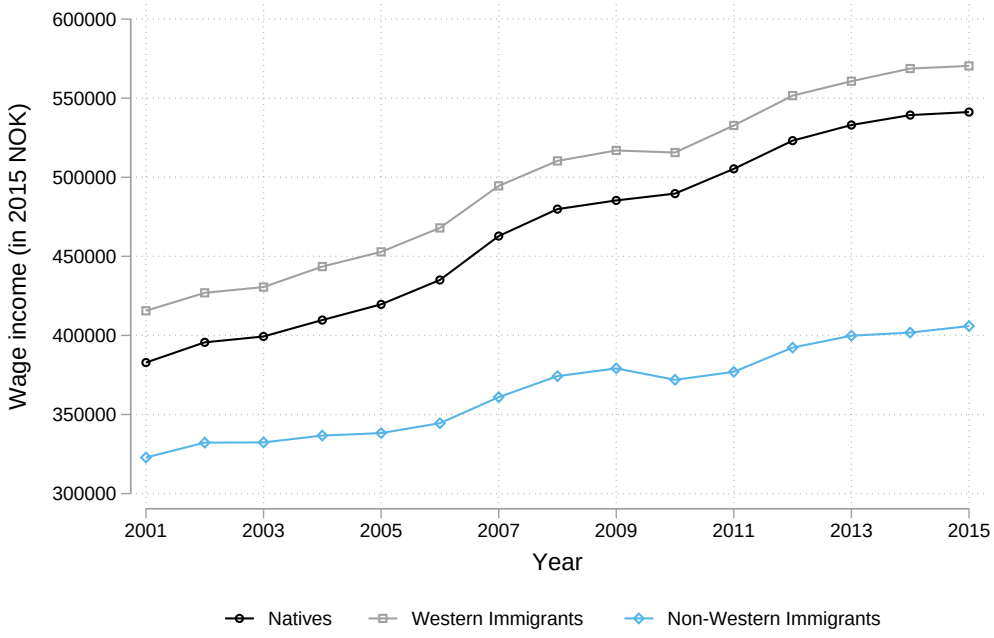


Source: Authors' calculations of Norwegian registry data.

Figure 2: Trends in Immigration in Norway
Panel A: Immigrant Population Share

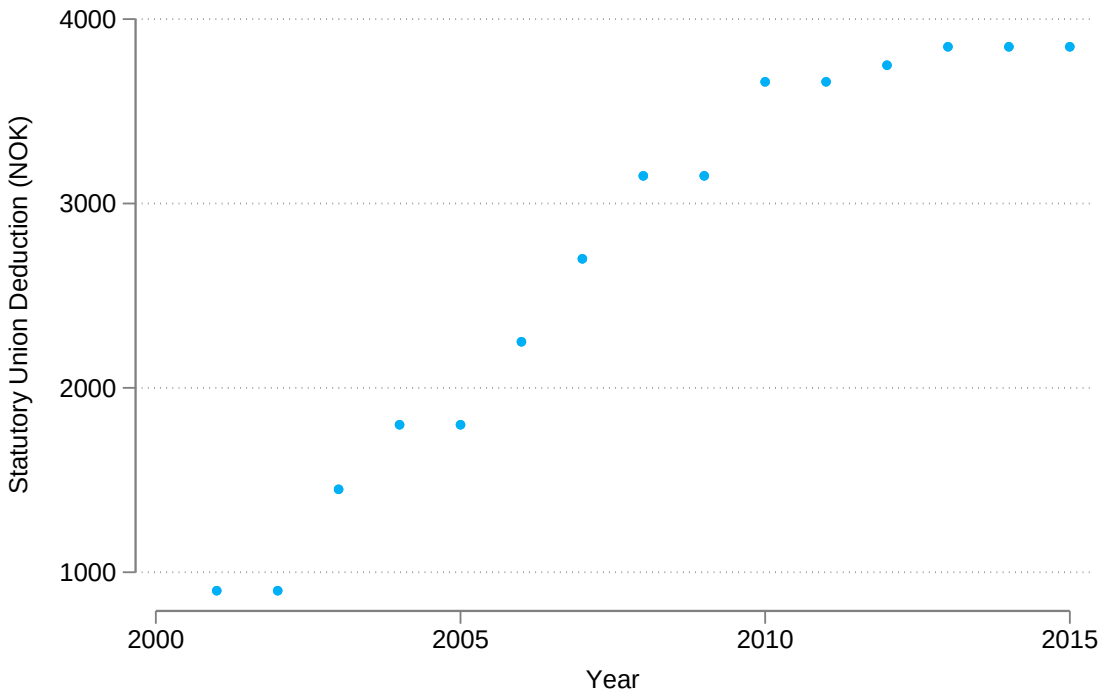


Panel B: Earnings



Source: Authors' calculations of Norwegian registry data.

