

Dynamics of Claims Making and Gender Wage Gaps in the United States and Norway

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This paper compares claims making and gender wage gaps in the United States and Norway, and asks how public sector employment moderates the association between gender segregation and the gender gap in wages in the two countries. Using nationally representative data and hierarchical linear modeling, we analyze gender wage gaps within and between job types. The analyses show that job types heavily concentrated in the public sector, effectively insulated from regular market dynamics, have small if any gender wage gaps. Drawing on relational inequality theory, we argue that this results from the absence of opportunities for individual level claims making.

Introduction

A number of comparative studies have argued that welfare state policies affect how, and to what extent, labor markets are segregated by gender. In this literature, the welfare state is typically conceptualized as a provider of public services and regulations, such as generous parental leave and highly subsidized childcare (e.g. Datta Gupta, Smith, and Verner 2008; Mandel and Semyonov 2006). The larger labor market structures are rarely factored in, even though broad categories of welfare state regimes tend to fit into broad typologies of labor market structures (Charles 2005; Hall and Soskice 2001; Iversen, Rosenbluth, and Soskice 2004; Mandel and Shalev 2009). For example, social democratic or “women friendly” welfare states are typically also coordinated market economies, and tend to combine high labor market participation rates with labor market institutions, which reduces wage inequalities and protects against precarious employment. Moreover, these

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same countries also have a large public sector, where the welfare state acts as an important employer (Mandel and Shalev 2009).

In this paper, we compare the United States and Norway, representing liberal welfare states and social democratic welfare states, respectively. We compare the gender wage gaps in the two countries, and ask to what extent the gender wage gaps are affected by the allocation of men and women to different job types in the two countries, and how public sector employment potentially moderates the relationship between gender segregation and wages. The United States is typically categorized as a liberal market economy (LME), whereas Norway falls into the coordinated market economy (CME) category. Wage setting in the United States is far more decentralized than most European countries. There is no sectoral bargaining. Even the collective bargaining process takes place at the level of the firm, with no or very little intervention from the government. The collective bargaining coverage rate is especially low in the United States, at only 12 percent (OECD 2017). Norway stands at the other extreme with a two-tier wage bargaining model, a high degree of collective bargaining, and a coverage rate at 67 percent (OECD 2017). Collective agreements cover all employees in the public sector, and 50–55 percent in the private sector. Despite these differences, previous research has found that labor market segregation accounts for more than half of the gender wage gap in both countries (Barth et al. 2013; Blau and Kahn 2017; Petersen and Morgan 1995). At the same time, the hourly wage difference between men and women is substantially larger in the United States than in Norway (Blau and Kahn 2017).

To explain similarities and differences across the two countries, we combine insights from the Varieties of Capitalism (VoC) framework (Hall and Soskice 2001) with relational inequality theory (RIT) (Avent-Holt and Tomaskovic-Devey 2013; Tomaskovic-Devey 2014), and engage with these theoretical perspectives by elaborating on the context within which individual firms operate. Although both of these theoretical frameworks center on the firm, we argue that job type can be more important for wage setting than individual firms in certain contexts, through labor unions and other more centralized wage setting mechanisms.

This paper aims to advance the literature in two main ways. First, whereas previous research on gender segregation in the labor market most commonly addresses gender differences across industries and/or occupations, we take both of these dimensions into account simultaneously. Following Weeden and Sorensen, we use occupation and industry combined to capture the “true” extent and pattern of gender segregation in the two countries (England, Reid, and Kilbourne 1996; Weeden and Sorensen 2004). We define what we call “job niches” as a unique combination of a detailed occupation (e.g. secretary) within a detailed industry (e.g. hospital activities). Job niches typically require certain qualifications and pay certain levels of wages, capturing labor market positions more precisely than if

industries and occupations were treated separately. In other words, they constitute separate job types within given labor market contexts. We believe that these field-level contexts are significant for wage setting, in ways that occupation alone, or within the firm, does not capture (cf. Huffman and Cohen 2004; McCall 2000). Secondly, we apply a theoretical framework, RIT, which has primarily been developed in the context of the labor market in the United States, to an explicit comparison with Norway, criticizing and extending its explanatory power in a labor market context where the firm and market logics are not always relevant.

This paper is structured as follows. “Literature Review” gives a review of the empirical literature on gender segregation and wages. “Theoretical Framework” maps out the theoretical arguments as to why segregation may influence wages differently in the two labor markets, with particular emphasis on the role played by public sector employment. “Data and Analytical Strategy” presents our data, analytical strategy, variable definitions, and models. “Results” shows our results, first through a brief comparison of the patterns of gender segregation in the two countries, before presenting the main results from the analyses of the relationship between segregation and the gender gap in wages in the two countries. In the final section, we discuss our results and conclude.

Literature Review

Empirical evidence shows that gender segregation and the gender pay gap is declining in the United States and Europe, although at very slow rates (Blau and Kahn 2000). The international literature has proposed a number of potential explanations for the persistent gender pay gap. Traditional factors, such as female labor force participation, education, discrimination, and segregation, show some explanatory power in most countries. As women now have reversed the gender gap in higher education and gained more lifetime work experience, typical human capital explanations have reduced explanatory power over time (Blau and Kahn 2017; Østbakken, Barth, and Schöne 2014). At the same time, occupational- and sectoral-segregation is still found to be an important source of the gender pay gap: occupations dominated by men tend to pay higher wages on average than occupations dominated by women (Albæk, Larsen, and Thomsen 2017; Blau and Kahn 2000; Østbakken, Barth, and Schöne 2014). Recent evidence from the United States confirms that occupation and industry constitute the largest observable factor accounting for the gender pay gap (Blau and Kahn 2017). Currently, gender segregation explains nearly half of the gender pay gap in the United States (Blau and Kahn 2017). This also implies that a substantial share of the pay gap remains within occupations (Goldin 2014).

These trends are in line with findings in Norway: nearly half of the gender pay gap is explained by gender differences in employment patterns, and the rest of the gender pay gap remains within occupations (Barth et al. 2013). The relatively higher employer discretion in private sector wage-setting results in different sources of pay differentials between men and women, since men are more concentrated in the private sector and women are more concentrated in the public sector. Whereas public sector wages to a very large extent are determined by human capital, seniority, and job position, a more decentralized wage-setting may give rise to larger pay differences within and between occupations in the private sector. These contrasting dynamics offer different explanations behind the pay gap in the two sectors in Norway: the pay gap in the public sector is much smaller overall, and is to a very large extent explained by occupational segregation, whereas a substantial share of the gap remains within occupations in the private sector (Barth et al. 2013).

