Working Conditions and Job Mobility for Public Frontline Workers

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Abstract

This study examines the labor market for four groups trained for public frontline work (health care workers, nurses, police officers, and prison officers), with the aim to examine the role of outside options and workplace specific non-wage amenities. Based on Danish administrative data, fixed-effect estimates show that all four groups reduce their work hours when leaving public sector frontline work and move to workplaces with a lower average level of sickness absence, and that the earnings of two of the groups decline significantly. Event studies show limited signs of negative selection, as those who leave public sector frontline work are less likely to receive sickness benefits than those who remain, prior to leaving frontline work, and three of the four groups are just as likely to be employed.

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I. Introduction

Working age populations are expected to shrink by 5 million persons in OECD countries from 2025 to 2040, while the number of elderly (65+ year-olds) is expected to grow by 83 million persons (OECD 2025). These demographic changes will generate increasing pressure on public-sector labour markets, as the demand for labour intensive welfare services is expected to grow (The European Commission 2020; Greve 2024).

The aim of the study is to assess the potential for improved retention and recruitment in the public sector by examining outside options for workers leaving public sector frontline work. Since wage-setting is heavily regulated by collective agreements in the public sector in Denmark, there is less room for wages to adjust to mismatches in supply and demand, and non-wage job amenities can therefore be expected to play a larger role for job mobility to and from the public sector. I highlight that many non-wage job amenities, such as work environment and management, are workplace specific and unregulated by collective agreements, and may therefore be particularly important.

The analysis focuses on four educational groups: health care workers, nurses, prison officers and police officers[1]. The four groups represent sectors where recruitment problems have been pervasive, and that differ by wage levels, gender composition and rates of part-time work. The outside options are estimated using mover- and event-study designs, that secures comparison of working conditions for the same workers, before and after leaving public sector frontline work.

The analysis uses administrative data for all individuals aged 18 to 64 who completed one of the educational programmes. Individuals are followed in their

[1] The health care workers include two types of health care workers: "social- og sundhedshjælpere" and "social- og sundhedsassistenter". The educations and job responsibilities differ somewhat but they are pooled since they cover the main part of the care sector, and results are qualitatively similar for the two groups. Supplementary results for the longer education are shown later in the paper, where it is also shown that the main conclusions are not isolated to the chosen groups.

primary annual employment, measured in working hours, from 2009 to 2023, and connected to their employer in this job.

The analysis shows that while most newly educated individuals start their careers in public-sector frontline work, a large share leave these jobs during their careers and do not return. For example, 99% of newly educated police officers begin their careers within the police force, but only 68% work as police officers 20 years after graduation. Similar large reductions in the fraction working as public sector frontline workers are observed for the other three groups: from 76% to 49% health care workers, from 88% to 64% for nurses, and from 93% to 48% for prison officers. This suggests a substantial potential for retention of these groups in public sector frontline work if politically desired.

The main part of the analysis consists of three parts: First, I use a mover design and estimate changes in individual working conditions (earnings, work hours and hourly wages) for persons who move to and from public sector frontline work by means of fixed effect models. Changes are measured relative to their destination in the public or the private sector and whether they work in occupations that match their education. Second, I estimate similar models with workplace characteristics as outcome. These analyses provide a set of estimates of overall changes in working conditions (wage and non-wage related) for workers moving to and from the public sector frontline work. To interpret estimates I examine whether job mobility is driven by selection by means of event-study models with job mobility from public sector work as the event.

The first part of the analysis shows that police officers and nurses who leave public sector frontline work obtain higher hourly wages in their new job[2]. By contrast, healthcare workers and prison officers generally find jobs with lower hourly wages. Irrespective of hourly wage changes, all educational groups reduce

[2] Although the former does not hold when including employer pension contributions.

their working hours, and monthly earnings decline significantly for health care workers and prison officers, after leaving public sector frontline work.

To capture the importance of non-wage workplace attributes, I estimate workplace fixed effects for the level of hourly wages, work hours and sickness pay in an AKM model (Abowd, Margolis, and Kramarz 1999). I show that the estimated workplace fixed effects vary substantially across both the public and the private sector. To examine if mobility out of public frontline work is related to workplace effects, I use the workplace fixed effects as dependent variables in the same individual fixed effect model used for the individual outcomes and show that among all four education groups, persons leaving public frontline work move to workplaces where a smaller share of employees receive sickness benefits and where average working hours are lower. Interpreted jointly with the previous results, the results are consistent with a scenario where health care workers and prison officers have a significant willingness-to-pay for better working environments.

An alternative explanation is that some workers do not leave public frontline work voluntarily and therefore move to second-best alternatives. To distinguish between these explanations, the analysis examines employment, sickness benefit and prescriptive medicine histories, using an event-study design with the event being job mobility from public frontline work to other work and with stayers (potentially later leavers) in public frontline work as control group. The event-study shows some indication that health care workers who leave their occupation in the public sector are negatively selected, since their probability of working is 3 percentage points lower in the years before switching jobs. The evidence for negative selection is weaker for the other three groups: They have only marginally lower employment prior to leaving (around 0.5 percentage point). Their employment probability does drop after leaving, but they are just as likely to work part-time and less likely to receive sickness benefits or prescriptive medicine for mental disorders, conditional on employment.

Overall, the findings suggest that public frontline workers are sorting out of the sector, driven not only by differences in outside wage options but also by non-wage workplace conditions.

The study contributes to three growing strands of the literature on, respectively, public-sector labor markets, non-wage job amenities, and the importance of workplace conditions for job mobility (see surveys by Garibaldi and Gomes 2020; Cecchi et al. 2021; Kline 2025; and Mas 2025). A common feature of many public-sector labor market studies is that they estimate overall public–private wage differentials. The present study contributes to this literature by showing how working conditions affect job mobility differently across more narrowly defined groups, for which job conditions and outside options differ.

The literature on non-wage aspects of jobs has traditionally been interpreted within a compensating wage differentials framework (Rosen 1974, 1986; Lavetti 2023). However, a growing body of research has challenged this view, motivated in part by studies highlighting the importance of workplace effects based on the AKM framework (Abowd, Kramarz, and Margolis 1999; Kline 2025). The presence of substantial variation in job values for a given worker challenges the law of one price and can be interpreted within several non–perfect competition settings; see Mas (2025) for an overview. One strand of the literature examines how employers and workers trade off wage and non-wage amenities using stated-preference experimental designs (Mas and Pallais 2017; Maestas et al. 2023; Kesternich et al. 2021), structural modeling (Taber and Vejlin 2020), and revealed preferences based on job-to-job mobility (Sorkin 2018). This study also takes a revealed-preference approach and contributes by using specific proxies for the workplace environment and by examining individual health-related outcomes.

The present study supports the general findings in this literature that non-wage working conditions are important for explaining job mobility. It further shows that this is also the case in the public sector and points specifically to workplace-specific

working conditions. This is important in light of findings showing that alternative recruitment and retention mechanisms are not always effective, such as pay-for-performance schemes (Baiker and Johnson 2007; Glewwe et al. 2010; Burgess et al. 2017), general wage increases in public-sector employment (Tomasso et al. 2009; Condliffe and Link 2016; Dal Bò et al. 2013), and that not all non-wage amenities provided through collective agreements are valued by workers (Lagos 2025).

II. Institutional setting

Roughly a third of all workers in Denmark are employed in the public sector, with health, elder care, education and administration and defense being the largest sectors[3]. Working conditions in the public sector are in large parts determined by collective agreements between unions and employer organizations every second or third year at the national level. Most collective agreements determine a base wage level by education with entry wages, seniority premiums, as well as task-specific supplements, whereas a smaller part is negotiated at the local level (Lønstrukturkomitéen 2023a; 2023b).

A unique feature of the Danish collective agreements is that the overall wage growth cannot exceed the growth that occurred in the previous year in the private sector, and if it does, public wage growth is deregulated in the following year. This implies that larger wage growth for one group occurs at the expense of other groups, and consequently, most groups receive similar levels of wage growth in a given year (Lønstrukturkomitéen 2023c). This is not the case in the private sector, and

[3] www.statistikbanken.dk, table LBESK32.

the outside options therefore develop differently for groups with different outside options.

The collective agreements also cover non-wage amenities such as pay during child sickness, parental leave and other absence. But these too are negotiated at broad overall levels in the public sector (Lønstrukturkomitéen 2023d).

III. Data

The analysis is based on Danish administrative data from 2009 to 2023 containing information on all individuals under age 65 who have completed one of four educational programmes: nurse, health care worker, police officer, and prison officer. The focus is on the annual primary employment, defined as the job with the highest number of annual working hours. Each job is classified by sector (public or private) and by whether the occupation matches the worker's education. We refer to jobs that matches these educations, as frontline work. We provide a brief overview of the data construction here but refer to Appendix 1 for further details.

The analysis also examines conditions at the workplace level. A workplace is identified using address information. In the public sector, this may correspond to a hospital, nursing home, or prison. However, some individuals, for instance health care workers working in elderly home care, do not have a fixed physical workplace. In such cases, the workplace is assigned as the average for employees in similar jobs within the municipality where the individual is employed. Likewise, some workplaces in the private sector are very small; if a workplace has fewer than five employees with the relevant education, the workplace measure is replaced with workers within the same industry in the municipality.