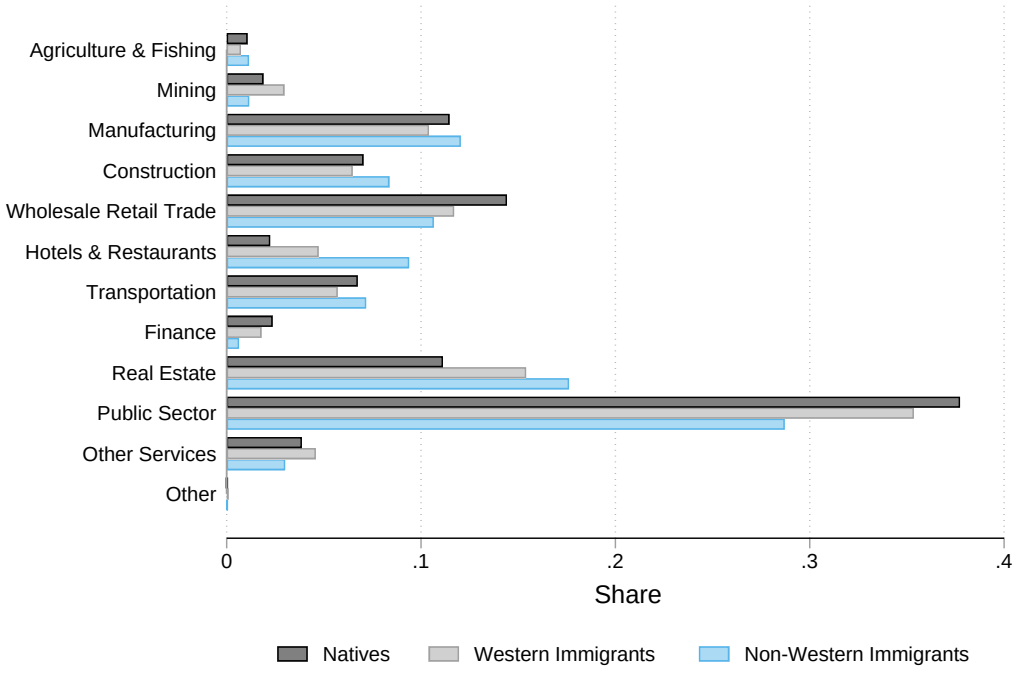
Figure 3: Changes in Union Deduction, 2001-2015



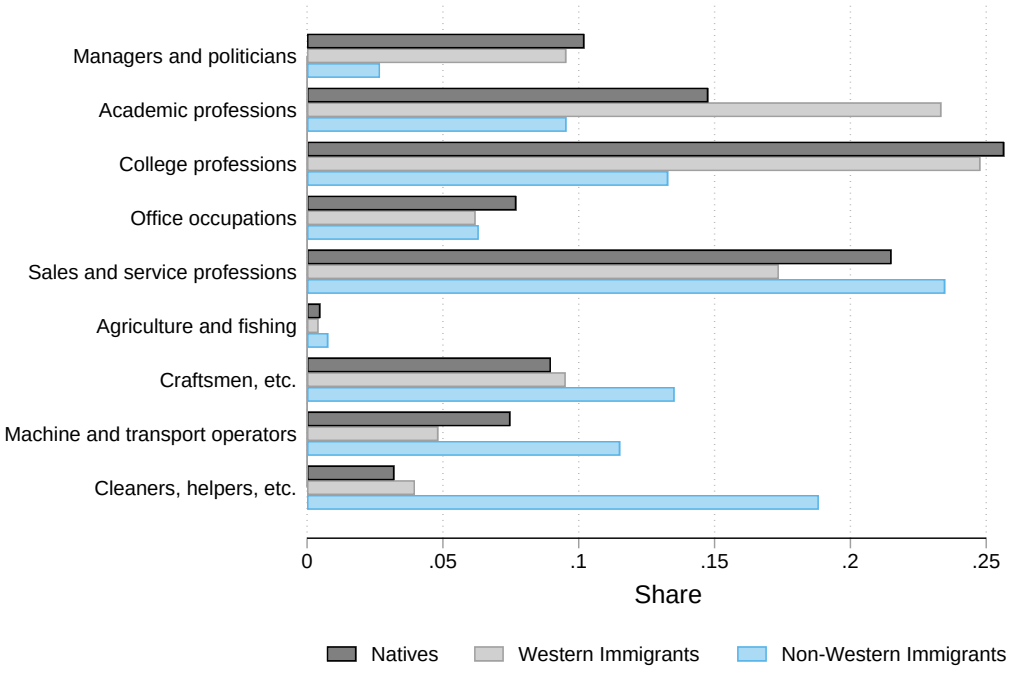
Source: Authors' illustration of the legislated maximum union dues deductions in Norway over time.