In the United States, it seems that occupational gender segregation plays out differently. Although occupational segregation accounts for a larger proportion of the gap in the public than the private sector in the United States as well, a substantial share of the gender pay gap nevertheless remains within occupations in the public sector (Mandel and Semyonov 2014).

Another question raised in the literature is whether feminization of occupations is accompanied by a reduction in wages. Grönlund and Magnusson (2013) find that the proportion of women in occupations explains a very small share of the pay gap in Sweden, but at the same time female-dominated occupations have significant lower wages than gender-balanced and male-dominated occupations. Murphy and Oesch (2016) show that moving into female-dominated occupations entails a wage penalty in the range of 3–13 percent in Britain, Germany, and Switzerland. The penalty is greater in the private sector, and the authors argue that higher employer discretion in wage setting in these firms may be one mechanism behind the wage penalty.

At the same time, several studies show that systems of wage compression narrow the gender wage gap by raising wages at the bottom of the wage distribution, which disproportionately affects the wages of women (Kahn 2015; Korpi, Ferrarini, and Englund 2013).

In summary, previous research points to a distinction between the role of gender segregation in the gender pay gap between Scandinavian countries and the United States. Studies of the United States suggest mechanisms primarily located within occupations while Scandinavian studies problematize private/public differences and mechanisms maintaining wage differences across occupations and industries. In this paper, we compare these two types of labor markets, accounting for both occupational segregation and segregation across industries. The existing literature disagrees on the role played by public sector employment in the gender wage gap. On the one hand, it is argued that it

contributes to a welfare state-based glass ceiling, while on the other it is argued that public sector employment reduces the gender wage gap. Comparing Norway and the United States, we therefore ask how public sector employment moderates the association between gender segregation and the gender gap in wages in the two countries.

Theoretical Framework

The VoC literature argues that firms operate within nation-states with distinct political economies and regulatory regimes (Hall and Soskice 2001, 4). Despite local and regional variation, it is therefore relevant to study cross-national differences in the ways labor markets are organized and the consequences of these differences in organization for patterns of inequality. The VoC approach distinguishes broadly between LMEs and CMEs. The VoC approach views firms as key agents in capitalist economies and sees their capabilities as ultimately relational. This means that success to a large extent depends on the individual firms' ability to coordinate with a wide range of actors (Hall and Soskice 2001, 6). At the same time, the authors argue that it is "unrealistic to regard the overarching institutional structures of the political economy, and especially those coordinating the endeavors of many actors, as constructs created or controlled by a particular firm" (Hall and Soskice 2001, 15). Such overarching institutional structures are typically more prevalent in coordinated market economies, producing systematic differences in the influence of individual firms on, for example, wage setting in CMEs and LMEs.

In coordinated market economies, the institutional infrastructure is more collaborative. Coordinated wage bargaining is one such infrastructure which is more prevalent in CMEs. There is considerable empirical evidence that countries with coordinated wage bargaining tend to have lower overall wage dispersion (Blau and Kahn 1996; Freeman 1988). Conversely, Blau and Kahn (1996) find that gender wage differentials are higher when wage variation within firms and industries is high. In labor markets where wage bargaining is centralized, wage differences in general—as well as the gender pay gap—are lower. In other words, to the extent that centralized bargaining and collective agreements raise minimum wages or compress the wage distribution by raising low-wage levels, this also tends to reduce the gender pay gap (Kahn 2015).

Turning from macro-theory to individual level mechanisms, wage inequality is often explained by factors influencing the relative productivity of different types of workers within an overall framework of labor supply and demand in the labor market. The neo-liberal economic supply and demand framework posits a labor market in which human capital is matched with appropriate available positions. With regard to gender wage differentials, this theoretical framework assumes that the gender pay gap is partly

explained by men and women having different (possibly unmeasured) productivity, and by educational and occupational segregation. Theories of dual labor markets, or more generally, segmented labor markets present well-known critiques of this perspective, claiming that labor markets consist of several sub-markets with their own internal logics, which rather than moving toward an equilibrium, segment high earners and low earners into different job market dynamics (Reich, Gordon, and Edwards 1973; Ryan 1981). To the extent that women are typically more concentrated in public sector dominated occupations, such as elementary school teaching and nursing, the dynamics of labor market segmentation may affect the wage levels of men and women differently.

Furthermore, if women's labor supply or job-to-job mobility is less wage sensitive than men's, monopsonistic discrimination may be one of the mechanisms behind the gender wage gap. Literature on monopsonistic discrimination argues that even in labor markets where there are many competitors, individual employers may enjoy some market power. Thus, employers may have the power to set wages lower than the productivity level for some groups of workers, if there are reasons to believe that they are less wage sensitive (see for instance Manning 2003). Empirical evidence confirms that women's turnover in the Norwegian labor market is less wage sensitive than men's (Barth and Dale-Olsen 2009). Findings from the United States indicate that similar patterns may be operating there (Ransom and Oaxaca 2010). A gender-segregated labor market implies differences in wage sensitivity across occupations or jobs, and suggests a role for monopsony in explaining the fact that female-dominated occupations tend to pay less and have flatter wage-profiles than male-dominated occupations, thus influencing the overall gender wage differential (Barth and Dale-Olsen 2009).

Avent-Holt and Tomaskovic-Devey (2013) have also criticized the neo-liberal framework, arguing that supply and demand is primarily a contextual dimension of wage inequality, not the causal mechanism by which it occurs. Instead, they propose an RIT that focuses on the power relations within workplaces to explain inequalities in the labor market. The central mechanism for producing inequalities in access to resources, power, wages, etc. is what they call *relational claims making* (Avent-Holt and Tomaskovic-Devey 2013, 384). Claims making can be described as a broad set of passive or active actions that allocate a certain part of the company's revenue (and/or other resources) to specific actors. Significantly, the theory stresses that this funneling of resources must be accepted and legitimized by persons of influence in the organizations (Avent-Holt and Tomaskovic-Devey 2013, 385). Drawing on Tilly's (1999) concept of opportunity hoarding, Tomaskovic-Devey (2014) identifies *resource-pooling* as an underlying inequality-producing mechanism, based on the unequal distribution of power among organizations. Firms or organizations do not compete on equal terms; those with more power can absorb

competitors, manipulate prices, lower costs, and in other ways influence the market such that they can lay claim to more resources for internal distribution than those with less power. Importantly, state regulation also affects resource-pooling through structuring the conditions for exchange and production (Tomaskovic-Devey 2014, 56).

