The Scarring Effects of Workplace Sexual Harassment

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Abstract

We provide new causal evidence on the labor market consequences of workplace sexual harassment using matched survey and administrative data from Denmark. We employ a generalized difference-in-difference approach to compare individuals who faced exposure to workplace sexual harassment to those who reported no exposure. Both women and men who were exposed see persistent earnings losses of around 6 percent and leave their firms at a higher rate. A substantial share of harassment is perpetuated by clients, highlighting that harassment by coworkers should not be the sole target of anti-harassment policies. Our findings reveal the long-term economic scars of sexual harassment.

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1 Introduction

Workplace sexual harassment is a widespread problem facing many workers. Often, the only way to escape workplace sexual harassment is to leave your job (Feldblum and Lipnic, 2016). Although sexual harassment in the workplace can affect all workers, the rate, and therefore the burden, of workplace sexual harassment is much higher for women than men.[1] Despite its prevalence, little is known about the long-term economic consequences for victims—especially in terms of labor market outcomes like earnings and job mobility.

In this paper, we provide causal estimates of the long-term earnings consequences of workplace sexual harassment by source of workplace sexual harassment using linked administrative and survey data from Denmark. We employ the Callaway and Sant'Anna (2021) estimator in a generalized difference-in-difference approach to estimated the effect of exposure to workplace sexual harassment in the past year for men and women. We use workers who report no workplace sexual harassment in the past year as the counterfactual group. We document that both women and men suffer persistent earnings losses of around 6 percent following an incident, and these losses double among those who switch firms. We also provide new evidence on the sources of workplace sexual harassment: while coworkers are commonly cited, we find that clients—especially for women—are a significant source of workplace sexual harassment and lead to earnings losses of similar magnitude to sexual harassment stemming from coworkers. These insights expand the scope of understanding about who perpetrates workplace sexual harassment and how its effects linger.

We begin our analysis using a dataset that links administrative and survey data from Denmark. The survey provides us with self-reported experiences of workplace sexual harassment that we match with workers' labor market histories. This approach overcomes previous data constraints, allowing us to estimate the earnings consequences of sexual harassment in the workplace while also distinguishing whether the source of harassment was a client or coworker.

First, we provide a reduced-form evaluation of the earnings consequences of workplace

[1] Our data contain a binary measure of gender, preventing us from identifying if an affected worker is gender non-conforming/non-binary or differentiating between cisgender and transgender workers. Workers in gender-minority groups are likely to face higher rates of harassment due to their marginalized gender. However, we cannot speak to this with existing data.

sexual harassment. We use survey data provided by the Danish National Research Center for the Work Environment, which asks workers about the frequency and sources of sexual harassment in their workplace. One contribution of our work is to provide direct evidence on who perpetuates workplace sexual harassment. Consistent with previous research, coworkers are a significant source of sexual harassment at work. However, we also document a large proportion of incidences originating from clients, particularly as a source of workplace sexual harassment for women.

We employ a generalized difference-in-difference approach to estimate the consequences of workplace sexual harassment by source. We follow Callaway and Sant'Anna (2021) when constructing our estimator to account for survey responses from different years. We consider individuals who report no exposure to workplace sexual harassment as the never-treated group in our counterfactual. We find that workplace sexual harassment is followed by earnings losses of around 6 percent for both men and women. Earnings losses are similar whether the source of workplace sexual harassment was a client or a coworker. This number doubles for workers who leave their firm, indicating that the earnings scars of workplace sexual harassment persist even when workers escape the reach of their harasser. Consistent with prior work, we see that men and women tend to move to firms with a larger share of workers who share their gender, and thus potentially face a lower risk of continued workplace sexual harassment.