The main outcomes used in the analysis at the individual level are monthly gross earnings and work hours reported to the tax authorities. Gross earnings include compulsory public contributions, fringe benefits but exclude employer paid pension

contributions. The earnings are therefore typically underestimated in the private sector, where pension contributions are often smaller (Lønstrukturkomitéen 2023c). The number of work hours is the contracted hours. These earnings and work hour measures are supplemented with a measure of realized work hours, excluding sickness absence and leave periods, and two measures of hourly wages, constructed by Statistics Denmark, corresponding to reflect average hourly wages and wages per realized work hours. We supplement these outcomes by measures of sickness benefit receipt from the register DREAM, containing weekly information on benefit receipt, and use of prescriptive medicine from The Danish National Prescription Registry. From the latter, I focus on antidepressants and anxiolytics which are common medications for persons with work-related depression or anxiety. They are coded with anatomical therapeutic chemical code N06A and N05A.

The Danish administrative registers do not contain information about workplace environment per se. To proxy such information, the analysis uses workplace fixed effects of the average share of employees receiving sickness benefits, average working hours, and average wage levels at each workplace among employees with the same educational background and labor market experience as proxy variables.

IV. Methods

To examine reasons for leaving public frontline work, the analysis starts by establishing stylized facts by comparing job attributes in workers' former and new jobs among individuals who worked as public frontline workers, using the two-way fixed effect model:

$$(1) \quad y_{it} = \alpha_i + \gamma_t + \delta_1 Pub_{it} + \delta_2 Match_{it} + \delta_3 Pub_{it} * Match_{it} + \pi X_{it} + \epsilon_{it}$$

Here, y_{it} is a job attribute, *Pub* is an indicator taking value 1 for individuals employed in the public sector; *Match* is an indicator for frontline work (jobs that match an individual's education); and *X* includes indicator variables for gender, age, years since graduation, labour market experience, calendar year, and municipality of residence. This framework is used to study both wage and non-wage amenities job-attributes. Non-wage amenities include the individual number of work hours as well as workplace specific job attributes. Workplace attributes are estimated in an AKM model (Abowd, Margolis, and Kramarz 1999):

$$y_{it} = \alpha_i + \gamma_t + \psi_{J(it)} + \pi X_{it} + \epsilon_{it} \quad (2)$$

The estimated workplace effects, $\psi_{J(it)}$, represent the adjusted mean of outcome *y* for employees at a given workplace. In the second step, these estimated workplace effects are used as dependent variables in model (1).

Studies on wage compensation and workplace characteristics typically assume that job mobility reflects voluntary choices, i.e. that observed differences between old and new jobs indicate the value workers place on job attributes. However, exits from public frontline occupations may also occur because workers are dismissed, e.g. following long-term illness, forcing them into secondary job opportunities. In such cases, observed differences between old and new jobs do not reflect worker preferences.

To explore whether individuals leaving their public sector occupation for other jobs differ systematically from those who remain, an event-study model is estimated. The event is defined as the first year in which an individual leaves public frontline work for another job, with workers who remain in public sector frontline

work during the same two years as a comparison group[4]. To avoid using previous movers as controls, a stacked model (Cengiz et al. 2019) is used, pooling all exits across years:

$$(3)\ y_{it} = \alpha_{ik} + \gamma_{tk} + \sum_{s=-4,\neq-1}^{4} \delta_s 1(t-k=s) + \pi_k X_{it} + \epsilon_{it}$$

Model (3) is estimated for the following indicators as outcomes: receiving sickness benefits, working part-time, and being employed, and the outcomes are compared four years before and after the job exit.

Does more competition for workers (i.e. when recruitment problems increases) lead to better work environment? This is predicted by extended models, where workplaces compete on both wages and job-amenities to attract workers. Given the rigid wage structure, they are mainly competing in terms of work environment→ so level improves and differences narrow? By contrast, it may introduce a "workers market", where they shop around, leading to larger transitions and therefore worse work environment and greater segmentation.

V. Results

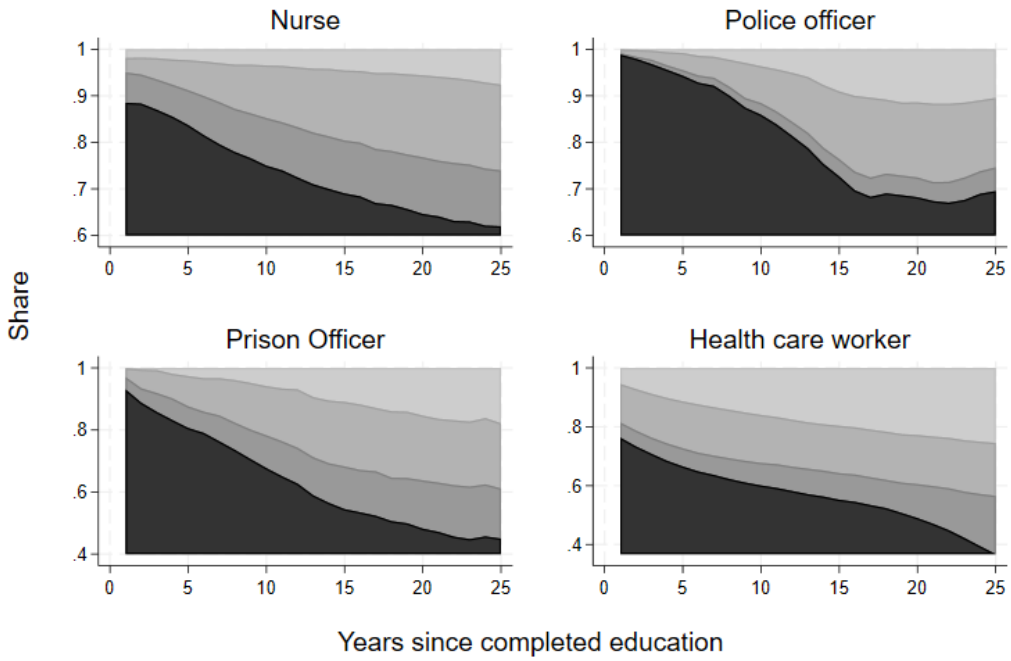
Descriptive statistics

Figure 1 shows that the share of individuals in public sector frontline work declines over the work life for all education groups (black-shaded area). Such patterns indicates that these groups find better outside options, but also that there is a potential for retention in and recruitment to frontline work among these groups.

[4] A more classical use of the event-study design would use those who never leave the public sector or do so later. This would, however, entail conditioning on outcomes for a far longer period and is therefore judged as less useful in this context.

The decline in the share in public sector frontline work is greatest among prison officers and health care workers. Because the decline is relatively stable across years since graduation, there is no indication of a specific age at which exits from public frontline work increase.

FIGURE 1. Employment in Public Frontline Work and Other Job Types, by Years Since Graduation.



Note: Black = public frontline work. Dark grey = other public-sector jobs. Medium grey = private-sector jobs. Light grey = not employed.

For police officers and nurses, the decline is more moderate, though fewer than 70% in both groups remain in public frontline work 15–20 years after graduation. A substantial share across all groups finds other types of work within the public sector (dark grey area) or in the private sector (medium grey area). Overall, the

pattern indicates that retention challenges are greatest for prison officers and health care workers, where exits from public frontline work are most pronounced.

TABLE 1. Average job attributes and characteristics for public frontline workers, 2009–2023.

	Nurse	Health care worker	Police officer	Prison officer
Monthly earnings (2023 DKK)	30813	25546	35388	32175
Weekly work hours	32.6	30.9	36.7	37.8
Hourly wages (2023 dkk)	219	193	223	197
Part-time (<32 weekly hours)	40%	59%	7%	6%
Male	4%	6%	87%	67%
Age	43.8	45.3	44.9	45.2
Receives sickness benefits	17%	25%	12%	19%
Individuals per year	47,029	54,880	8922	2316

Table 1 shows the average working conditions for public frontline workers. The four groups are, unsurprisingly, highly gender-segregated, with a strong overrepresentation of men among police and prison officers and the opposite pattern among nurses and health care workers. Police and prison officers work more hours, contributing to higher monthly earnings than nurses and health care workers. When accounting for working hours, nurses' hourly wages are comparable to those of police officers, while health care workers' hourly wages resemble those of prison officers. The average number of weeks on sickness benefits is more than twice as high for prison officers as for police officers and significantly higher for health care workers than for nurses.

Individual Working conditions Before and After Leaving Public Frontline Work

Table 2 presents estimates from model (1) of average differences in monthly earnings, hourly wages, and weekly working hours between publicly employed frontline workers and alternative jobs, for individuals who switched jobs between the categories.

For health care workers, monthly earnings in the public sector are just above DKK 26,000 (2023 DKK) but are approximately DKK 1,825 lower on average in other jobs. Losses range from DKK -1,195 for those finding jobs as health care workers in the private sector to DKK -2,773 for those moving into other professions in the private sector, i.e. a reduction exceeding 10%.

Table 2 also shows that nurses and police officers who leave their occupation in the public sector generally achieve higher hourly wages in alternative jobs, and for police officers, the increase is as high as 12%. Both nurses and health care workers find higher hourly wages in private-sector frontline work, whereas police officers also gain in alternative public-sector jobs. By contrast, educated health care workers in other types of jobs and prison officers experience substantial hourly wage reductions.

Despite changes in hourly wages, working hours fall for all education groups regardless of the sector they work in, or whether the new job matches the individual's education. The reduction is modest for nurses and health care workers (1–2 hours weekly), but larger for police officers (2–5 hours) and for prison officers (2–7 hours).

TABLE 2. Individual level differences. Results from fixed effect regressions.