In other words, different actors enter into relational claims making with unequal resources. Avent-Holt and Tomaskovic-Devey (2013) list two types of resources that are central to actors' ability to be successful in their claims making: (i) *categorical distinctions*, such as race, gender, credentials, positions in the job hierarchy, etc.; and (ii) *environmental contexts*, where features of the labor market contexts are being used strategically in the relational claims-making process. In their discussion of the theoretical framework, Avent-Holt and Tomaskovic-Devey focus on external competition of different kinds, but say little about the role of labor unions and centralized wage setting mechanisms.

RIT focuses on workplace dynamics because the theory centers on relational interaction. However, wage and/or status claims are not just relative to other claims at the same workplace; these claims are relative to other similar workplaces as well. Our take is that the organizational perspective should be applied more broadly in line with the boundaries of wage setting, which is often relative to other, similar jobs, rather than to other types of occupations within the same organization. In other words, RIT awards *local interactions* too much weight (see e.g. Avent-Holt and Tomaskovic-Devey 2012, 159). By focusing on inequality within workplaces, some of the resource-pooling already ingrained in segmented labor markets stemming from prejudice, stereotypes, gendered division of labor, historical or current racism, or sexism, will not be fully factored into the equation. Instead of treating labor market segmentation and labor regulations as contextual dimensions of the relations within the firm, these are in themselves claims-making mechanisms crosscutting the internal logic of the firm or establishment.

Consequently, our definition of job niches captures a central aspect of claims making more precisely than the firm, and can be viewed as a "wage bargaining segment" in certain contexts. Coordinated wage bargaining in Norway, for instance, takes place across firms—within bargaining segments of occupations and industries. Firms that are not part of a collective agreement typically accept the wage growth set in the coordinated agreement as their scope of wage growth for the relevant job types. Moreover, job niches are also relevant bargaining segments in liberal market economies such as the United States, where firm-level bargaining is commonplace. This is because the productivity- and wage-level of a job type is relative to similar jobs across establishments, not only to the internal dynamics of the firm.

One aspect of job niches that will affect the wage level and wage growth through the process of claims making is the share of public employees in the niche. In job niches concentrated in the private sector, there will be more discretion in wage setting than in job niches concentrated in the public sector and typically larger gender pay gaps due to the more decentralized wage setting (Card, Cardoso, and Kline 2016). Since the public sector plays fundamentally different roles in the labor markets in social democratic and liberal welfare states, this suggests that the dynamics of claims making differ across the two types of economies we analyze in this study.

We specifically address two conditions for claims making: the sorting of men and women into job types, and the way in which wages are set in different job types. Focusing on one of the major differences across the two economies, we ask how public sector employment moderates the association between gender segregation and the gender gap in wages in the two countries.

Data and Analytical Strategy

Data

The analyses are based on the American Community Survey (ACS) from the United States, and wage statistics and linked administrative register data from Statistics Norway. For the purpose of the analyses in this paper, we use the five-year ACS data from the survey years 2010 to 2014. The Norwegian wage statistics are based on information about all public employees and a large sample of private employees in 2012. In both datasets, weights are provided to correct for sampling and design biases. Both samples have been limited to prime working age adults ages twenty-five to sixty-five, who were working in the relevant years and not enrolled as students.

In both data sets, job niches are constructed by combining four-digit occupational codes with four-digit industrial codes. These codes are not identical across the datasets but are very similar with regard to structure and level of detail. In order to have enough variation within niches to calculate niche characteristics, such as share of women or share of minority employees, we restrict the sample to relatively large niches with more than 400 employees. This means that we exclude job types that are marginal or relatively rare. To be clear, each job niche can cut across many small or large workplaces, but captures everyone, across work places, who does approximately the same type of job.

Analytical Strategy, Variable Definitions, and Models

To describe and compare the level of gender segregation across niches in the two labor markets, we use the Duncan index (Duncan and Duncan 1955). We also compare the gender composition of the two labor markets (see Charles and Grusky 2004).

In the analyses of the gender wage gaps, we build on [Avent-Holt and Tomaskovic-Devey \(2012\)](#) and use hierarchical linear modeling (HLM) to compare variance across job niches in the association between gender and earnings, and the significance of gender segregation and public sector employment across niches to explain the gender wage gap. HLM allows for the inclusion of both individual level control variables (Level 1 predictors) and variables at the niche level (Level 2 predictors). The variables we use in our models are described in the following.

Outcome variable: We use log hourly wages as our outcome variable in the analyses of the gender wage gap. In the Norwegian data, hourly wages are calculated from monthly wages and contracted work hours, derived from employer records. In the United States dataset, the variable had to be calculated using annual wages, weeks worked during the year, and usual hours worked per week. This method is complicated by the variable for hours worked. This variable is not a continuous measure, but recorded in brackets. Because of inaccuracies in the creation of the hourly wage variable in the United States data, wages below 90 percent of the federal minimum wage¹ in the relevant time period and wages above the 99.9th percentile are bottom and top coded, respectively. For consistency, the Norwegian data is bottom coded at the hourly wage associated with 1G in 2012,² and top coded above the 99.9th percentile.

As Level 1 predictors, we use standard human capital and family variables, and interaction terms between gender and family variables, to allow for the effect of children and marriage to have different associations with wages for men and women. The predictors of interest in the context of this paper are gender (female = 1, male = 0) and public sector employment, at federal, state or local level (public employee = 1, private employee = 0). Control variables included in the models are survey year (United States), number of children, children under age five in the household (1 = yes, 0 = no), age, civil status [married (reference category) divorced or widowed, single/never married] foreign born, minority (Black or Latino = 1, all else = 0 in the United States data, non-Western³ origin = 1, all else = 0 in the Norwegian data), education [less than high school, high school graduate and college less than a BA degree (reference category), BA degree, MA or higher degree], and place of residence (nine United States regional divisions and seven Norwegian regions). In the Norwegian sample, 1.7 percent had missing information about education and 0.3 percent had missing information about civil status and place of residence. These cases were excluded from the sample. Interactions between gender and number of children, children under five, and civil status are included, as well as a squared term for age to capture nonlinear relationships between age and wages.

The main Level 2 predictors are share of women in job niche and share of public sector employees in job niche. Level 2 predictors are aggregated from weighted individual level data in both datasets. Other Level 2 variables

included as controls are share of minority employees in niche, share with higher education degree in niche, and mean age in niche. In the United States, data share minority in niche is calculated based on combining Black and Latino employees and contrasting these with all other employees. Share with higher education degree is contrasting those who hold a BA degree or more, with employees with less than a BA degree. In the Norwegian data, share minority contrasts employees with a non-Western immigrant background with all other employees, and share with a higher education degree contrasts employees with a post-secondary education degree with less than a post-secondary education degree.