Work documenting the prevalence and consequences of workplace sexual harassment has a longer history in the fields of sociology, psychology, and medicine than economics (for reviews: Welsh (1999); McDonald (2012); Fitzgerald and Cortina (2018)). Overall, the largest body of empirical evidence focuses on recording the prevalence of workplace sexual harassment. Secondly, the literature has established a link between workplace sexual harassment and career interruptions. Only recently has administrative data been used to study the consequences of workplace sexual harassment for workers labor market outcomes. Other work considers how reports of workplace sexual harassment may affect the firm (Abeysekera and Fernando, 2024). We build on this empirical work and are the first to document the earnings consequences of workplace sexual harassment by source of workplace sexual harassment. We document that clients are an important source of workplace sexual harassment and consider

possible spillovers to other workers.

One of our contributions is to emphasize the importance of considering clients as a source of workplace sexual harassment. Early research primarily focused on coworkers as the source of workplace sexual harassment and found that sexual harassment from coworkers is more common when a worker belongs to a gender minority (Gutek and Cohen (1987); Gutek et al. (1990); Gruber (1998); Jackson and Newman (2004); Kabat-Farr and Cortina (2014)). Workplace sexual harassment also tends to occur more frequently in certain industries and occupations. However, much of this early research relied on cross-sectional survey data, which limits the ability to track workers over time and assess the long-term effects of workplace sexual harassment.

Previous research has also established the significant impact of workplace sexual harassment on workers' labor market mobility and career disruptions (Neumark and McLennan (1995); Feldblum and Lipnic (2016)). Early studies attempt to measure mobility by examining intentions to quit through survey data (Laband and Lentz (1998); Antecol and Cobb-Clark (2004); Willness et al. (2007)). The strongest evidence in the U.S. context comes from a panel study of young women in St. Paul, Minnesota, which finds that workplace sexual harassment is associated with increased financial stress and job moves (McLaughlin et al., 2017). Data constraints limited early research that tried to estimate effect of workplace sexual harassment on wages and earnings. For instance, Hersch (2011) attempts to calculate the cost of workplace sexual harassment from a legal perspective when seeking damages using limited data from reports to the U.S Equal Employment Opportunity Commission (EEOC).

More recently, Folke and Rickne (2022) provided the first evidence on career interruptions using administrative data, showing that mobility rises following incidents of workplace sexual harassment. While they do not observe earnings directly, Folke and Rickne (2022) find that workers move to more gender-segregated and lower-paying workplaces following workplace sexual harassment. They also performed a survey to elicit workers' willingness to pay to avoid workplace sexual harassment by coworkers. Here, they find that workers are willing to forgo 10 percent of their wages to avoid a workplace where they'll be exposed to workplace sexual harassment, which is similar in magnitude to our findings for earnings losses for workers who move firms following workplace sexual harassment. Work by Batut

et al. (2022) builds on these findings using administrative and survey data from France to document mobility outcomes following reports of workplace sexual harassment. Our work complements these papers by adding direct evidence of earnings losses following workplace sexual harassment and analyzing the consequences of workplace sexual harassment from clients as well as coworkers.

In other complementary work, Adams-Prassl et al. (2024) looked more broadly at the earnings and employment consequences of workplace violence by male colleagues, including, but not limited to, sexual harassment. They find earnings losses of around 20 percent for men and women who are victims of workplace violence. Our work complements theirs by focussing more narrowly on sexual harassment while also being broader when considering the source and type of incidents. They focus on incidences which were reported to law enforcement, which means they focus on more serious incidences than our work. They include sexual assault and rape in their definition of workplace violence alongside many other non-sexual crimes, and they also limit their analysis of workplace violence to incidences perpetuated by colleagues. The focus on serious violent offenses likely accounts for why their earnings estimates are larger than ours. One of our main contributions is thus to provide the first estimates of the earnings consequences more specifically for victims of workplace sexual harassment, in all its forms and from all its possible sources.

We know that the way in which survey questions about sexual harassment are framed can significantly influence workers' willingness to disclose their experiences. Stockdale et al. (1995) and Ilies et al. (2003) emphasize that the most effective approach is to focus specifically on behaviors that fall under the definition of workplace sexual harassment. Related work also explores the factors that influence workers' decisions to report incidents to their employer. Unfortunately, reports of sexual harassment are sometimes ignored or, in the worst cases, met with retaliation, (see Bergman et al. (2002); Cortina and Magley (2003)), which discourages employees from coming forward. Recent evidence suggests that employer policies impact reporting behavior, with some policies even backfiring (Cheng and Hsiaw, 2022). Similarly, Dahl and Knepper (2022) documents the importance of workers' outside options in their decision regarding whether to report sexual harassment in the workplace.