Figure 4: Worker Industry and Occupation Share by Immigration Status

Panel A: Industry

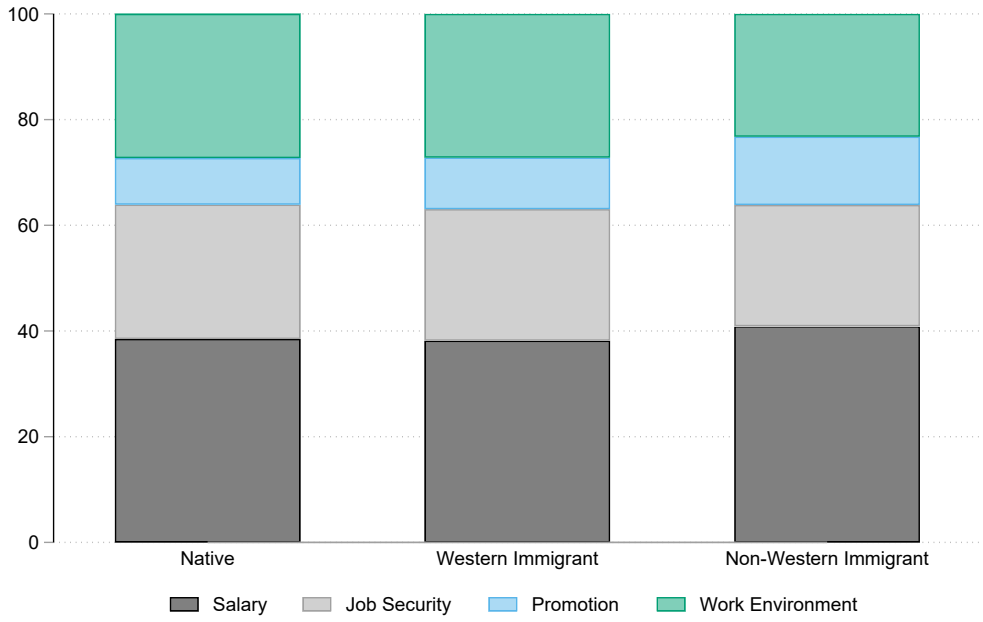


Panel B: Occupation



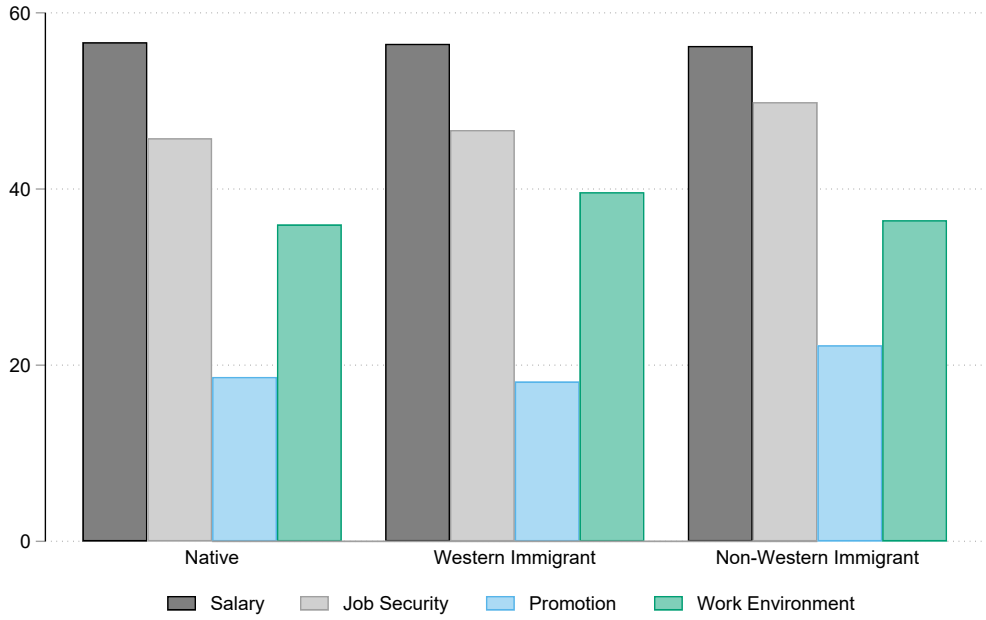
Source: Authors' calculations of Norwegian registry data from 2001 to 2015.

Figure 5: Worker Valuation of Career Amenities by Immigration Status



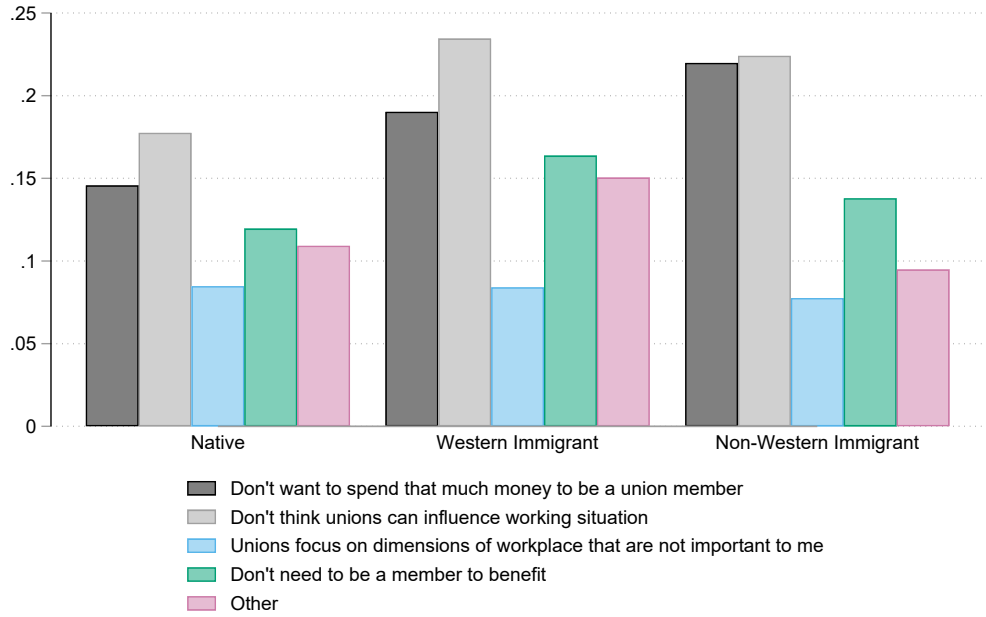
Source: Authors' calculations based on survey data collected by NORSTAT on behalf of the authors.
Notes: The question on the survey asked, "Rank the following job characteristics based on importance to your future career and well-being: Salary, Job Safety, Promotion Potential and Work Environment Quality. Here we ask you to award 100 points across the four categories. You can assign anything between 0 and 100 to any of the categories, as long as the total amount of points for all four categories is 100."