Descriptive statistics are presented in [table A1](#). At the individual level the weighted sample is 53 percent female in Norway. Some overrepresentation of women is also evident in the United States data, with 49 percent women, despite the lower share of women in the labor market. Average age in both countries is forty-four years. With regard to number of children and whether they have children under age 5, there are also striking similarities, where the average number of children is identical across the country samples (0.92). A slightly higher share of workers have children below age 5 in Norway than in the United States (13 percent in the United States and 18 percent in Norway). A higher proportion of the sample has below high school education in Norway than in the United States. This partly reflects the difference in high school graduation rates in the two countries. Percentages with postgraduate degrees are similar in the two countries, only two percentage points higher in the United States than in Norway. The share with a BA degree as highest completed education is substantially higher in Norway (31 percent) than in the United States (22 percent). This partly reflects the availability of short-cycle associate's degree programs in the United States, which makes up a significant proportion of the population with higher education degrees. According to the OECD, 43 percent of the United States population has a higher education degree, but ten percentage points of these have so-called tertiary type B education, which is likely more comparable to vocational education at the upper-secondary level in Norway (Education at a glance 2014, numbers from 2012, [table A1.3a](#)). The percentage of foreign born and minorities in the sample is lower in Norway than in the United States, as expected. Thirteen percent are foreign born in the Norwegian sample compared to 20 percent foreign born in the United States. An even larger disparity is found with regard to minority employees. Only 10 percent of the sample is minority employees in Norway compared to 34 percent in the United States.

Turning to niche level characteristics, the distribution of women across job niches is similar in the two countries. The differences in the average share of higher educated employees in a niche are also small. The main difference between the two countries can be found with regard to public sector employment. Whereas the average share of public sector employees across niches in

the United States sample is 15 percent, it is about double in Norway (31 percent).

Modeling Strategy

The HLM analyses predicting log hourly wages are presented in four steps. All models are weighted at the individual level and estimated using full maximum likelihood. First, we ran a variance component model (1), which estimates the grand mean hourly wages across all niches, and terms for the variance at the individual level as well as the variance in wages at niche level, with the equation specified as follows:

$$\text{LnHourWage}_{ij} = \gamma_{00} + u_{0j} + r_{ij}, \quad (1)$$

where γ_{00} is the grand mean hourly wage across niches, u_{0j} is the variance at Level 2 (niches j), and r_{ij} is the variance at Level 1 (individuals i within niches j). The intraclass correlation (IC) is calculated as $\text{IC} = u_{0j} / (u_{0j} + r_{ij})$.

To estimate the gender wage gap, we add female to Equation (2) at the individual level. In this model, the intercept reflects the grand mean wages across niches for men, and the two error-terms u_{0j} and r_{ij} represent the unexplained variance in wages at the niche level, and individual level, respectively. The estimate for female in this model should be interpreted as the gender wage gap, net of wage differences across niches. We also include an interaction term between the niche level error term and individual level female, allowing for the unexplained variance associated with female wages to vary at random across niches.

$$\text{LnHourWage}_{ij} = \gamma_{00} + \gamma_{10} * \text{FEMALE}_{ij} + u_{0j} + u_{1j} * \text{FEMALE}_{ij} + r_{ij}. \quad (2)$$

In Model 3, we add controls for human capital and family related variables, as well as the interactions between gender and family related variables. The equation is summarized as follows:

$$\text{LnHourWage}_{ij} = \gamma_{00} + \gamma_{01} * \text{FEMALE}_{ij} + \gamma_{20-250} * X_{ij} + u_{0j} + u_{1j} * \text{FEMALE}_{ij} + r_{ij}. \quad (3)$$

where X_{ij} is a vector comprising all the individual level control variables, including the mentioned interaction terms.

Finally, the full model (4) includes Level 2 variables and cross-level interactions between all the Level 2 variables and the two individual level variables gender and public sector employee. Table A2 presents the distribution of male and female employees by public sector employment and share of women in job niche. The distribution shows that there are enough cases in the relevant cells for the cross-level interaction terms to be meaningful.

$$\begin{aligned}
LnHourWage_{ij} = & \gamma_{00} + \gamma_{01} * PCTFEMALE_j + \gamma_{02} * PCTMINORITY_j + \\
& \gamma_{03} * PCTGOVJOB_j + \gamma_{04} * PCTHIGHEd_j + \gamma_{05} * MEANAGE_j + \\
& \gamma_{10} * FEMALE_{ij} + \gamma_{11} * PCTFEMALE_j * FEMALE_{ij} + \\
& \gamma_{12} * PCTMINORITY_j * FEMALE_{ij} + \gamma_{13} * PCTGOVJOB_j * FEMALE_{ij} + \\
& \gamma_{14} * PCTHIGHEd_j * FEMALE_{ij} + \gamma_{15} * MEANAGE_j * FEMALE_{ij} + \quad (4) \\
& \gamma_{20} * PUBLIC_{ij} + \gamma_{21} * PCTFEMALE_j * PUBLIC_{ij} + \\
& \gamma_{22} * PCTMINORITY_j * PUBLIC_{ij} + \gamma_{23} * PCTGOVJOB_j * PUBLIC_{ij} + \\
& \gamma_{24} * PUBLIC_{ij} + \gamma_{25} * MEANAGE_j * PUBLIC_{ij} + \\
& \gamma_{30-160} * X_{ij} + u_{0j} + u_{1j} * FEMALE_{ij} + u_{2j} * PUBLIC_{ij} + r_{ij}.
\end{aligned}$$

In the following, we start by describing similarities and differences in the gender-segregated nature of the labor markets in the two countries before we approach the question of the consequences of gender segregation and labor market structure for the gender gap in wages.

Results

Comparing Gender Segregation Across the Two Countries

Based on our weighted samples, the Duncan index for segregation across industries is considerably weaker in the United States (0.44) than in Norway (0.54). This confirms that the Norwegian labor market is more gender segregated than the United States labor market. However, the cross-national difference in segregation across job niches is not as pronounced. Segregation across job niches is only somewhat larger in Norway (0.59) than in the United States (0.56) (table 1). In other words, whereas 59 percent of Norwegian men or women would have to change job niches in order for the labor market to be completely gender balanced, 56 percent of men or women would have to do the same in the United States.