	Health care worker			Nurse		
	Monthly earnings	Hourly wages	Weekly work hours	Monthly earnings	Hourly wages	Weekly work hours
Reference	26170.0	196.9	31.20	30205.7	216.9	32.33
	(12.14)	(0.161)	(0.012)	(32.00)	(0.350)	(0.026)
Privat match	-1195.4***	9.003***	-2.346***	-687.3***	22.01***	-2.492***
	(26.69)	(0.335)	(0.027)	(41.66)	(0.449)	(0.035)
Public, other	-1846.3***	-12.45***	0.0672**	-376.0***	-1.652***	-0.134***
	(30.22)	(0.379)	(0.030)	(30.48)	(0.328)	(0.025)
Private, other	-2773.3***	-6.882***	-2.663***	368.7***	15.84***	-1.565***
	(30.92)	(0.388)	(0.031)	(52.98)	(0.571)	(0.044)
Pooled	-1825.1***	-2.170***	-1.646***	-359.7***	7.180***	-0.974***
	(18.81)	(0.236)	(0.019)	(24.51)	(0.264)	(0.020)
Observations	918825	918825	918825	611949	611949	611949
	Police officer			Prison officer		
	Monthly earnings	Hourly wages	Weekly work hours	Monthly earnings	Hourly wages	Weekly work hours
Reference	34175.0	215.2	36.77	33534.3	202.4	38.23
	(351.7)	(2.656)	(0.132)	(408.8)	(3.715)	(0.339)
Privat, match	-672.8***	28.76***	-5.280***			
	(192.3)	(1.133)	(0.130)			
Public, other	-2212.8***	5.579***	-2.941***	-3485.4***	-12.62***	-2.127***
	(171.1)	(1.008)	(0.115)	(153.8)	(1.345)	(0.130)
Private, other	3263.1***	35.00***	-2.846***	-3720.2***	-3.890***	-4.072***
	(132.0)	(0.778)	(0.089)	(162.3)	(1.419)	(0.137)
Pooled	832.7***	25.05***	-3.381***	-4005.9***	-7.873***	-3.600***
	(101.8)	(0.599)	(0.068)	(117.6)	(1.026)	(0.100)
Observations	89355	89355	89355	32878	32878	32878

Notes: Each column for each educational group contains separate estimates of model (1), with controls for gender, age, years since graduation, labour market experience, calendar year and residential municipality. "Match" refers to an occupation-education match, see appendix 1 for details. "Private, match" is omitted for prison officers due to few observations. Earnings and wages are in 2021 DKK. Standard errors in parentheses. * $p < 0,1$; ** $p < 0,05$; *** $p < 0,01$.

The combined change in hourly wages and work hours leaves nurses with practically unchanged monthly earnings (a decline of about 1%), while police officers who experience earnings gains of about 2% despite the reduction in work

hours. The two other groups experience substantial earnings losses: 7% for health care workers and 12% for prison officers.

Sensitivity analyses

We have examined the robustness of the results in different ways. First, we examine results when we do not categorize management as matched jobs (Appendix Table A2.1). This has no consequences for the results for these four groups.

Second, we examine model (1) using annual income from earnings and self-employment, cumulated over multiple jobs (Appendix Tabel A2.2). This also provides similar results, apart from nurses working in the private sector, but the differences are small (earn 300 DKK more per month as opposed to losing 50 DKK per month)

Third, we examine an alternative measure of hourly wages, where employer paid pensions are added (Appendix Table A2.3). This is not used in the primary analysis, as it is not observed for all workers. With this measure, police officers do not earn more in other jobs in the private sector likely because pension contributions are smaller, but leaves results unaltered for the other three groups.

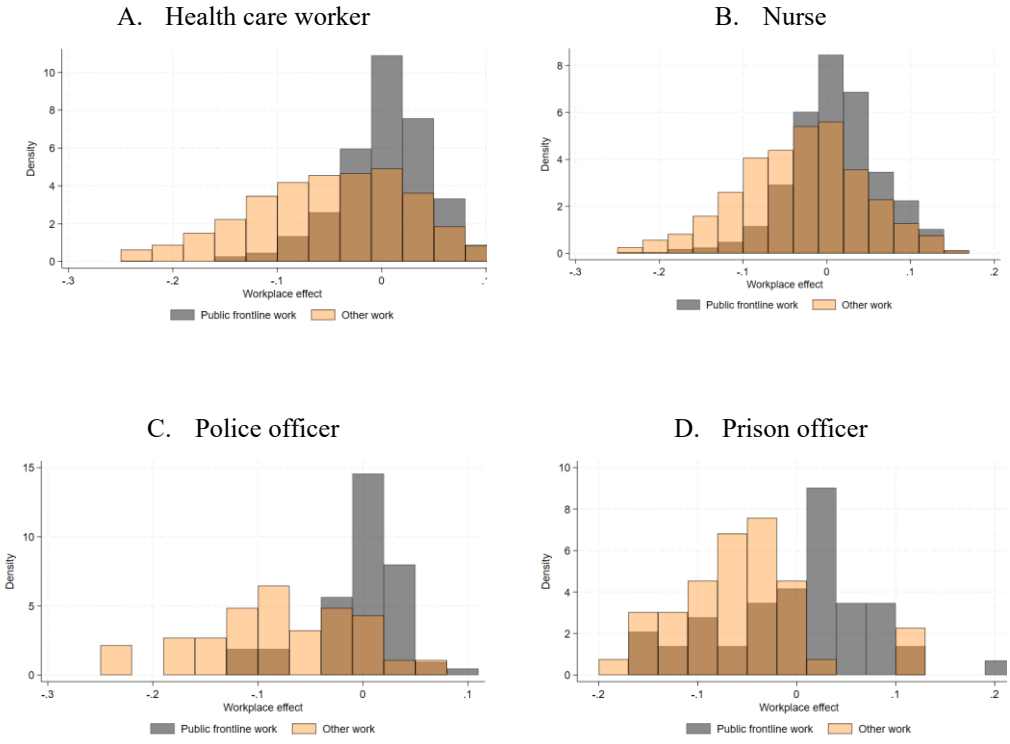
The Distribution of Workplace Effects

A potential explanation for exits from public frontline work - and reductions in working hours in subsequent jobs - is that frontline work is physically and mentally demanding, and that local workplaces may not compensate for such differences npr provide adequate support or flexibility to support this. To capture such effects, we look more closely at workplace effects. Figures 2 and 3 present the distribution of

estimated workplace effects from the AKM model across workplaces with public frontline workers and other workplaces, for each of the four education groups.

Figure 2 shows that the fraction of employees at the workplace who receive sickness benefits is higher among public workplaces with frontline workers (grey bars) than among other workplaces that employ workers with the same education. This difference is particularly pronounced among police- and prison officers. It also reveals that the mean fraction with sickness benefits varies substantially between workplaces: The distribution covers differences of more than 20 percentage points.

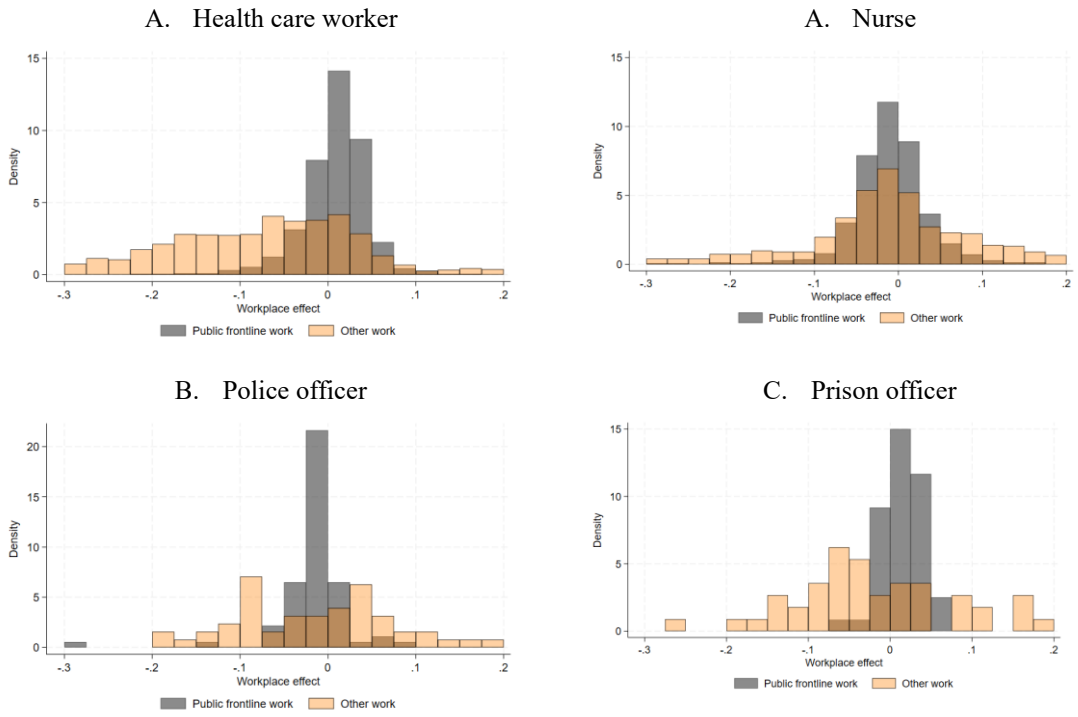
FIGURE 2. Distribution of the Workplace Shares of Employees Receiving Sickness Benefits, Adjusted for Individual Characteristics.



Notes: Workplace fixed effects from model (2), with controls for gender, age, years since graduation, labour market experience, calendar year and residential municipality. Small workplaces are aggregated on industry and municipal level, see appendix 1.

Figure 3 shows that the dispersion of mean log hourly wages at the workplace are generally smaller among public workplaces with frontline workers, than among other workplaces. This confirms the expectation given larger coordination in collective agreements within the public sector. Health care workers and prison officers stand out by having generally worse outside options in terms of the level of wages at the workplace.

FIGURE 3. Distribution of Average Hourly Wages (logs) at the Workplace, Adjusted for Individual Characteristics.