Figure 6: Union Member Perception of Union Influence Over Career Outcomes by Immigration Status



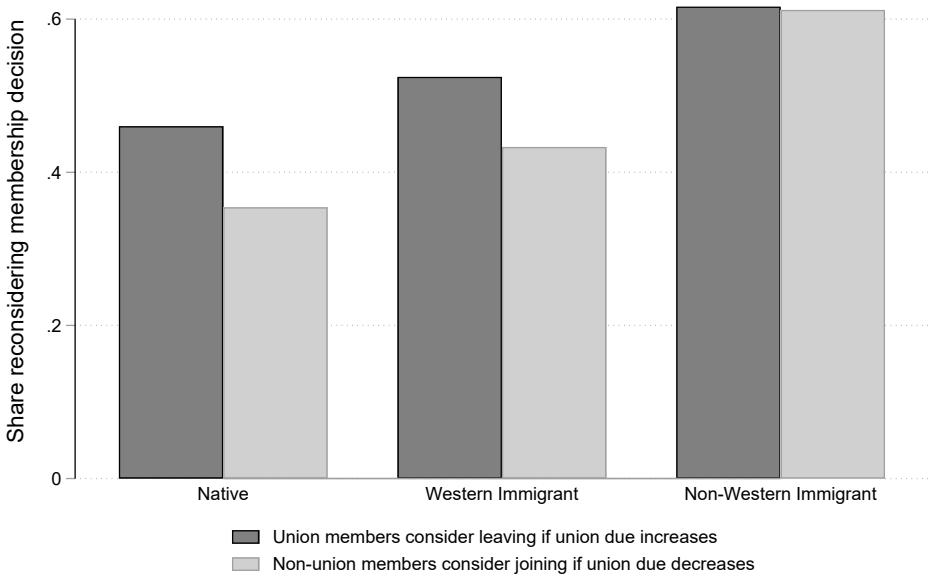
Source: Authors' calculations based on survey data collected by NORSTAT on behalf of the authors.
Notes: The question on the survey asked, "How important do you think the union is to improving your pay, job security, promotion potential and work environment quality? 0 means 'not at all' and 100 means 'completely.' The total for all four need NOT be 100."

Figure 7: Nonunionized Workers Reason For Not Unionizing by Immigration Status



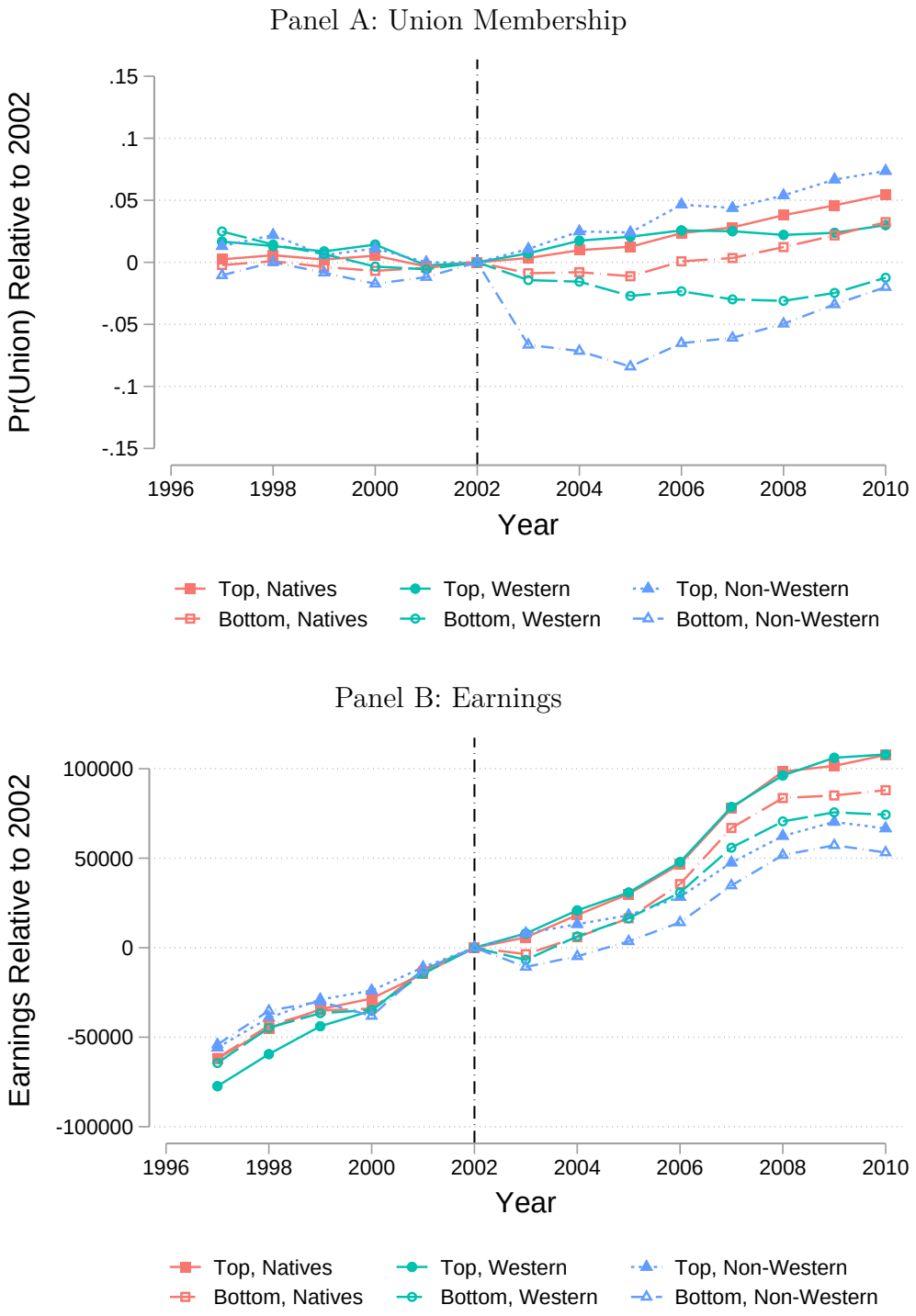
Source: Authors' calculations based on survey data collected by NORSTAT on behalf of the authors.
Notes: The question on the survey asked, "The purpose of this question is to understand the reason why you do not join a union. Check all the boxes that apply."