Our work therefore contributes to a growing economic literature on gender-based violence

in the workplace. While prior research has established links between sexual harassment and job mobility, we are the first to directly document the earnings consequences of workplace sexual harassment by source using administrative data. We also explore mechanisms, showing that earnings losses are not driven by non-employment or occupational downgrading, but rather by transitions to lower-paying firms. Finally, we consider possible spillovers to coworkers and examine productivity effects.

In the remainder of this paper, we discuss the data and sample selection in Section 2, Section 3 documents our empirical methods, and Section 4 reports the results and discusses potential mechanisms. And finally, we conclude in Section 5.

2 Data

In this section, we describe how we construct the novel dataset used in this paper that combines labor market information with instances of workplace sexual harassment. We also present descriptive statistics that summarize important features of the micro data.

2.1 Data Sources and Sample Selection

In order to identify workers who are victims of workplace sexual harassment, we use survey data from Denmark. The survey data come from the study 'Working environment and health in Denmark'. Between 2012 and 2018 the National Research Center for the Working Environment has asked the same questions to different sets of employees in Denmark every two years.[2] The purpose of the survey is to analyze how workers themselves assess their physical and mental working environment, as well as their health and ability to work. A total of 50,806 individuals were selected in 2012, 50,875 in 2014, 65,741 in 2016, and 65,000 in 2018. Response rates increased over time, from 51.5% to 60.2% (Det Nationale Forskningscenter for Arbejdsmiljø (NFA), 2025). The survey asks respondents two questions that measure the frequency and sources of workplace sexual harassment.

[2]The COVID-19 pandemic interrupted survey activity in 2020 and a new survey of workplace environments began collection biennially again in 2021. We have not yet collected these subsequent waves for inclusion in this study.

We link this repeated cross-sectional data to employment and earnings histories from the Danish employer-employee-matched administrative data and firm level balance sheet data. We focus our sample on private sector workers from 2004-2021.[3] This gives us individual labor market histories both before and after individuals respond to the workplace survey. For the key employment and earnings variables, we use the Integrated Database for Labor Market Research (IDA) register. We supplement this with additional registers to obtain information about education and other demographic variables (BEF, UDDA).

The main outcomes we consider are earnings and firm mobility. Earnings are measured as the annual gross labor market income deflated to the 2015 price level.[4] To capture the effects of employment flows on earnings, we include periods of zero earnings. We also track whether the worker remains at the firm they were working at when surveyed. To ensure that survey responses match the worker's current employer, we only consider workers who have been at their place of employment for at least one year.[5]

2.2 Descriptive Statistics

We first analyze the demographic characteristics of the survey respondents. The workplace environment survey question we leverage is "Have you been exposed to sexual harassment in the past 12 months?" where workers respond whether they were exposed daily, weekly, monthly, at least once, or never. Overall, three percent of the sample reported that they had been exposed to workplace sexual harassment in the past 12 months. For women, the rate was 4.5 percent, and for men, it was 1.2 percent. This prevalence is lower than other estimates for Denmark. An EU-wide survey on violence against women in the workplace estimated the 12-month incidence for women at ten percent in Denmark. We attribute the discrepancy between our survey and other reports to differences in the subjective nature of the question's framing. The survey question we use relies on self-identification of sexual harassment, which is known to skew self-reports downward relative to questions that ask about behaviors that constitute sexual harassment rather than the words "sexual harassment" (Stockdale et al.,

[3]Since firm level information is not collected for the public sector, we focus on private sector workers.
[4]Earnings outcomes are in 2015 USD.
[5]We explore employment outcomes as well, but find limited effects. See Appendix D for details.

Have you been exposed to sexual harassment?