Notes: Workplace fixed effects from model (2), with controls for gender, age, years since graduation, labour market experience, calendar year and residential municipality. Small workplaces are aggregated on industry and municipal level, see appendix 1.

Average Workplace Conditions Before and After Leaving Public Frontline Work

Table 3 presents estimates from model (1) with the estimated workplace effects as dependent variable. It shows that individuals leaving public frontline work are moving to workplaces where employees have both a lower average sickness-benefit incidence and shorter average working hours. The differences are especially pronounced among police and prison officers, where the sickness-benefit incidence at the new workplace is 10 and 8 percentage points lower and average weekly work hours about 3-4 hours lower per employee at the new versus the old workplace.

In comparison, the reduction in the workplace sickness-benefit incidence is about 3 and 2 percentage points for health care workers and nurses, while average weekly hours per employee decline by roughly 0.8-1.5 hours. The differences exist for both public-to-public and public-to-private job switches, and therefore the pattern is not purely driven by for instance a higher risk of dismissal for sick-listed in the private sector.

The changes in average hourly wages at the workplace generally follow the same pattern in terms of both sign and size as the differences at the individual level presented in table 2: Nurses and police officers are moving to workplaces with a higher hourly wage, on average, while the opposite holds for prison officers and health care workers. This is likely to reflect that wages follow a more rigid structure, being determined by collective bargaining and industry differences, than is the case for work hours and sickness benefit incidences.

TABLE 3. Workplace effect differences. Results from fixed effect regressions.

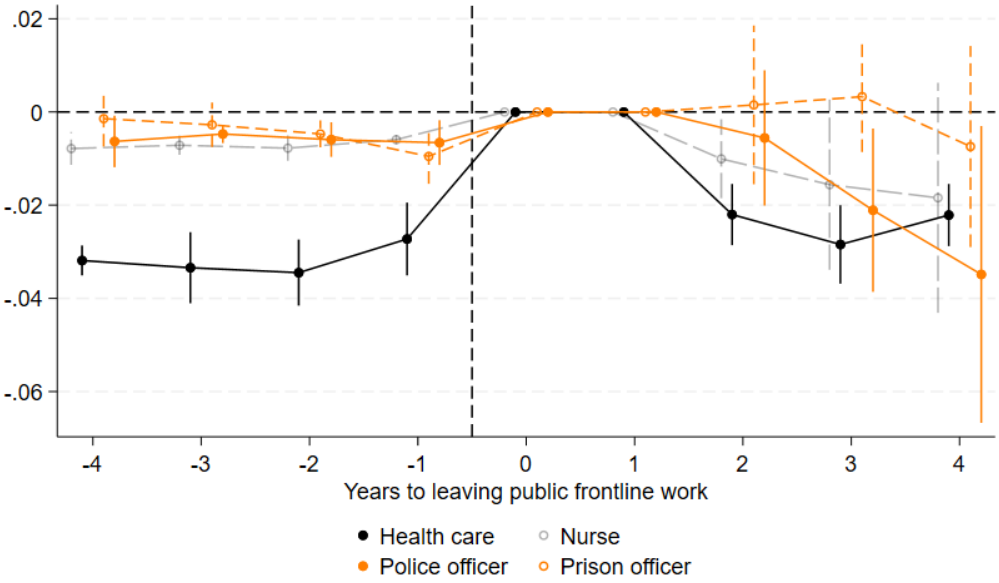
	Health care worker			Nurse		
	Sickness benefits	Weekly work hours	Hourly wages	Sickness benefits	Weekly work hours	Hourly wages
Private, match	-0.032***	-2.167***	7.826***	-0.032***	-2.261***	19.41***
	(0.000)	(0.006)	(0.053)	(0.000)	(0.007)	(0.149)
Public, other	-0.010***	0.0981***	-6.325***	-0.003***	0.007	-1.527***
	(0.000)	(0.007)	(0.061)	(0.000)	(0.005)	(0.109)
Private, other	-0.056***	-2.341***	-5.579***	-0.054***	-1.625***	11.47***
	(0.000)	(0.007)	(0.062)	(0.000)	(0.009)	(0.190)
Pooled	-0.031***	-1.477***	-0.317***	-0.018***	-0.834***	5.942***
	(0.000)	(0.005)	(0.039)	(0.000)	(0.004)	(0.089)
Observations	918371	918371	918371	611470	611470	611470
	Police officer			Prison officer		
	Sickness benefits	Weekly work hours	Hourly wages	Sickness benefits	Weekly work hours	Hourly wages
Private, match	-0.134***	-4.714***	21.75***			
	(0.001)	(0.037)	(0.446)			
Public, other	-0.078***	-2.417***	0.841**	-0.053***	-2.219***	-10.32***
	(0.001)	(0.032)	(0.395)	(0.002)	(0.043)	(0.539)
Private, other	-0.107***	-2.921***	34.10***	-0.096***	-4.700***	-2.236***
	(0.001)	(0.025)	(0.305)	(0.002)	(0.045)	(0.570)
Pooled	-0.104***	-3.144***	21.72***	-0.077***	-3.787***	-7.099***
	(0.000)	(0.020)	(0.241)	(0.001)	(0.035)	(0.413)
Observations	89355	89355	89355	32845	32845	32845

Notes: Each column for each educational group contains separate estimates of model (1), with estimated workplace fixed effects from model (2) as dependent variable. The model controls for gender, age, years since graduation, labour market experience, calendar year and residential municipality. “Match” refers to an occupation-education match, see appendix 1 for details. ”Private, match” is omitted for prison officers due to few observations. Earnings and wages are in 2021 DKK. Standard errors in parentheses. * p < 0,1; ** p < 0,05; *** p < 0,01.

Event Study for Individuals Leaving Public Frontline Work

To shed light on potential reasons for leaving public sector frontline work, figure 4-6 present event-study estimates of the probability of employment, working part-time and receiving sickness benefits before and after job exits, compared to those who stay in public frontline work during the years surrounding the job exit (years 0 and 1 in the figures), but may leave later.

FIGURE 4. Event-study of the probability of employment for exits from public frontline work (conditional on employment at time 0 and 1).



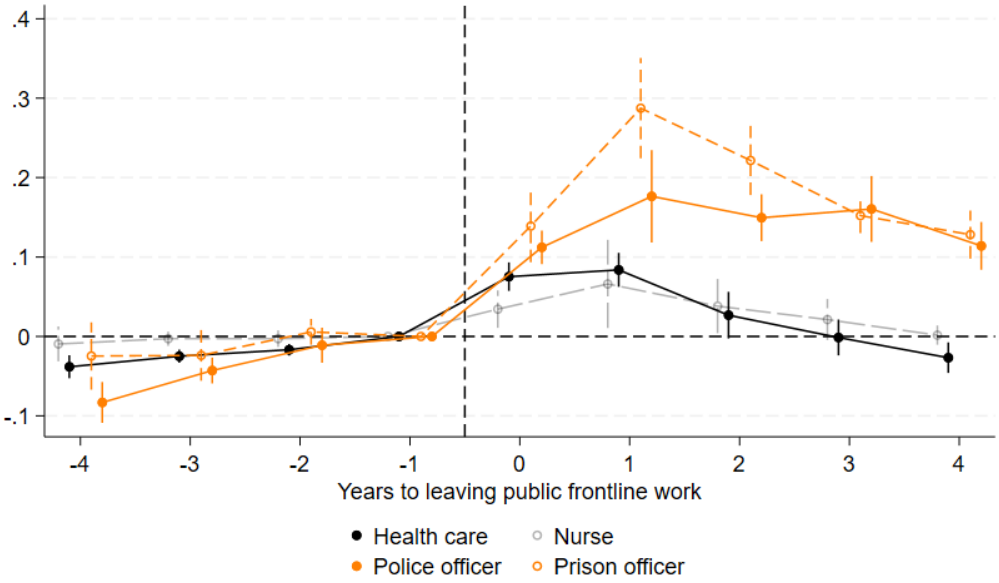
Notes: Estimates from model (3) with controls for gender, age, years since graduation, labour market experience, calendar year and residential municipality. The model compares those who leave with those who stay in public frontline work between time 0 and 1. The four groups have been shifted slightly on the horizontal axis to ease readability. Vertical bars show 95%-significance intervals.

Figure 4 presents estimates for the probability of being employed and it shows that the likelihood of employment is 3 percentage points lower in the years prior to leaving public frontline work for health care workers, compared to those who stay in public frontline work (conditioning on years since graduation, municipality,

gender and work experience). It is also lower in the years following the job change. By contrast, even though employment levels prior to leaving public frontline work are also significantly lower for the three other groups as well, these differences are small (~0.5 percentage points) and are not significantly different for nurses and prison officers. There is therefore some indication of negative selection for health care workers, but it is small for the three other groups. There is, however, also a drop in the probability of employment after leaving public frontline work also for police officers and nurses.

The following figures consider the probability of working part-time (figure 5) or receiving sickness benefits (figure 6). To ease interpretation both figures condition on employment in all years.

FIGURE 5. Event-study of the probability of working part-time for exits from public frontline work, conditional on employment.