Figure 8: Price Sensitivity to Union Membership by Immigration Status



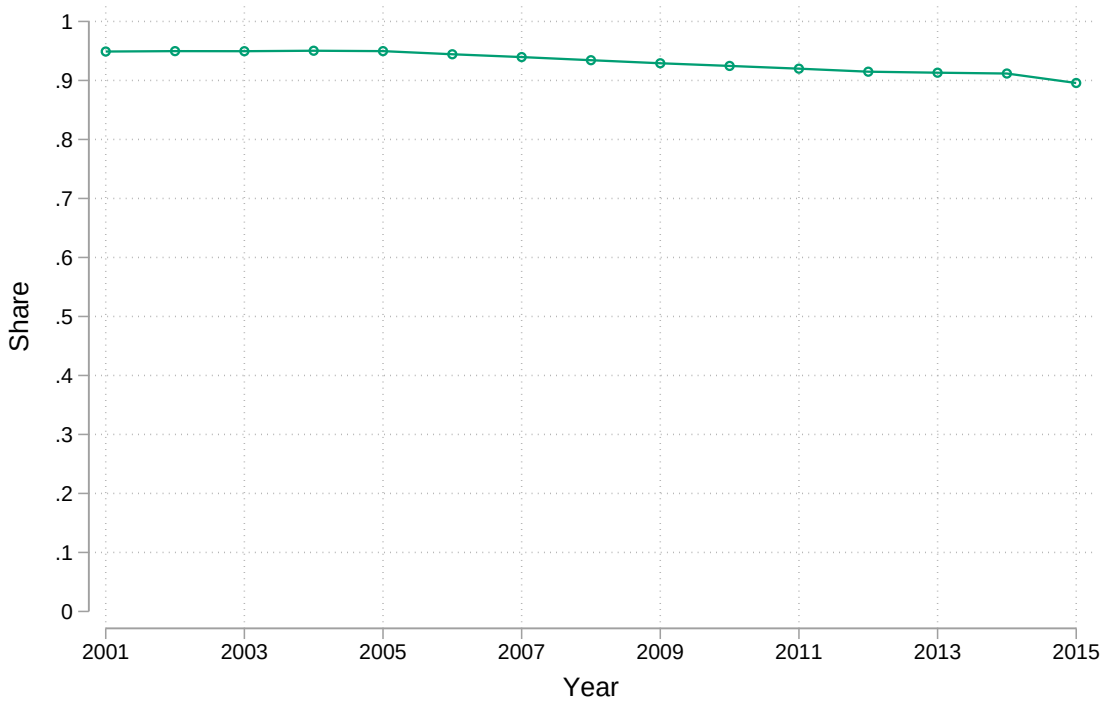
Source: Authors' calculations based on survey data collected by NORSTAT on behalf of the authors.
Notes: The question on the survey asked, "If your after-tax dues for union membership were reduced [increased] by [XYZ] NOK, would you reconsider your decision to join a union?"

Figure 9: Trends in Union Membership Rates and Earnings by Instrument Intensity and Immigrant Status



Source: Authors' calculations of Norwegian registry data from 1997 to 2010.
Notes: Figure accounts for fixed effects for a worker's base firm. The "Top" group denotes workers whose base firm was in the top quartile for reductions in net union dues from 2002-2010, while "Bottom" denotes workers whose base firm was in the bottom quartile of net due reductions over the same period.

Figure 10: Share of Union Dues Paid by Natives, 2001-2015



Source: Authors' illustration of the average share of union dues paid by natives at the firm level in Norway over time.