To compare segregation patterns, we have also divided the niches into five types, according to the percentage of women in the niche. “Female niches” have 95 percent or more women, “female-dominated niches” have 75–95 percent women, “gender mixed niches” have 25–75 percent women, “male-dominated niches” have 6–24 percent women, and “male niches” have 5 percent or fewer women. Table 1 shows that the distribution of niche types in the two labor markets is fairly similar in the two countries. The exception is that female-dominated niches make up a larger share of the Norwegian labor market than they do in the United States labor market, with 34 percent of the prime working age, nonstudent labor force working in female-dominated niches in Norway compared to 23 percent in the United States. Conversely, a larger

Table 1. Labor market gender segregation in Norway and the United States

Measure	Norway	United States
Industry D-index (number of industries)	0.54 (200)	0.44 (214)
Occupation D-index (number of occupations)	0.56 (198)	0.52 (369)
Niche D-index (number of niches)	0.59 (647)	0.56 (1781)
Percent in male niches	14.0%	12.3%
Percent in male dominated	14.4%	16.8%
Percent in mixed niches	33.1%	41.5%
Percent in female dominated	33.9%	23.9%
Percent in female niches	4.6%	5.5%
Number of observations	931,908	3,756,209
FLP age 25–64 ⁽¹⁾	80%	71%

Notes. Based on niches with 400 employees or more. Weighted. (1) OECD's LFS statistics averaged for the period 2010–2014 (https://stats.oecd.org/Index.aspx?DataSetCode=LFS_SEXAGE_I_R#).

share of United States employees work in gender mixed niches than is the case in Norway. At the same time, female labor market participation (FLP) is lower in the United States than in Norway.

What Are the Relationships Between Segregation Across Niches and Gender Wage Gaps?

Despite having somewhat lower levels of gender segregation, the average wage gap is substantially larger in the United States than in Norway. Based on a simple ordinary least squares regression of log hourly wages on gender, we find that the overall wage gaps in our sample are about 12 percent in Norway and 17 percent in the United States.

Based on the grand mean and standard deviation from the variance component model (1), we can calculate the variance across niches in mean hourly wages (tables 2 and 3, model 1). Converted from natural log values to USD, the mean hourly wages range from about nine to forty-six USD across niches in the United States labor market, within 95 percent of the normal distribution. Following the same procedure with the Norwegian data, the variance across niches ranges from NOK 142 to NOK 365, corresponding to about twenty-five to sixty-four USD, using the currency exchange rate from October 2012. This confirms that the Norwegian wage structure is more compressed, the lower end constituting almost 40 percent of the value of the highest end of the distribution in Norway. By contrast the mean hourly wage in the lowest earning niches is only 20 percent of the mean in the highest earning niches in the United States.

Table 2. Hierarchical linear models predicting log hourly wages in Norway

Variables	Model 1	Model 2	Model 3	Model 4
Level 1				
Intercept	Coeff. (s.e.) 5.429*** (0.013)	Coeff. (s.e.) 5.453*** (0.014)	Coeff. (s.e.) 5.454*** (0.013)	Coeff. (s.e.) 5.466*** (0.009)
Female		-0.073*** (0.005)	-0.085*** (0.005)	-0.080*** (0.004)
Government employee			-0.015ns (0.009)	-0.058*** (0.011)
Individual level controls	NO	NO	YES	YES
N	931,908	931,908	931,908	931,908
Level 2				
Share Female				-0.226*** (0.027)
Share Gov. Employees				-0.168*** (0.030)
Share High Ed.				0.494*** (0.032)
Share Minority				-0.403*** (0.078)
Mean Age				0.008* (0.004)
Share Female × Female				0.001ns (0.013)
Share Gov. Empl. × Female				0.074*** (0.010)
Share High Ed. × Female				-0.043*** (0.011)
Share Minority × Female				0.095** (0.033)
Mean Age × Female				0.001ns (0.001)
Share Female × Gov. empl.				0.085*** (0.026)
Share Gov. Empl. × Gov. empl.				0.116*** (0.027)
Share High Ed. × Gov. empl.				-0.150*** (0.025)
Share Minority × Gov. empl.				0.148* (0.071)

Continued

Variables	Model 1	Model 2	Model 3	Model 4
Mean Age \times Gov. empl.				-0.002ns (0.003)
N	647	647	647	647
Random effects				
Level 1 r_{ij} SD	0.197	0.194	0.184	0.184
Level 2 u_{0j} SD	0.236	0.245	0.224	0.159
Female slope u_{1j} SD		0.072	0.067	0.059
Gov. empl. slope u_{2j} SD			0.119	0.113
IC	0.59	0.61	0.60	0.43
Change in model fit χ^2 (df)	Na	24,551.03*** (3)	100,048.52*** (25)	647.45*** (15)

Notes. Robust standard errors. * $P < 0.05$; ** $P < 0.01$; *** $P < 0.001$. IC is calculated based on r_{ij} and u_{0j} , holding u_{1j} and u_{2j} constant.

Table 3. Hierarchical linear models predicting log hourly wages in the United States

Variables	Model 1	Model 2	Model 3	Model 4
Level 1				
Intercept	Coeff. (s.e.) 3.013*** (0.010)	Coeff. (s.e.) 3.083*** (0.010)	Coeff. (s.e.) 3.026*** (0.010)	Coeff. (s.e.) 3.025*** (0.008)
Female		-0.156*** (0.003)	-0.174*** (0.003)	-0.176*** (0.003)
Government employee			0.035*** (0.004)	0.038*** (0.004)
Controls	NO	NO	YES	YES
N	3,756,209	3,756,209	3,756,209	3,756,209
Level 2				
Share Female				-0.296*** (0.015)
Share Gov. Employees				-0.162*** (0.022)
Share High Ed.				0.752*** (0.022)
Share Minority				-438*** (0.033)
Mean Age				0.013*** (0.002)
Share Female × Female				0.026** (0.008)
Share Gov. Empl. × Female				0.074*** (0.007)
Share High Ed. × Female				0.016* (0.008)
Share Minority × Female				0.081*** (0.016)
Mean Age × Female				-0.003*** (0.001)
Share Female × Gov. empl.				-0.008ns (0.012)
Share Gov. Empl. × Gov. empl.				0.119*** (0.020)
Share High Ed. × Gov. empl.				-0.112*** (0.014)
Share Minority × Gov. empl.				-0.004ns (0.033)

Continued

Variables	Model 1	Model 2	Model 3	Model 4
Mean Age \times Gov. empl.				-0.001ns (0.002)
N	1,781	1,781	1,781	1,781
Random effects				
Level 1 r_{ij} SD	0.537	0.532	0.509	0.509
Level 2 u_{0j} SD	0.406	0.412	0.322	0.184
Female slope u_{1j} SD		0.098	0.081	0.075
Gov. empl. slope u_{2j} SD			0.101	0.096
IC	0.36	0.38	0.29	0.12
Change in model fit χ^2 (df)	na	67,427.81*** (3)	342,648.50*** (28)	2,150.07*** (15)

Notes. Robust standard errors. * $P < 0.05$; ** $P < 0.01$; *** $P < 0.001$. IC is calculated based on r_{ij} and u_{0j} holding u_{1j} and u_{2j} constant.