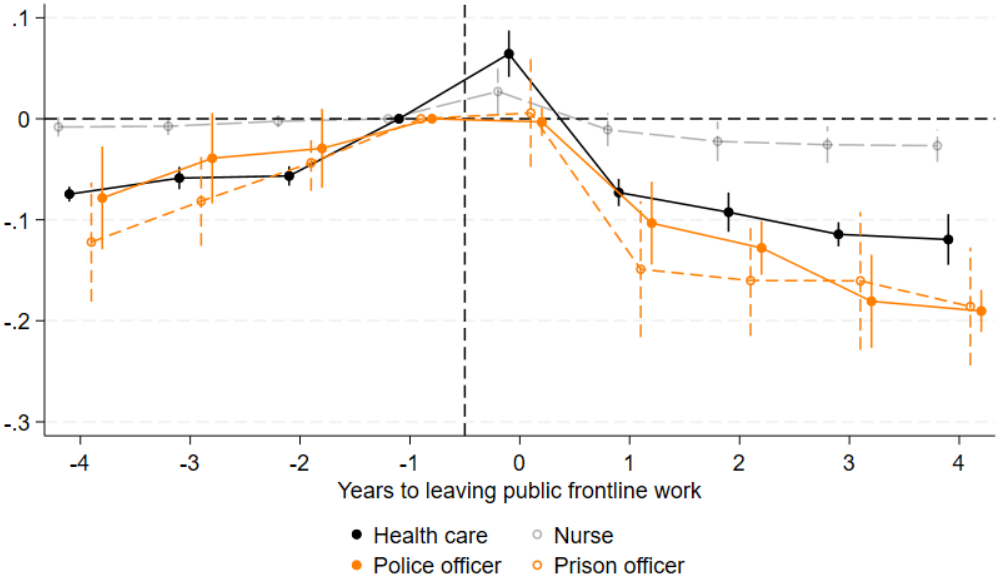


Notes: Estimates from model (3) with controls for gender, age, years since graduation, labour market experience, calendar year and residential municipality. The model compares those who leave with those who stay in public frontline work between time 0 and 1, and conditions on employment in all years. Part-time work is defined as weekly work hours below 32. The four groups have been shifted slightly on the horizontal axis to ease readability. Vertical bars show 95%-significance intervals.

Since the results in figure 4 indicate some degree of selection out of work, appendix figure A2.1 and A.2.2 show that results are unaltered if only conditioning on employment in the two years surrounding exit from public frontline work.

Figure 5 shows a substantially smaller fraction of those individuals who leave public sector frontline work, work part-time prior to leaving. The fraction working part-time is also smaller four years after leaving public frontline work for nurses and health care workers, and while it increases temporarily for police- and prison officers, the fraction is the same for years after leaving public frontline work, as for those who stayed.

FIGURE 6. Event-study of the probability of receiving sickness benefits for exits from public frontline work, conditional on employment



Notes: Estimates from model (3) with controls for gender, age, years since graduation, labour market experience, calendar year and residential municipality. The model compares those who leave with those who stay in public frontline work between time 0 and 1, and conditions on employment in all years. The four groups have been shifted slightly on the horizontal axis to ease readability. Vertical bars show 95%-significance intervals.

Figure 6 shows that receiving sickness-benefit is at a lower level for those who leave public sector frontline work, compared to those who stay, both in the years prior to and after leaving. While sickness-benefit receipt rises in the years before exit, the probability falls immediately after leaving public frontline work.

As an additional test, appendix figure A2.3 presents results for the probability of receiving prescriptive antidepressant medicine. This follows a similar pattern as sickness benefits, with lower levels before and after leaving public frontline work and a temporary rise in the years surrounding the leave. This too therefore shows no sign of negative selection, but indication of reduced worker well-being in the years just before leaving public frontline work.

Evidence for other groups

I have focused on four different groups for ease of exposition. To examine if the results are special for these groups, I present the results for three other large groups of employees in the public sector: School teachers, social care workers and pedagogues. Since the previous results for health care workers included two groups with a two- and four year long education, I also present separate results for the group of health care workers with the longest education ("Social- og sundhedsassistenter"). The results are presented in Appendix 3 and confirm the overall finding for health care workers and prison officers; that they take a wage cut and move towards workplaces with lower incidence of sickness pay.

Figure A3.1 shows the drop in the share working as public frontline workers in the years following graduation. Table A3.1 shows that three of the four groups work less and all four groups earn about 1300 to 2200 DKK less per month (175 to 300 euro) when they leave public sector frontline work. Only social care workers work slightly more when they find a match in the private sector. Table A3.2 shows that

all groups move to workplaces where work hours and wages are lower and where the incidence of sickness benefits is 2-4 percentage points lower than their previous public frontline workplace. Finally, figure A3.4 shows that among those staying employed, there is a smaller fraction of the employees at the workplace that receive sickness benefits in the years before and after leaving public frontline work. The results are, however, harder to interpret for social care workers and pedagogues, since employment probabilities also drop by around two percentage points when they leave public frontline work. Employment levels are not significantly different after leaving for the other two groups.

VI. Discussion

This study has examined potential drivers of job mobility away from public-sector frontline work for four selected educational groups. These groups represent workers with skills for which labor demand is expected to increase in the coming years, while also representing jobs with different gender compositions and working conditions.

The study finds that all educational groups reduce their working hours when leaving public-sector frontline occupations, and that monthly earnings decline significantly for two of the four groups. It also documents substantial variation in working conditions across workplaces within the labor markets in which these groups are employed. These differences appear to matter for the retention of public frontline workers: individuals who leave public frontline work tend to move to jobs in workplaces with lower average working hours and lower average rates of sickness-benefit receipt. Event-study evidence provides limited signs of negative selection, as three of the groups have roughly the same likelihood of being employed and all four groups have a lower likelihood of receiving sickness benefits or prescriptive medicine for mental disorders prior to the job change compared to

those who remain in public frontline work. Supplemental results indicate that the findings are not specific to these four groups but confirm the existence of important group-specific variations; for instance, greater signs of negative selection are observed among social care workers and pedagogues.

These findings should be interpreted with caution, as the analysis cannot isolate the causal factors behind the job change. Despite the absence of evidence of negative selection for most groups, some individuals leaving the public sector may have developed health conditions requiring specific adjustments or reduced working hours. Such situations may make continued public frontline work difficult, given its physical demands and intensive citizen contact. Moreover, the analysis focuses only on a limited set of observable workplace characteristics.

With these caveats in mind, the findings suggest potential for recruitment in the groups leaving public-sector frontline work, if politically desired. The results indicate that wages, work hours, and workplace-specific working conditions change following exits from public-sector frontline work, but to varying degrees across the educational groups. This suggests that retention policies should be targeted at specific groups, with different emphasis on measures such as wage adjustments, flexible work schedules, or local workplace conditions.

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Appendix 1: Data Construction

The data are based on annual Danish administrative registers from 2009–2023 and include all individuals whose highest completed education is one of the following education programmes: nurse, police officer, prison officer, social and healthcare assistant, or social and healthcare helper. Education information comes from the Education Register (UDDA) and is merged with the Employment Register (BFL), which contains information on monthly wages, job functions, sector codes, and monthly working hours. Information on sickness benefits transfer income is from the DREAM register. Background characteristics such as gender, age, and place of residence are drawn from the Population Register (BEF). The Employment Register (IDAN) is used to calculate tenure in the current job and total labour market experience.

For each educational group, an individual's primary employment in a given year is identified, and each job is classified by sector (public or private) and whether the job matches the individual's education. These definitions are described below.

Primary Employment

The analysis focuses on individuals' primary job. Primary employment is defined as the job in which the individual worked the most hours over the year. A job switch is therefore defined as movement from one primary job to another.

Education

The educational groups follow Statistics Denmark's DISCED-15 classification, using the methodology applied in Ministry of Finance (2023). The groups include programmes for which at least 50% of graduates work in the public sector and typically contain at least 2,000 individuals. To ensure comparability, only programmes of similar length are included.

Table A1.1: Specification of Educational Codes (HFAUDD)

Health care worker	*Nurse*
4781, 5148, 5149, 5152/ 4780, 5146, 5147	3209, 5166, 5167, 5168, 5169, 5170, 5171, 5172, 5178, 5179, 5181, 8633, 8634, 9477
Police officer	*Prison officer*
0495, 5198	4999, 5196, 5197, 5199

Education Match

Job functions are classified using DISCO codes, following the Ministry of Finance methodology, to identify typical job functions for each educational group, including both frontline personnel and management.

Table A1.2. Specification of Job Functions (DISCO)

Health care worker	*Nurse*
532120, 532220/ 532110, 532210	222100, 222110, 222120, 222130
Police officer	*Prison officer*
335500, 541200	541300

DISCO codes were converted from DISCO-88 to DISCO-08 using many-to-one crosswalks developed by Humlum (2021), based on observed transitions among workers who remained in the same job during the 2010 classification change. Managerial positions are treated as matched jobs in the main analysis, as they typically involve supervision of frontline employees within the same sector. As a robustness check, analyses were repeated treating management as non-matched.

Missing DISCO codes were imputed using information from the previous or subsequent year when the workplace ID was unchanged.

Sector

The public sector is identified using the SEKTORKODE variable in BFL and includes public administration, public services, and public enterprises. The private sector comprises private firms and non-profit organisations.

Workplaces

Workplace information comes from the workplace-level ID (ARBGNR in IDA; AJO_ARBNR_SENR in BFL). To avoid noise from very small workplaces, those with fewer than five employees with the relevant education are aggregated. Workplaces with at least five such employees are treated as distinct units. Aggregation follows a hierarchical procedure preserving sector × industry and then expanding geographically when necessary.

Aggregation steps (applied only when fewer than 5 employees remain):

1. Workplace
2. Sector × industry × municipality
3. Sector × industry × geographic area × municipality type (capital / provincial / rural)
4. Sector × industry × geographic area
5. Sector × industry × region
6. Sector × industry (national level)

Table A1.3. Number of Workplaces Before and After Aggregation and Average Number of Employees per Workplace

	Nurse	Health care worker	Police officer	Prison officer
Workplaces				
2009	1300	2263	413	304
2023	1393	2326	328	326
Employees with given education per workplace				
		Frontline workers		
2009	57.8	49.9	74.3	32.6
2023	49.2	42.7	85.3	23.9
		All		
2009	23.2	23.1	14.8	8.3
2023	20.8	19.8	18	6.8

Sickness Benefits

Information on sickness benefits comes from the DREAM database. Weeks on sickness benefits include all weeks in which the individual received benefits or participated in a job clarification programme (codes 774, 870, 873–878, 890, 893–899).