A Tables Appendix

Table A1: Instrument Intensity and Baseline Characteristics, Correlations

VARIABLES	(1) Raw Correlation with Reduction in Net Dues	(2) Conditional Correlation with Reduction in Net Dues
Log Real Earnings	-0.109	-0.00305
Native Norwegian	-0.0340	-0.0145
Western Immigrant	0.00851	0.00453
Non-Western Immigrant	0.0379	0.0153
Female	0.189	0.00987
Age	0.00475	-0.0000284
Less than High School	0.0224	0.0104
High School Diploma	-0.0738	-0.0159
Bachelors Degree +	0.0580	0.00804
Observations	3,241,832	3,241,832

Source: Authors' calculations of Norwegian registry data from 2002 to 2010.
Notes: Correlations are between the reduction in net dues within a worker's base firm in the data between 2002 and 2010 and a set of baseline characteristics for each worker in the base firm. Conditional correlations are for the reduction in net dues after residualizing on controls for occupation by industry cell, age group, and "always union" status.

Table A2: Effect of Union Membership on Career Outcomes
Baseline Specification with Immigrant by Year FE

VARIABLES	(1) Log total earnings	(2) Hours	(3) Unemployment benefits	(4) Sick leave benefits	(5) Promotion	(6) Firm upgrade
Union	0.128***	4.191***	-15,254***	-4,486	0.129***	-0.112***
	(0.0440)	(0.850)	(1,895)	(5,312)	(0.0251)	(0.0256)
Union×Western Immigrant	-0.0633***	-0.446*	1,832***	5,900***	0.0120*	0.0291***
	(0.0169)	(0.229)	(555.4)	(1,433)	(0.00624)	(0.00647)
Union×Non-Western Immigrant	-0.0706***	-0.257	4,100***	-10,880***	0.0226**	0.0168
	(0.0240)	(0.382)	(999.7)	(2,364)	(0.0103)	(0.0107)
Observations	11,641,139	10,748,291	12,536,194	12,552,783	12,593,963	12,593,963
Kleibergen-Paap F stat	157.44	120.22	163.15	163.44	162.71	162.71

Source: Authors' calculations of Norwegian registry data from 2001 to 2015.
Notes: Estimates come from the two-stage least squares specification in Equations 3 and 4. Standard errors are clustered at the individual level. Outcomes are measured in year *t+1*. The model includes fixed effects for immigrant status by year, base and current occupation-by-industry cell, base and current firm, and always union status. Current union status is instrumented by the base firm's net union dues.

Table A3: Effect of Union Membership on Career Outcomes
Interacting with Labor Market Concentration

VARIABLES	(1) Log total earnings	(2) Hours	(3) Unemployment benefits	(4) Sick leave benefits	(5) Promotion	(6) Firm upgrade
Union	0.0575	3.509***	-10,689***	-6,376	0.173***	-0.112***
	(0.0416)	(0.796)	(1,898)	(4,964)	(0.0234)	(0.0242)
Union×HighHHI	0.250***	3.709***	-20,129***	-580.9	-0.164***	-0.0245
	(0.0293)	(0.546)	(1,387)	(3,152)	(0.0155)	(0.0165)
Union×Western Imm	-0.103***	-0.660*	4,346***	10,543***	0.00550	0.0358***
	(0.0280)	(0.338)	(968.2)	(2,496)	(0.0117)	(0.0115)
Union×Non-Western Imm	-0.117***	0.745	14,186***	-13,136***	-0.0335**	0.0399**
	(0.0327)	(0.461)	(1,590)	(3,354)	(0.0147)	(0.0160)
Union×Western Imm×HighHHI	0.0179	0.386	-4,820	-93.38	-0.0798***	-0.00641
	(0.0680)	(1.003)	(2,949)	(5,972)	(0.0278)	(0.0284)
Union×Non-Western Imm×HighHHI	-0.423***	-5.026***	-14,184**	-24,195*	-0.231***	-0.415***
	(0.138)	(1.594)	(6,310)	(13,415)	(0.0650)	(0.0847)
Observations	11,641,139	10,748,291	12,536,194	12,552,783	12,593,963	12,593,963
Kleibergen-Paap F stat	62.41	50.16	65.04	65.53	65.51	65.51

Source: Authors' calculations of Norwegian registry data from 2001 to 2015.
Notes: Estimates come from the two-stage least squares specification in Equations 3 and 4. Standard errors are clustered at the individual level. Outcomes are measured in year *t+1*. The model includes fixed effects for year, immigrant status, base and current occupation-by-industry cell, base and current firm, and always union status. Current union status is instrumented by the base firm's net union dues.

Table A4: Effect of Union Membership on Career Outcomes
Interacting with Immigrant Worker Share