	% Women	Age	Ann. Earn (USD)	Tenure	College	No. Obs
Yes	82	42.25	51,002	6.96	.36	2,932
No	53	46.89	61,393	8.65	.43	99,539
Total	54	46.76	61,096	8.61	.43	102,471

Table 1: Summary Statistics

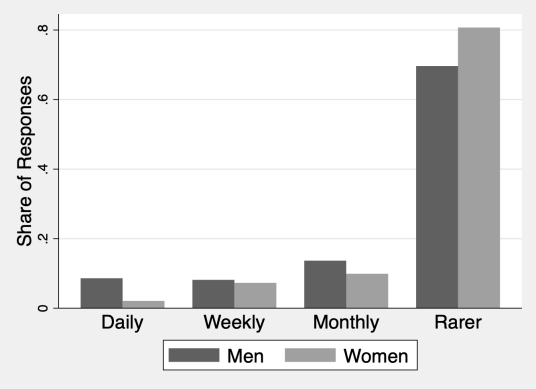
Notes: This table shows summary statistics for workers for those exposed and those not exposed to workplace sexual harassment for the fraction of women, age, annual earnings which are the annual gross labor market income deflated to the 2015 price level, tenure measured in years and college which is an indicator variable. Number of observations in each category are in the final column.

1995).

First, Table 1 reports demographic summary statistics for workers who responded that they had faced any amount of exposure to workplace sexual harassment. The respondents who report workplace sexual harassment are predominantly women. And they tend to be younger, earn less, and have a lower rate of college attendance. We also document differences in reports of workplace sexual harassment by gender and age (See Appendix A). Over ten percent of women under age 25 in the sample report being exposed to workplace sexual harassment in the past year, while around three percent of men in this age group reported exposure. In Appendix B, we report demographic summary statistics for workers who responded that they had faced exposure to workplace sexual harassment by the frequency of exposure and the source of sexual harassment.

Next, we decompose the frequency of workplace sexual harassment for workers in the survey who report any degree of exposure in Figure 1a. For most workers, sexual harassment is a rare event, although a significant number of respondents report repeated exposure to workplace sexual harassment. Again, there are slight differences by gender, with men who report exposure to workplace sexual harassment typically reporting a higher frequency of incidents

In addition, we can examine the sources of exposure to workplace sexual harassment in the data. The relevant survey question asks, "Who exposed you to sexual harassment?" In the survey, respondents who reported exposure to workplace sexual harassment had the option to indicate whether the source of the exposure was from colleagues, managers, subordinates, or clients/patients/etc. Respondents may report more than one source of sexual harassment.