Variable List

The table below summarises the primary variables in the analysis.

Table A1.4. Definition and Sources of Primary Variables

Variable	Definition	Source
Monthly earnings	Monthly earnings including compulsory pension contributions (ATP)	BFL: AJO_BREDT_LOENBELOEB, ARBNR
Weekly work hours	Employer reported work hours (monthly divided by 4.3)	BFL: AJO_LOENTIMER , ARBNR
Hourly wages	Monthly earnings divided by monthly work hours	
Sickness benefit	Positive number of weeks receiving sickness benefits after job start	DREAM. Koder: 870, 873-899, 890, 893-899. BFL: AJO_JOB_STARTDATO
Years since completed education	Calendar year – year of completed education	UDD: HF_VFRA
Labor market experience	Years of payment of compulsory pension contributions (ATP)	IDAP: ERHVER

Appendix 2: Supplementary Figures and Tables

Table A2.1. Estimated Differences Between Public Frontline Work and Other Job Types, Redefining Management

	Health care worker			Nurse		
	Monthly earnings	Hourly wages	Weekly work hours	Monthly earnings	Hourly wages	Weekly work hours
Ledelse	4140.2***	20.66***	1.042***	4756.7***	20.88***	1.177***
	(88.38)	(1.174)	(0.0887)	(134.3)	(1.472)	(0.109)
Privat match	-1251.5***	8.508***	-2.365***	-854.7***	21.11***	-2.534***
	(26.44)	(0.351)	(0.0265)	(41.47)	(0.454)	(0.0337)
Public, other	-1830.6***	-11.46***	-0.0250	-443.5***	-1.850***	-0.158***
	(28.91)	(0.384)	(0.0290)	(30.70)	(0.336)	(0.0249)
Private, other	-2575.9***	-5.526***	-2.565***	487.7***	16.72***	-1.506***
	(28.63)	(0.380)	(0.0287)	(49.25)	(0.540)	(0.0400)
	Police officer			Prison officer		
	Monthly earnings	Hourly wages	Weekly work hours	Monthly earnings	Hourly wages	Weekly work hours
Ledelse	6627.5***	38.54***	1.110***	2544.8***	9.789***	1.609***
	(286.3)	(2.171)	(0.199)	(209.9)	(1.915)	(0.174)
Privat match	-3446.7***	13.23***	-5.992***			
	(216.1)	(1.638)	(0.150)			
Public, other	-1306.9***	15.45***	-2.716***	-4409.8***	-17.29***	-2.886***
	(159.5)	(1.210)	(0.111)	(157.0)	(1.432)	(0.130)
Private, other	2639.0***	31.99***	-3.185***	-4429.4***	-7.145***	-4.702***
	(129.8)	(0.984)	(0.0901)	(160.1)	(1.461)	(0.133)

Notes: This table presents fixed-effects estimates of differences between public frontline workers and individuals switching to alternative job types. Estimates adjust for years since graduation, age, labour market experience, municipality, and calendar year. Management is defined as the first digit "1" in the DISCO-code, and is included in the "public/private, other"-categories. The reference group is public-sector, education-matched frontline workers. Standard errors in parentheses. Statistical significance: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

Table A2.2. Estimated Differences Between Public Frontline Work and Other Job Types, Annual Earnings

	Health care worker			Nurse		
	Labour income	Earnings	Sickness and maternity benefits	Labour income	Earnings	Sickness and maternity benefits
Private, match	-13522.2***	-14147.1***	950.4***	-2645.2***	-4245.5***	429.6***
	(487.0)	(522.0)	(163.0)	(813.8)	(923.3)	(105.3)
Public, other	-21196.2***	-21773.6***	-1071.2***	-4513.6***	-4997.3***	221.3***
	(504.5)	(540.7)	(168.9)	(565.7)	(641.8)	(73.20)
Private, other	-33391.1***	-34968.0***	-1678.1***	566.6	-3746.6***	1129.2***
	(502.5)	(538.6)	(168.2)	(948.8)	(1076.4)	(122.8)
	Police officer			Prison officer		
	Labour income	Earnings	Sickness and maternity benefits	Labour income	Earnings	Sickness and maternity benefits
Private, match	-16199.2***	-26807.2***	-908.1			
	(3658.0)	(5795.9)	(560.9)			
Public, other	-18309.6***	-15048.8***	-995.7**	-35145.8***	-28653.8***	2721.3***
	(2923.0)	(4631.4)	(448.2)	(2935.2)	(3940.7)	(493.2)
Private, other	7453.7***	5793.8	-1889.0***	-51446.7***	-40362.6***	3154.9***
	(2441.2)	(3867.9)	(374.3)	(3080.6)	(4135.9)	(517.6)

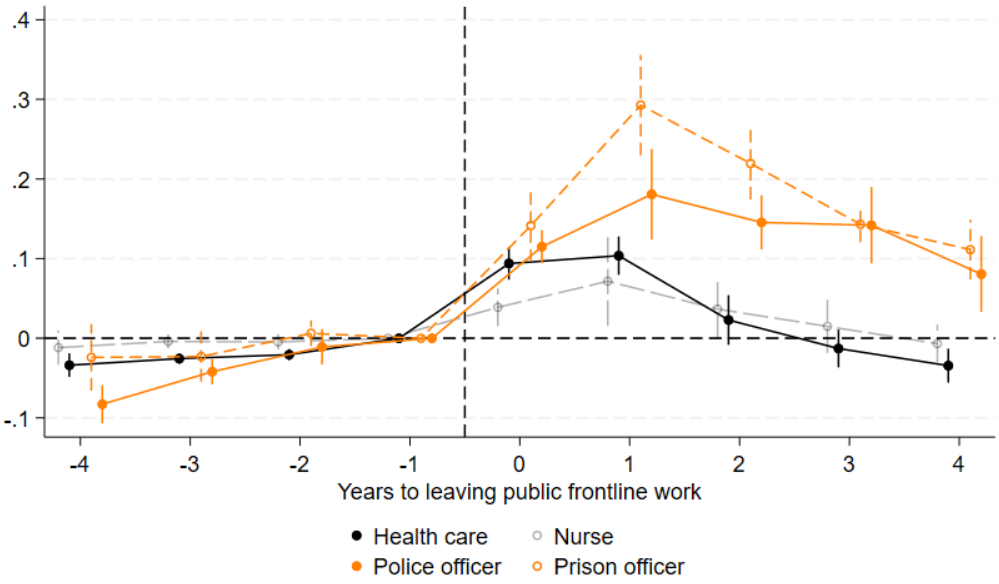
Notes: This table presents fixed-effects estimates of differences in annual earnings, labour income, and sickness/maternity benefit receipt between public frontline workers and individuals switching to alternative job types. Estimates adjust for years since graduation, age, labour market experience, municipality, and calendar year. Reference groups remain public-sector, education-matched frontline workers. Standard errors in parentheses. Statistical significance: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

Table A2.3. Estimated Differences Between Public Frontline Work and Other Job Types, alternative measure of hourly wages

	Health care worker	Nurse	Police officer	Prison officer
Privat match	5.875***	13.90***	32.03***	
	(0.139)	(0.232)	(1.181)	
Public, other	-12.31***	-3.169***	-19.15***	-11.57***
	(0.132)	(0.133)	(0.762)	(0.594)
Private, other	-9.283***	14.87***	0.650	-12.66***
	(0.174)	(0.314)	(0.640)	(0.679)
Pooled	-4.958***	2.037***	-2.172***	-10.54***
	(0.0917)	(0.115)	(0.491)	(0.472)
Observations	920886	786842	134962	36904

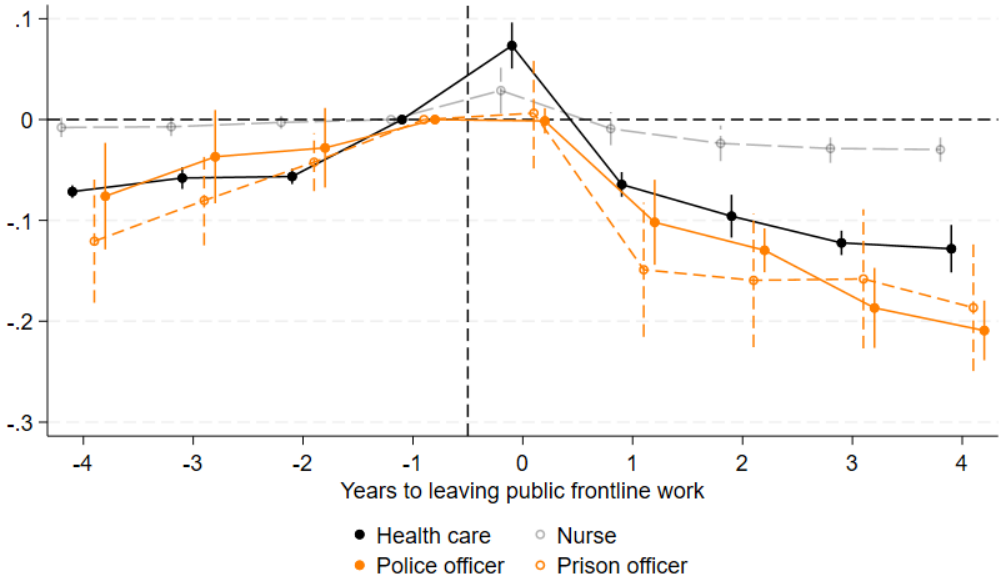
Notes: This table presents fixed-effects estimates of differences between public frontline workers and individuals switching to alternative job types. Estimates adjust for years since graduation, age, labour market experience, municipality, and calendar year. The hourly wage outcome is from the wage registry (LONN) and includes employer paid pension contributions. The reference group is public-sector, education-matched frontline workers. Standard errors in parentheses. Statistical significance: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

FIGURE A2.1. Event-study of the probability of working part-time for exits from public frontline work, only conditioning on work at time 0 and 1.