VARIABLES	(1) Log total earnings	(2) Hours	(3) Unemployment benefits	(4) Sick leave benefits	(5) Promotion	(6) Firm upgrade
Union	0.106**	4.770***	-16,869***	-5,881	0.136***	-0.113***
	(0.0442)	(0.862)	(1,914)	(5,318)	(0.0251)	(0.0258)
Union×High ImmWorker	0.0105	-0.757***	4,121***	-267.9	-0.0140***	-0.0438***
	(0.00876)	(0.151)	(386.5)	(1,017)	(0.00504)	(0.00539)
Union×Western Imm	-0.0573**	-0.240	537.5	4,767**	-0.0151*	-0.00111
	(0.0232)	(0.312)	(734.5)	(2,078)	(0.00919)	(0.00955)
Union×Non-Western Imm	0.0134	-0.766	-1,470	-6,564*	-0.0142	-0.0800***
	(0.0350)	(0.555)	(1,566)	(3,689)	(0.0167)	(0.0178)
Union×Western Imm×High ImmWorker	-0.0292	-0.109	3,272***	3,722	0.0297**	0.0479***
	(0.0316)	(0.455)	(1,179)	(3,074)	(0.0141)	(0.0154)
Union×Non-Western Imm×High ImmWorker	-0.195***	1.351*	15,061***	-16,251***	-0.0255	0.0830***
	(0.0451)	(0.709)	(2,218)	(4,864)	(0.0216)	(0.0238)
Observations	11,641,139	10,748,291	12,536,194	12,552,783	12,593,963	12,593,963
Kleibergen-Paap F stat	79.52	60.57	83.03	83.2	82.92	82.92

Source: Authors' calculations of Norwegian registry data from 2001 to 2015.
Notes: Estimates come from the two-stage least squares specification in Equations 3 and 4. Standard errors are clustered at the individual level. Outcomes are measured in year *t+1*. The model includes fixed effects for year, immigrant status, base and current occupation-by-industry cell, base and current firm, and always union status. Current union status is instrumented by the base firm's net union dues.

Table A5: Marginal Effect of Union Membership on Career Outcomes
by Labor Market Concentration with Immigrant by Year FE

VARIABLES	(1) Log total earnings	(2) Hours	(3) Unemployment benefits	(4) Sick leave benefits	(5) Promotion	(6) Firm upgrade
Natives in Low HHI Firms	0.0809*	3.377***	-10,996***	-4,279	0.176***	-0.103***
	(0.0419)	(0.802)	(1,927)	(4,992)	(0.0236)	(0.0242)
Western Imm in Low HHI Firms	-0.0236	2.733***	-6,934***	5,396	0.190***	-0.0615**
	(0.0493)	(0.863)	(2,111)	(5,442)	(0.0259)	(0.0262)
Non-Western Imm in Low HHI Firms	-0.00649	4.227***	113.3	-14,248**	0.180***	-0.0363
	(0.0548)	(0.974)	(2,565)	(6,238)	(0.0291)	(0.0301)
Natives in High HHI Firms	0.336***	7.013***	-30,893***	-4,340	0.00935	-0.127***
	(0.0591)	(1.160)	(2,723)	(6,948)	(0.0332)	(0.0341)
Western Imm in High HHI Firms	0.252***	6.754***	-32,309***	4,422	-0.0386	-0.0802*
	(0.0848)	(1.472)	(3,859)	(8,771)	(0.0413)	(0.0426)
Non-Western Imm in High HHI Firms	-0.0823	2.899	-40,248***	-30,065**	-0.137**	-0.416***
	(0.140)	(2.045)	(7,228)	(14,337)	(0.0656)	(0.0803)
Observations	11,641,139	10,748,291	12,536,194	12,552,783	12,593,963	12,593,963
Kleibergen-Paap F stat	63.11	49.17	64.73	65.12	64.99	64.99

Source: Authors' calculations of Norwegian registry data from 2001 to 2015.
Notes: Estimates represent the marginal effects from the two-stage least squares specification in Equations 3 and 4, and are interpreted independently. Standard errors are clustered at the individual level. Outcomes are measured in year *t+1*. The model includes fixed effects for immigrant status by year, base and current occupation-by-industry cell, base and current firm, and always union status. Current union status is instrumented by the base firm's net union dues.

Table A6: Effect of Union Membership on Career Outcomes
Baseline Specification with Alternative SE Clustering

VARIABLES	(1) Log total earnings	(2) Hours	(3) Unemployment benefits	(4) Sick leave benefits	(5) Promotion	(6) Firm upgrade
Union	0.104	4.339**	-14,906***	-6,801	0.124*	-0.123
	(0.0987)	(2.194)	(3,431)	(6,622)	(0.0742)	(0.131)
Union×Western Immigrant	-0.0644***	-0.456*	2,247***	6,420***	0.00449	0.0230***
	(0.0187)	(0.253)	(626.6)	(1,457)	(0.00733)	(0.00831)
Union×Non-Western Immigrant	-0.102**	-0.338	7,121***	-14,553***	-0.0163	-0.0114
	(0.0455)	(0.662)	(1,526)	(3,682)	(0.0189)	(0.0520)
Observations	11,641,139	10,748,291	12,536,194	12,552,783	12,593,963	12,593,963
Kleibergen-Paap F stat	29.81	23.29	30.15	30.15	29.8	29.8

Source: Authors' calculations of Norwegian registry data from 2001 to 2015.
Notes: Estimates come from the two-stage least squares specification in Equations 3 and 4. Standard errors are clustered at the firm level. Outcomes are measured in year *t+1*. The model includes fixed effects for immigrant status by year, base and current occupation-by-industry cell, base and current firm, and always union status. Current union status is instrumented by the base firm's net union dues.

Survey Instrument

[INTRO1] This is a survey that Norstat conducts on behalf of the Norwegian School of Economics and Business Administration. The results will be used in a research project.

All information collected through the survey is anonymized and will not be disclosed to any third party. As part of scientific publishing, anonymised data may be shared in open scientific repositories.

If you want more information about the project, you can choose the option below. If you want to start the survey, you choose it.