The IC of the variance component model (1) indicates that 59 percent of the variance in wages is occurring between niches in Norway (table 2, model 1), whereas only 36 percent of the variance occurs between niches in the United States (table 3, model 1).

The average wage gap within niches (2) is relatively small in Norway (7 percent) (table 2, model 2). By contrast, the gender wage gap net of variation between niches is about 14 percent in the United States data (table 3, model 2). Compared to the overall average gender wage gaps in the two countries, controlling for variation between niches reduces the gender wage gap more in Norway than in the United States. In other words, the distribution of men and women across job niches explains a larger share of the gender pay gap in Norway than in the United States.

When controlling for human capital and family variables at Level 1 (3), the wage gap increases slightly to 8 percent in the Norwegian analyses (table 2, model 3) and increases to 16 percent in the United States analyses (table 3, model 3). This is consistent with previous findings that show that the wage gap can no longer be explained by differences in human capital between men and women (see e.g. Blau and Kahn 2017). Purged of observed individual level differences, the IC shows that 29 percent of the variance in wages occurs between niches in the United States, whereas 60 percent of the remaining variance occurs between niches in Norway. Comparing these estimates to the variance component model (1) it seems that observed human capital and family characteristics explain more of the between-niche wage gap in the United States than they do in Norway. In other words, the sorting of individuals with respect to education and family characteristics into job niches seems to be stronger in the United States than in Norway.

In the full model (4), we add controls for niche level characteristics, and look at the association between gender segregation and share of public sector employees for the gender gap in wages. To what extent are niche level characteristics other than share of women associated with wage differences and the gender wage gap?

Gender segregation is measured by a continuous variable for share of women in niche. There is a strong negative association between hourly wages and share of women in niche in both countries. The association seems to be a bit stronger in the United States ($b = -0.30$, table 3, model 4) compared to Norway ($b = -0.23$, table 2, model 4). The slope for women is not significantly different in Norway, and the slope for women is substantially very similar to the slope for men in the United States, although positive and significant at $P < 0.01$ (i.e. a bit less steep). In other words, both men and women receive substantially lower wages in female-dominated job niches.

Turning to the cross-level interactions between public employment and the niche level characteristics, we again find some striking similarities across the two labor markets, but also one important difference. The slopes for mean age in niche are not significantly different for public employees in either country.

In both countries, the share of government employees in the job niche increases the relative wages of public employees by about 13 percent. There is a negative cross-level association between public employment and share of workers with higher education in the job niche in both countries, indicating that the strong positive slope for the share of higher educated workers in niche is somewhat flatter for public sector employees than for private sector employees. We find the main difference between the two countries with regard to the cross-level interactions between share of female in niche and public sector employment and share of minorities in niche and public sector employment. Whereas the slopes for share of women and share of minorities in job niche are not different for public and private employees in the United States, they are positive for public sector employees in Norway ($b = 0.08$ and $b = 0.148$, respectively, table 2, Model 4). This means that working in niches with higher shares of women and minorities is less strongly associated with lower wages for public sector employees than for private sector employees in the Norwegian labor market.

These estimates control for share with higher education in niche, share minority in niche and mean age in niche. There is a strong positive association between the share of workers with higher education degrees in a niche and individual wages. This association is much stronger in the United States than in Norway, confirming findings from previous research that financial returns from education are much smaller in Norway than in the United States (Reisel 2013). This pattern is not very different for women in the United States ($P = 0.05$), but the slope is somewhat flatter for women than for men in Norway, and statistically significant. Mean age should be picking up wage differences within niches that have changed over generations, if these have not been adequately adjusted for older employees over time. However, in both countries the influence of mean age in niche on wages is very small, and cannot be interpreted as substantively important in either country.

The association between share minority in niche and wages, and its cross-level interaction with gender, could pick up intersectional patterns of advantage or disadvantage across these categorical distinctions. Higher share of minority workers in a niche is associated with much lower hourly wages for both men and women in both countries, although the association is slightly weaker for women. The reduction in the ICs between models 3 and 4, indicate that our niche level characteristics are important for explaining variation at the niche level, especially for the United States. In the United States sample, the niche level variables in model 4 reduce the remaining variation at niche level by more than half (from 0.29 to 0.12). The comparable numbers are 0.60 (model 3) and 0.43 (model 4) in the Norwegian sample, which is close to a 30 percent reduction.

In figures 1 and 2, we have predicted log hourly wages for men and women over the share of public employees in niche, separately for Norway and the United States. To capture the interaction with female share in niche, we

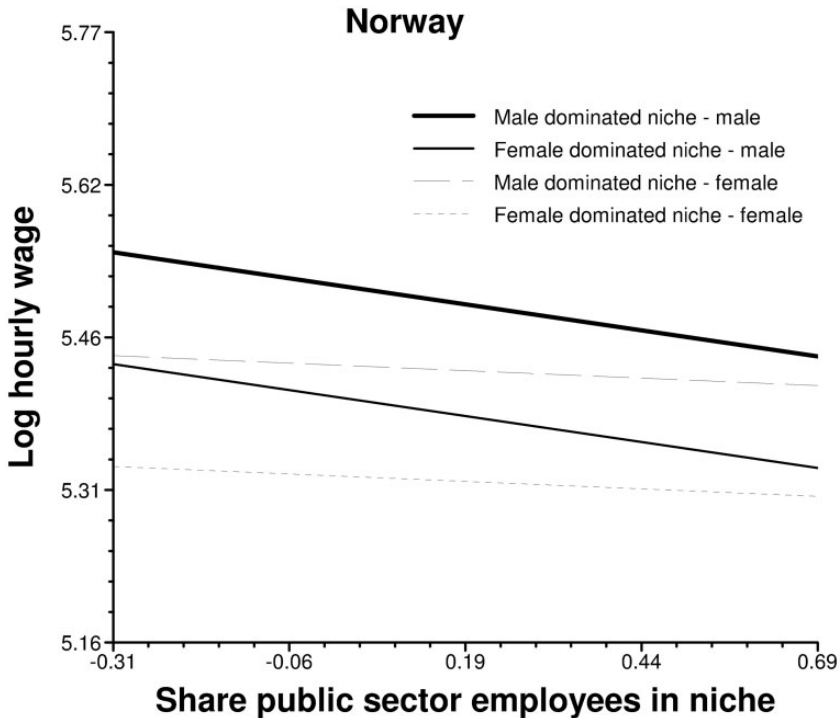


Figure 1. Gender segregation, public employment and the gender wage gap in Norway.