(a) Frequency of sexual harassment



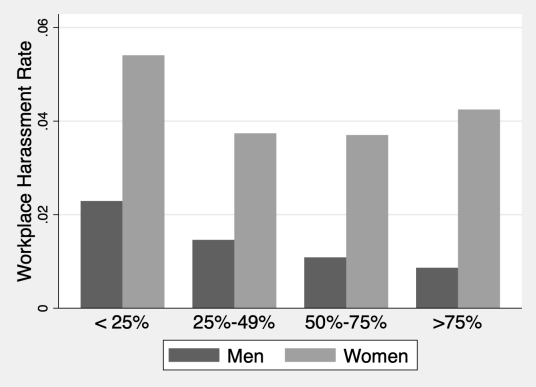
(b) Sources of sexual harassment

Figure 1: Frequency and Sources of workplace sexual harassment

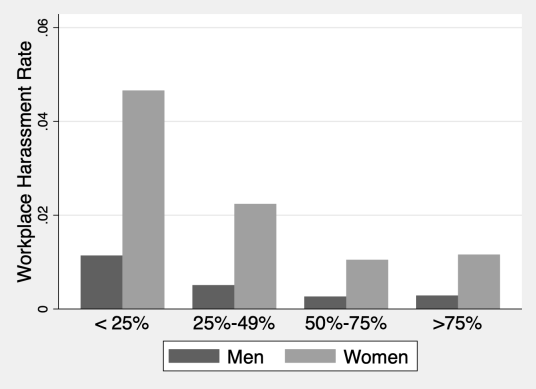
Notes: Both plots record the distribution of responses among male and female workers who report any degree of workplace sexual harassment. Panel (a) plots the reported frequency of workplace sexual harassment into daily, weekly, monthly or rarer and (b) plots the share of respondents by source of reported workplace sexual harassment, whether it is colleague (number of individuals indicating colleagues as a source by sex: n_m = 337, n_f = 761), manager (n_m = 102, n_f = 365), subordinate (n_m = 70, n_f = 50) or client (n_m = 212, n_f = 1812). Note that respondents could indicate more than one source of workplace sexual harassment.

Figure 1b illustrates the sources of workplace sexual harassment by gender. For both men and women, the most common sources of workplace sexual harassment were colleagues and clients. For men who indicated exposure to workplace sexual harassment, 71 percent of all responses indicated a coworker (colleague, manager or subordinate) as the source of exposure, and 29 percent reported clients. For women the shares are almost reveresed with, only 40 percent of all responses indicating a coworker as the source, and 60 percent indicating a client. Men and women report a similar degree of exposure by managers, and men report a higher degree of exposure by subordinates. Prior work has discussed how this may be due to differences in the positions men and women hold in the firm, where men are more likely to be higher in the wokplace hierarchy.

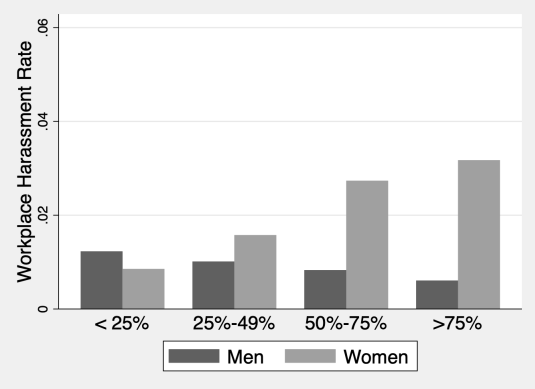
Sexual harassment is, unsurprisingly, correlated with other adverse dimensions of the working environment, such as bullying or poor psychosocial conditions. Evidence from the same underlying survey infrastructure shows that negative workplace experiences tend to co-move at the firm level (see Appendix Table 2 in Amore et al. (2025)). Importantly, however, this clustering does not imply that sexual harassment is subsumed by broader workplace quality. In our setting, sexual harassment constitutes a salient, time-specific, individual-level shock, rather than a slow-moving firm characteristic. Consistent with this distinction,



(a) All harassment



(b) Client sexual harassment



(c) Coworker sexual harassment

Figure 2: Sources of workplace sexual harassment by firm male share and gender

Notes: Panel (a) plots the rates of reported workplace sexual harassment stemming from any source by gender depending on the firm's male employee share (on the first axis) being below 25 percent, 25 percent to 49 percent, 50 to 75 percent of above. Panel (b) plots the rates of reported workplace sexual harassment stemming from clients, patients, or students by gender depending on firm male shares. Panel (c) plots the rates of reported workplace sexual harassment by gender stemming from coworkers - either a colleague, manager, or subordinate depending on firm male shares.

we show below that earnings losses associated with workplace sexual harassment persist even after workers change employers, indicating that these effects cannot be attributed solely to contemporaneous workplace conditions.

Prior work has emphasized the relationship between firm or occupation composition and workplace sexual harassment (Folke and Rickne, 2022). Motivated by these results, we look at reports of sexual harassment by the gender composition of the firm. We calculate the share of men in each firm and drop firms with less than 5 employees for this analysis. Figure 2a plots the results for all reports of workplace sexual harassment. At first, it appears that we do not see the same trends documented in prior work that risk is higher for gender

minorities. While the data do show this pattern for men, for women, we observe a U-shape in risk. We show why that is in the following figures. Figure 2b plots the results by gender and separately for instances due to clients and Figure 2c does the same for colleagues, managers, and subordinates. Note that for men and women, the incidence of reports of workplace sexual harassment from coworkers (colleagues, managers, and subordinates) increases in the share of the opposite gender. However, we also document that when it comes to client-based sexual harassment, the rate is higher for both men and women in workplaces with a higher female share. This client-based sexual harassment therefore drives the bottom end of the U-shape in workplace sexual harassment for women.