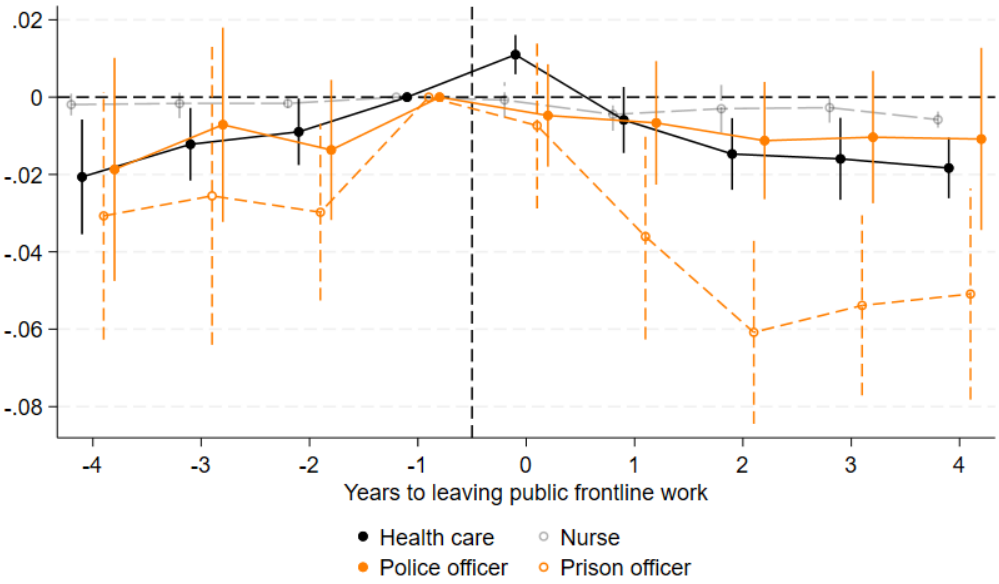
Notes: Estimates from model (3) with estimated workplace fixed effects as dependent variable, and controls for gender, age, years since graduation, labour market experience, calendar year and residential municipality. The model compares those who leave with those who stay in public frontline work between time 0 and 1, and conditions on employment in year 0 and 1. The final year before the move is normalized to 0. Part-time is defined as weekly work hours below 32. The four groups have been shifted slightly on the horizontal axis to ease readability. Vertical bars show 95%-significance intervals.

FIGURE A2.2. Event-study of the probability of receiving sickness benefits for exits from public frontline work, only conditioning on work at time 0 and 1.



Notes: Estimates from model (3) with estimated workplace fixed effects as dependent variable, and controls for gender, age, years since graduation, labour market experience, calendar year and residential municipality. The model compares those who leave with those who stay in public frontline work between time 0 and 1, and conditions on employment in year 0 and 1. The four groups have been shifted slightly on the horizontal axis to ease readability. Vertical bars show 95%-significance intervals.

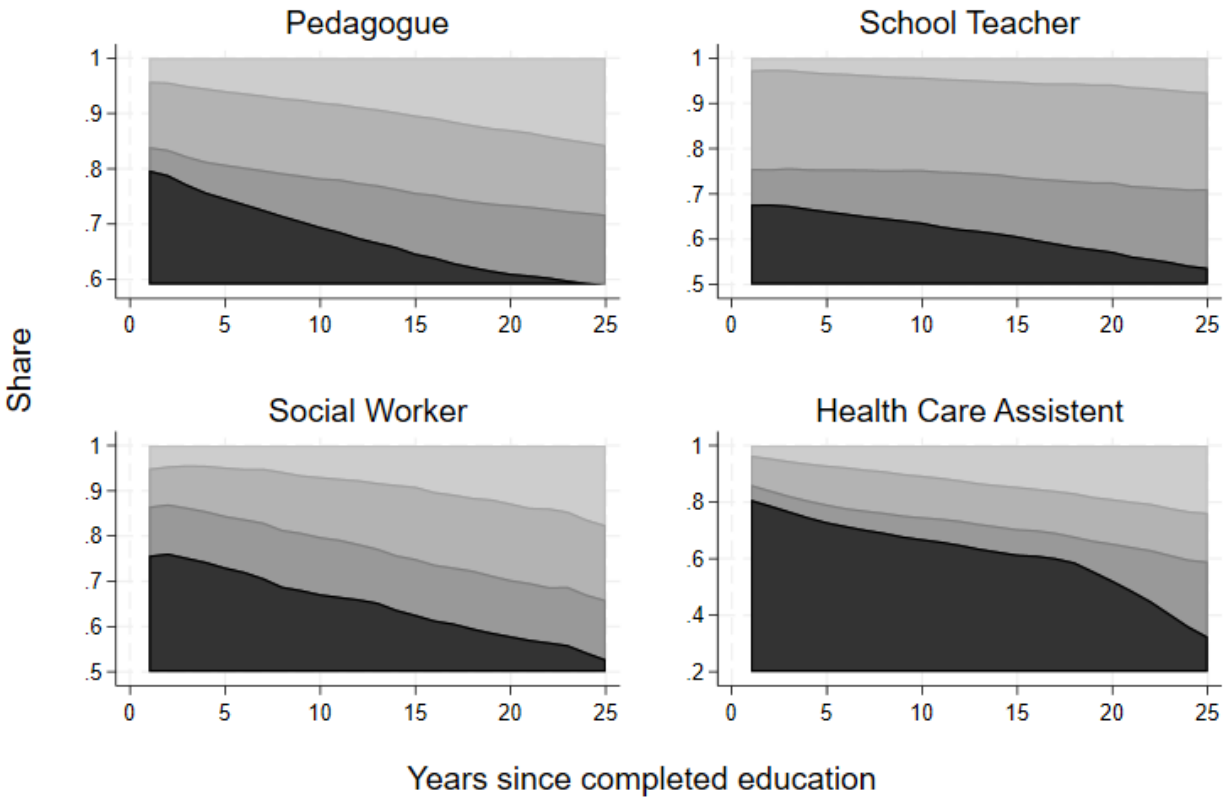
FIGURE A2.3. Event-study of the probability of receiving anti-depressant prescriptive medicine for exits from public frontline work, conditional on employment



Notes: Estimates from model (3) with controls for gender, age, years since graduation, labour market experience, calendar year and residential municipality. Antidepressant medicine is observed in the register of prescriptive medicine (LMDB) and measured by medicine prescriptions with Anatomical Therapeutic Chemical (ATC) classification code "N06A". The model compares those who leave with those who stay in public frontline work between time 0 and 1, and conditions on employment in all years. The four groups have been shifted slightly on the horizontal axis to ease readability. The four groups have been shifted slightly on the horizontal axis to ease readability. Vertical bars show 95%-significance intervals.

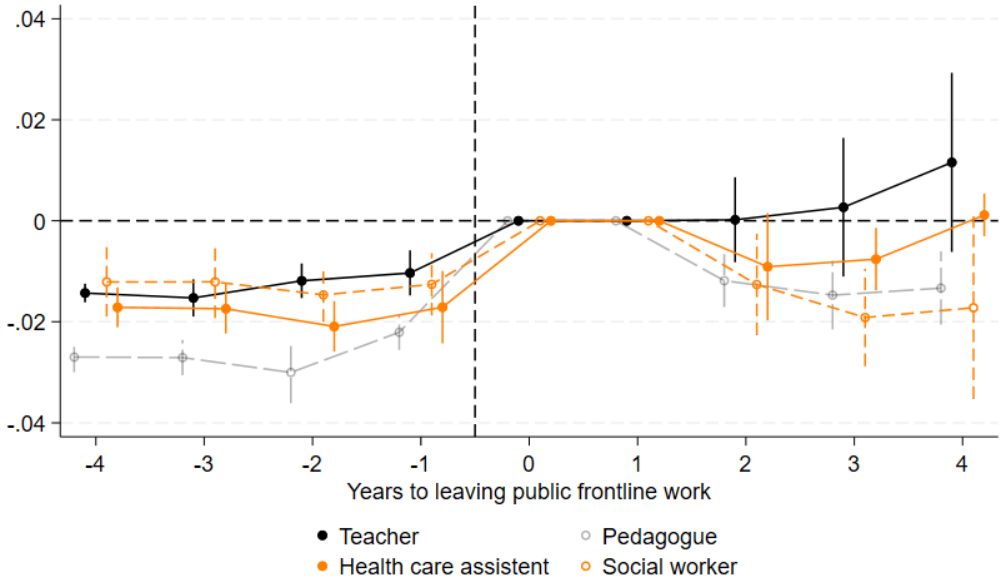
Appendix 3: Supplementary results for other educations

FIGURE A3.1. Employment in Public Frontline Work and Other Job Types, by Years Since Graduation.