Notes: The range of the x -axis is the actual range of the variable Share of public sector employees in the data, centered on its mean. Male-/female-dominated niche is indicated by the twenty-fifth and seventy-fifth percentile of the variable Share of females in niche. The scale of the y axis is ± 1 SD.

distinguish between male- and female-dominated niches, set at the twenty-fifth and seventy-fifth percentile share of women, respectively, for visualization purposes. It is clear from [figure 1](#) that men in male-dominated niches in Norway earn more than women in male-dominated niches, but less so when the share of public employees in the niche rises. Wage levels in female-dominated niches are lower—for both men and women. Nevertheless, the gap between men and women in female-dominated niches also diminishes as the share of public employees increases within niche.

Overall, the gender difference is larger, and the predicted log hourly wage in female-dominated niches decreases for both men and women as the share of public employees increases in the United States⁴ ([figure 2](#)). The decrease in wages with higher share of public employees is slightly steeper among men

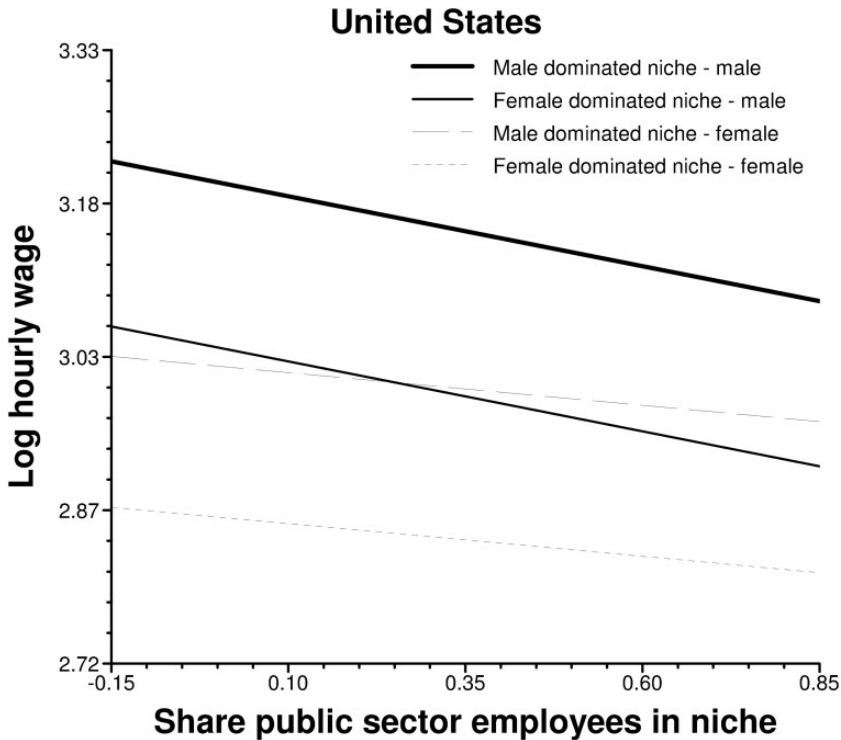


Figure 2. Gender segregation, public employment and the gender wage gap in the United States.

Notes: The range of the x -axis is the actual range of the variable Share of public sector employees in the data, centered on its mean. Male-/female-dominated niche is indicated by the twenty-fifth and seventy-fifth percentile of the variable Share of females in niche. In order to make the two figures comparable, the scale of the y -axis is ± 1 SD based on the Norwegian distribution.

than among women, but the gender difference is small, and does not decrease the wage gap in any substantial way.

The figures show clear differences between the two countries. In Norway, there is a significant negative association with wages for men and virtually no association for women, such that the gender wage gap all but disappears in the niches that have a high share of public employees (figure 1). Thus, women can expect equal pay to a much higher degree in job niches that are dominated by public sector employment in Norway. In the United States, share of public sector employment is negatively associated with wages for both men and women, although slightly more so for men. Even though the wage gap narrows with higher levels of public sector employment also in the United States,

the wage gap remains large, even in the niches dominated by public sector employment (figure 2).

Discussion and Conclusion

In this paper, we wanted to investigate two fundamental conditions for claims making, presumed to differ across the two countries in our analyses: the sorting of men and women into job types, and the way in which wages are set within and across different job types. The concentration of men in job niches with higher average wages reflects both resource-pooling at the institutional level and opportunity hoarding at the individual level, allowing men to make claims to higher wages than women through segregation. This form of inequality is evident in both Norway and the United States. At the same time, wage-setting mechanisms in Norway, particularly in niches dominated by public sector employment, limit opportunities for individual level claims making, reducing the gender gap in wages within job types.

According to RIT, categorical distinctions, such as gender, are part of the resource pool for claims making. In this paper, we have shown that the gender wage gap is significantly reduced in the parts of the Norwegian labor market dominated by public sector employment, and all but disappears when the gender typing of work is taken into account. This indicates that niches dominated by public sector employment are largely protected from the market dynamics that necessitate micro-level claims making.

However, gender segregation is conducive to opportunity hoarding also within public sector dominated niches, such that niches with higher concentrations of men are “fixed to” higher wage levels than niches with higher concentrations of women. In the United States, we see a tendency toward the same pattern, but there are two main reasons why we do not see a closing of the gender wage gap in public sector dominated niches in the same way in the United States as we see in Norway. First, the public sector is smaller in the United States (cf. table A1), and there are very few niches that are completely dominated by public sector employment. This means that the public sector to a much larger degree is participating in the dynamics of the general market in the United States than in Norway. Whereas a number of public sector job niches are all but insulated from private market competition in Norway, this is much less common in the United States. Second, the gender wage gap is much larger in the United States to begin with, with much more variation within niches than we see in Norway.