[R1] I want more information
[R2] I want to start the survey

[R1] Information and declaration of consent

Purpose of the project

We want to understand how individuals in Norway value their work environment and how they view unions. The results of the study will increase our understanding of workplace preferences and their relative importance.

Who is responsible for the project?

The Norwegian School of Economics (NHH) is the responsible institution for the project. Alexander Willen, professor at NHH, is the project manager. The other project members are Kjell G. Salvanes, professor at NHH, Samuel Dodini, postdoctoral fellow vid NHH, and Julia Zhu, postdoctoral fellow at NHH. If you have any questions about the project, you can contact NHH via Alexander Willen (alexander.willen@nhh.no).

What does participation mean for you?

If you choose to participate in the project, you will be asked to answer a survey by completing an online questionnaire. It takes about 7 minutes. The survey includes questions about your work situation, union status, and your job preferences. In addition, we will ask some basic demographic questions about, for example, age and gender. Participation in the survey is voluntary and you can withdraw your consent at any time without giving any reason. All information collected through the survey is anonymized and will not be disclosed to any third party. As part of scientific publishing, anonymised data may be shared in open scientific repositories. There will be no negative consequences if you choose not to participate or decide to withdraw at a later date.

Declaration of consent

I have received and understood information about the survey and hereby consent:

• to participate in the online survey.
• to enable researchers to process my anonymised data and use them for publications in scientific journals and other scientific dissemination.

[R2] Survey

[Age] What is your age?
[Gender] Are you male or female?
[Zip code] What is your zip code?
[Fylke] Which county do you live in?

What is your highest completed education?
[R1] Primary school/primary school
[R2] Upper secondary school (incl. former vocational school)
[R3] Vocational school, trade certificate/journeyman's certificate and other 1-2 year education after upper secondary school
[R4] University/college up to 3 years (Bachelor's degree)
[R5] University/college 4 years or more (Master's degree and higher)
[R98] Other

Where were you born?
[R1] Norway
[R2] Outside Norway
[R3] Don't want to answer

Can you state which country you were born in?

At what age did you move to Norway?

How many years of full-time work experience do you have?

Are you currently in part-time or full-time work?
[R1] Part-time (less than 30 hours per week)
[R2] Full-time (at least 30 hours per week)
[R3] Not working

What industry is your main job in?

Do you work in the public or private sector?
[R1] Public sector
[R2] Private sector

How many people work at your workplace?
Row:
[R1] 1-5
[R2] 6-10
[R3] 11-50
[R4] 51-100
[R5] More than 100
[R6] Don't want to answer

Rank the following job characteristics based on importance to your future career and well-being: Salary, Job Safety, Promotion Potential and Work Environment Quality.
Here we ask you to award 100 points across the four categories. You can assign anything between 0 and 100 to any of the categories, as long as the total amount of points for all four categories is 100.
Row:
[R1] Salary: Everything associated with the financial payment of your work (base salary, bonuses, overtime pay, generosity with retirement plans, etc.)
[R2] Job security: Protection and support (legal and otherwise) against being laid off and fired, both in the event of mass closures and individual layoffs (wrongful or not)
[R3] Promotion potential: Potential to move up the career ladder in the company
[R4] Work environment quality: The day-to-day quality of your work environment, including physical environment (e.g. equipment and facilities), company culture (e.g. support, feedback, collaboration, potential to influence) and working conditions (e.g. workplace safety, conditions employment, work-life balance)

Are you a member of a trade union?
[R1] Yes
[R2] No
[R3] Don't want to answer

For how many years have you been a member?

Have you been a member continuously during that time, or have you changed in and out of membership over the years?
[R1] Continuous
[R2] Not continuously

How important do you think the union is to improving your pay, job security, promotion potential and work environment quality?
0 means "not at all" and 100 means "entirely". The total for all four need NOT be 100.
[R1] Monetary compensation
[R2] Job security
[R3] Promotion potential
[R4] Working environment quality

Compared to members, the extent to which do you think nonmembers in your workplace can benefit from the presence of unions along these four dimensions
0 means "not at all" and 100 means "complete". The total for all four need NOT be 100.
[R1] Monetary compensation
[R2] Job security
[R3] Promotion potential
[R4] Working environment quality

Have you found a union membership useful for receiving non-work benefits such as lower mortgage rates, access to cheaper/better insurance, etc.?

How important has this been for your decision to join a union?

If your after-tax dues for union membership increased by [XYZ] dollars, would you reconsider the decision to join a union?
Row:
[R1] Yes
[R2] No

The purpose of this question is to understand the reason why you do not join a union. Check all the boxes that apply.
Row:
[R1] I don't want to spend so much money being a union member
[R2] I don't think unions can affect my work situation
[R3] I find that unions focus on dimensions of the workplace that are not important to me.
[R4] I don't think I need to be a member of a union to take advantage of the influence unions have on my work situation and well-being
[R5] Other reason, note:

If your after-tax dues for union membership were reduced by [XYZ] NOK, would you reconsider your decision to join a union?
Row:
[R1] Yes
[R2] No

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NHH

NORGES HANDELSHØYSKOLE
Norwegian School of Economics

Helleveien 30
NO-5045 Bergen
Norway

T +47 55 95 90 00
E nhh.postmottak@nhh.no
W www.nhh.no