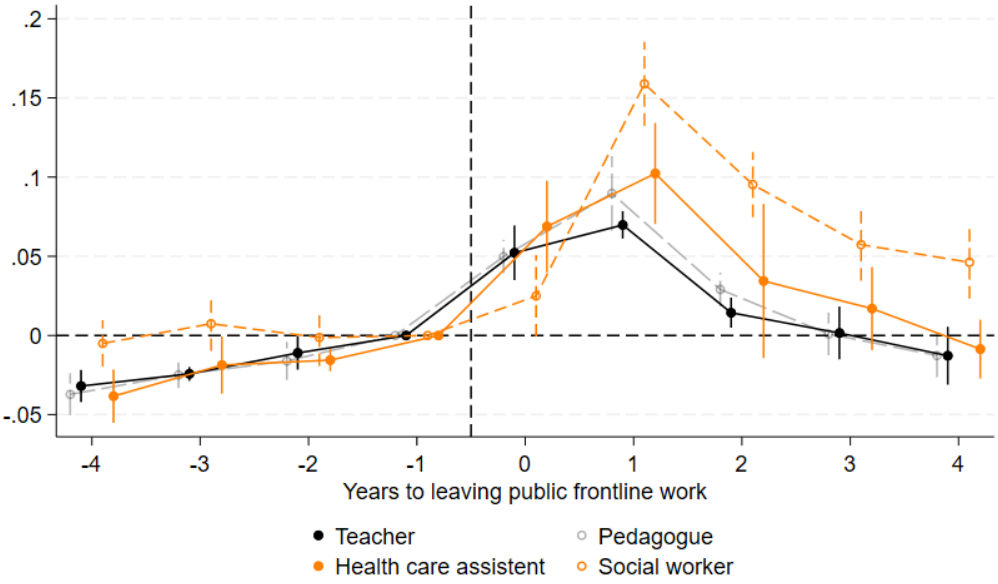
Note: Black = public frontline work. Dark grey = other public-sector jobs. Medium grey = private-sector jobs. Light grey = not employed.

FIGURE A3.2. Event-study of the probability of employment for exits from public frontline work.



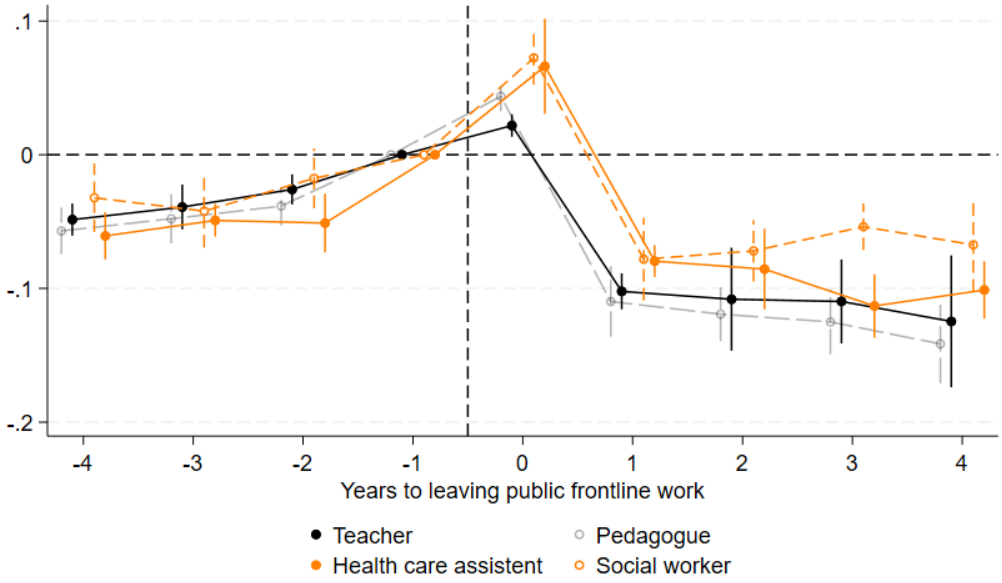
Notes: Estimates from model (3) with estimated workplace fixed effects as dependent variable, and controls for gender, age, years since graduation, labour market experience, calendar year and residential municipality. The model conditions on employment in year 0 and 1. The four groups have been shifted slightly on the horizontal axis to ease readability. Vertical bars show 95%-significance intervals.

FIGURE A3.3. Event-study of the probability of working part-time for exits from public frontline work, conditional on employment.



Notes: Estimates from model (3) with estimated workplace fixed effects as dependent variable, and controls for gender, age, years since graduation, labour market experience, calendar year and residential municipality. The model conditions on employment in year 0 and 1. The final year before the move is normalized to 0. Part-time is defined as weekly work hours below 32. The four groups have been shifted slightly on the horizontal axis to ease readability. Vertical bars show 95%-significance intervals.

FIGURE A3.4. Event-study of the probability of receiving sickness benefits for exits from public frontline work, conditional on employment



Notes: Estimates from model (3) with estimated workplace fixed effects as dependent variable, and controls for gender, age, years since graduation, labour market experience, calendar year and residential municipality. The model conditions on employment in year 0 and 1. The four groups have been shifted slightly on the horizontal axis to ease readability. Vertical bars show 95%-significance intervals.

TABLE A3.1. Individual level differences. Results from fixed effect regressions.

	Pedagogue			School teacher		
	Weekly work hours	Hourly wages	Monthly earnings	Weekly work hours	Hourly wages	Monthly earnings
Privat match	-1.311***	-2.004***	-1297.4***	-0.616***	-10.73***	-2014.1***
	(0.0257)	(0.389)	(27.77)	(0.0279)	(0.336)	(33.83)
Public, other	-0.343***	-1.178***	-632.3***	-0.179***	-11.00***	-1428.4***
	(0.0245)	(0.371)	(26.45)	(0.0255)	(0.306)	(30.83)
Private, other	-2.399***	-8.969***	-2743.0***	-1.517***	-18.59***	-3461.6***
	(0.0304)	(0.461)	(32.86)	(0.0344)	(0.414)	(41.71)
Pooled	-1.138***	-3.169***	-1330.5***	-0.581***	-12.31***	-2011.9***
	(0.0172)	(0.261)	(18.62)	(0.0187)	(0.225)	(22.71)
Observations	1100258	1100258	1100258	625100	625100	625100
	Social worker			Health care worker		
	Weekly work hours	Hourly wages	Monthly earnings	Weekly work hours	Hourly wages	Monthly earnings
Privat match	-2.467***	8.909***	-1328.1***	-2.327***	10.30***	-1181.7***
	(0.0655)	(0.965)	(82.07)	(0.0381)	(0.463)	(40.38)
Public, other	-1.513***	-3.329***	-2139.9***	0.0897**	-10.46***	-1483.2***
	(0.0514)	(0.757)	(64.39)	(0.0407)	(0.495)	(43.14)
Private, other	-2.064***	3.110***	-1166.4***	-1.850***	-5.707***	-2214.7***
	(0.0572)	(0.843)	(71.71)	(0.0431)	(0.525)	(45.72)
Pooled	-1.915***	1.647***	-1638.9***	-1.356***	-1.182***	-1559.6***
	(0.0370)	(0.545)	(46.33)	(0.0261)	(0.317)	(27.58)
Observations	184074	184074	184074	460211	460211	460211

Notes: Each column for each educational group contains separate estimates of model (1), with controls for gender, age, years since graduation, labour market experience, calendar year and residential municipality. "Match" refers to an occupation-education match, see appendix 1 for details. Earnings and wages are in 2021 DKK. Standard errors in parentheses. * p < 0,1; ** p < 0,05; *** p < 0,01.

TABLE A3.2. Workplace effect differences. Results from fixed effect regressions.

	Pedagogue			School teacher		
	Sickness benefits	Weekly work hours	Hourly wages	Sickness benefits	Weekly work hours	Hourly wages
Private, match	-0.057***	-1.338***	-4.022***	-0.042***	-1.246***	-8.920***
	(0.000)	(0.005)	(0.040)	(0.000)	(0.007)	(0.052)
Public, other	-0.018***	-0.339***	-0.763***	-0.019***	-0.646***	-6.771***
	(0.000)	(0.005)	(0.037)	(0.000)	(0.006)	(0.044)
Private, other	-0.072***	-2.571***	-9.841***	-0.062***	-2.543***	-17.68***
	(0.000)	(0.006)	(0.047)	(0.000)	(0.008)	(0.062)
Pooled	-0.044***	-1.170***	-3.864***	-0.034***	-1.187***	-9.468***
	(0.000)	(0.004)	(0.027)	(0.000)	(0.004)	(0.034)
Observations	1397813	1397813	1397813	872082	872082	872082

	Social care worker			Health care worker		
	Sickness benefits	Weekly work hours	Hourly wages	Sickness benefits	Weekly work hours	Hourly wages
Private, match	-0.061***	-2.812***	6.828***	-0.028***	-2.114***	8.986***
	(0.000)	(0.017)	(0.152)	(0.000)	(0.008)	(0.075)
Public, other	-0.012***	-0.915***	-1.891***	-0.010***	0.228***	-4.166***
	(0.000)	(0.013)	(0.113)	(0.000)	(0.007)	(0.067)
Private, other	-0.062***	-3.277***	3.517***	-0.052***	-1.898***	-3.247***
	(0.000)	(0.015)	(0.128)	(0.000)	(0.009)	(0.083)
Pooled	-0.039***	-2.074***	1.735***	-0.026***	-1.038***	0.407***
	(0.000)	(0.010)	(0.083)	(0.000)	(0.006)	(0.049)
Observations	222655	222655	222655	548087	548087	548087

Notes: Each column for each educational group contains separate estimates of model (1), with estimated workplace fixed effects as dependent variable, and controls for gender, age, years since graduation, labour market experience, calendar year and residential municipality. "Match" refers to an occupation-education match, see appendix 1 for details. Private, match" is omitted for prison officers due to few observations Standard errors in parentheses. * p < 0,1; ** p < 0,05; *** p < 0,01.