Wage differences between groups of workers may reflect differences in productivity, bargaining power, and market power, all of which are essential to the dynamics of claims making. Market power arises from the attractiveness of alternatives, the availability of alternatives, and the credibility of quitting. The public sector in CMEs typically employs large groups of workers with no

or a very small alternative labor market, which could theoretically diminish the market power of these groups. Their bargaining power arises from the ability to sustain conflict over time (i.e. strike) and the ability to impose losses on the employer during a conflict. The systematic segregation of women into public sector jobs thus creates alternative dynamics for claims making, related not only to productivity and social hierarchy, but also to differences in market power and bargaining power. The VoC approach is clear about the influence of nonmarket coordination and regulation of firms in CMEs, but does not discuss how central parts of the public sector may be operating outside of market-based dynamics.

In this sense, taking the firm as a core entity in the theoretical understanding of inequality dynamics may be insufficient in contexts such as the Norwegian labor market. In this paper, we have shown that public sector dominated jobs—those job types that are heavily concentrated in the public sector, and thereby insulated from market dynamics in conventional terms, have very small if any gender wage gaps in Norway. This is not just because of collective bargaining and the generally compressed wage structure. We have argued that this has to do with the absence of opportunities for individual level claims making in these types of jobs, mainly due to the lack of alternatives outside the public sector. However, male- and female-typed public sector jobs are still rewarded differently. In line with RIT, we suggest that the success of collective claims making depend on hierarchies of categorical distinctions also at the institutional level, resulting in continued gender wage gaps across male- and female-dominated job types. This has consequences for wage inequalities across groups, even in the absence of individual level claims making dynamics.

Table A1. Descriptive statistics for variables used in the analyses, Norway and the United States

Variable	Norway					USA				
	N	Mean	SD	Minimum	Maximum	N	Mean	SD	Minimum	Maximum
LOGHOURLY	931,908	5.44	0.30	3.81	7.15	3,756,209	2.98	0.68	1.88	5.65
FEMALE	931,908	0.53	0.50	0	1	3,756,209	0.49	0.50	0	1
AGE	931,908	44.02	10.91	25	65	3,756,209	43.71	11.03	25	65
LT HIGH SCH	931,908	0.15	0.35	0	1	3,756,209	0.09	0.29	0	1
BA DEGREE	931,908	0.31	0.46	0	1	3,756,209	0.22	0.41	0	1
MAPLUS	931,908	0.12	0.33	0	1	3,756,209	0.14	0.35	0	1
MARRIEDW	931,908	0.51	0.50	0	1	3,756,209	0.58	0.49	0	1
DIVORCETC	931,908	0.13	0.34	0	1	3,756,209	0.20	0.40	0	1
SINGLE	931,908	0.36	0.48	0	1	3,756,209	0.22	0.42	0	1
MINORITY	931,908	0.10	0.30	0	1	3,756,209	0.34	0.47	0	1
FOREIGNB	931,908	0.13	0.33	0	1	3,756,209	0.20	0.40	0	1
NCHILD	931,908	0.92	1.08	0	10	3,756,209	0.92	1.15	0	9
CHILD LT5	931,908	0.18	0.39	0	1	3,756,209	0.13	0.34	0	1
Survey year	931,908	2012	0	2012	2012	3,756,209	2012.03	1.41	2010	2014
REG DIV 1 ⁽¹⁾	931,908	0.23	0.42	0	1	3,756,209	0.05	0.22	0	1
REG DIV 2	931,908	0.07	0.26	0	1	3,756,209	0.14	0.35	0	1
REG DIV 3	931,908	0.18	0.38	0	1	3,756,209	0.15	0.35	0	1
REG DIV 4	931,908	0.15	0.36	0	1	3,756,209	0.07	0.25	0	1
REG DIV 5	931,908	0.18	0.38	0	1	3,756,209	0.19	0.40	0	1
REG DIV 7	931,908	0.09	0.29	0	1	3,756,209	0.06	0.23	0	1

Continued

Norway		USA							
Variable	N	Mean	SD	Minimum	Maximum	Mean	SD	Minimum	Maximum
REG DIV 8						0.12	0.32	0	1
REG DIV 9						0.07	0.25	0	1
Level 2									
Norway									
Variable	N	Mean	SD	Minimum	Maximum	Mean	SD	Minimum	Maximum
Female share	647	0.42	0.33	0	1	0.46	0.31	0	0.99
Public sector	647	0.31	0.43	0	1	0.15	0.30	0	1
Highed share	647	0.38	0.34	0	1	0.35	0.29	0.01	1
Minority share	647	0.10	0.12	0	0.86	0.33	0.14	0.05	0.92
Mean age	647	44.05	3.72	30.71	53.52	44.04	2.89	30.31	53.01

Notes: Descriptives are based on employees in niches with 400 or more employees. Weighted. (1) Regional divisions for Norway: Reg div 1 = Oslo and Akershus, Reg div 2 = Hedmark and Oppland, Reg div 3 = South Eastern Norway, Reg div 4 = Agder and Rogaland, Reg div 5 = Western Norway, Reg div 6 = Trøndelag, Reg div 7 = Northern Norway. Regional divisions for USA: Reg div 1 = New England, Reg div 2 = Mid-Atlantic, Reg div 3 = East North Central, Reg div 4 = West North Central, Reg div 5 = South Atlantic, Reg div 6 = East South Central, Reg div 7 = West South Central, Reg div 8 = Mountain, Reg div 9 = Pacific.

Table A2. Distribution in the data sets of male and female employees by public sector employment and female share in job niche (not weighted)

	Public sector employees			Private sector employees		
	Male dominated (up to 25% women)	Mixed	Female dominated (75% women or more)	Male dominated (up to 25% women)	Mixed	Female dominated (75% women or more)
US Males	105,147	142,709	46,103	857,295	633,676	81,871
US Females	12,951	140,387	277,174	93,600	657,442	707,854
NO Males	27,995	75,088	39,621	162,361	77,314	12,054
NO Females	3,507	91,067	278,621	16,243	76,135	71,902

Notes

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1. The federal minimum wage was 7.25 USD throughout the period from which the United States data are drawn.
2. 45 NOK per hour (7.88 USD). 1 G is the basic sum of the Norwegian public benefit system.
3. The non-Western category consists of persons with immigrant backgrounds (parents' or own) from countries outside the European Economic Area (EEA), except the United States, Canada, Australia, and New Zealand.
4. We have run the analyses using percentile distribution of wages instead of log hourly wages, in order to assess the impact of the general level of inequality on the gender wage gaps in the two countries. This analysis confirmed that the larger gender wage gap in the United States is directly linked to the generally larger wage dispersion in the United States labor market. However, this specification of the outcome variable did not change the findings regarding public sector employment and segregation.

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