Finally, we more closely examine differences in workplace sexual harassment across occupation categories. Table 2 reports workplace sexual harassment rates by gender and occupation group. We also include average pay by gender in these occupations. Women in agricultural and service occupations face the highest rate of workplace sexual harassment, with nine percent of women reporting exposure. We use broad DISCO codes to characterize occupations.[6] Service occupations tend to have high rates of workplace sexual harassment for both men and women and the lowest pay. However, women comprise nearly three-quarters of workers in service occupations. The sources of sexual harassment in the workplace also vary by occupation, with women sorting more heavily into occupations that are exposed to high rates of sexual harassment by clients than men, while other occupations see a greater gender divergence in workplace sexual harassment stemming from coworkers.

3 Identification and Estimation

In this section, we discuss the empirical approach in this paper to estimate the causal effects of workplace sexual harassment on labor market outcomes. To do this, we use a multiple-period difference-in-difference approach to analyze the outcomes of workers who report workplace sexual harassment. We considered different years of the survey to be the different periods of the treatment. We follow the approach of Callaway and Sant'Anna (2021) in constructing

[6]Six-digit DISCO codes are used for classifying and aggregating information about job functions in clearly defined groups, in relation to the tasks performed in the job or occupation.

Workplace Sexual Harassment by Occupation

Occupation	% Women	Ann. Earn (USD)	% Women Harassed	% Men Harassed	No. Harassed	No. Obs
Agriculture	9	64,024	9.30	1.20	539	5,722
Managers	32	105,264	2.20	0.70	4,532	43,976
Professionals	63	68,687	3.70	0.90	29,779	264,555
Technicians	58	64,180	2.40	0.80	12,412	134,706
Administrative	74	51,530	2.60	1.00	8,684	82,422
Service	72	44,132	9.10	2.10	12,389	124,445
Crafts	7	56,367	3.20	0.70	6,826	69,906
Assembly	21	54,044	3.60	1.00	4,925	50,882
Manual	43	44,309	2.60	1.50	5,811	62,143

Table 2: Sexual Harassment Rates and Summary Statistics by Occupation
Notes: This table presents the statistics for workers for those exposed in each occupation, where we use broad DISCO codes to characterize occupations. The first column is the fraction of women, the next is annual earnings which are the annual gross labor market income deflated to the 2015 price level, then we report the percentage of women harassed and men. The number of observations is each occupation are stated in the final column.

our estimator in which we compare the outcomes for workers who report workplace sexual harassment to those who never report workplace sexual harassment.

We are interested in key labor market outcomes of workers who experience sexual harassment on the job. We focus mainly on the log annual labor earnings and job mobility, which we define as an indicator equal to one if the worker is at a firm different from the one that they were at in the year they responded to the survey.

The staggered difference-in-difference estimation method we use relies on several assumptions (Callaway and Sant'Anna, 2021). The first assumption is the irreversibility of the treatment such that once a unit is treated, that treatment status is permanent. This implies that once a report of workplace sexual harassment occurs, the record of that event is permanent from the point of view of the worker. The second assumption is random sampling, which implies that each unit is randomly drawn from a large population of interest. The third assumption is limited treatment anticipation. For this to hold, we assume that individuals do not anticipate their experience of workplace sexual harassment prior to it occurring. And finally, we make the conditional parallel trends assumption based on the "Never treated" groups such that conditional on the large set of controls including demographics and employment characteristics, the treated worker's labor outcomes would evolve in parallel to those for whom we do not observe an experience of workplace sexual harassment for (Callaway

and Sant'Anna, 2021).[7] [8]

As in the procedure outlined in Callaway and Sant'Anna (2021), we start by estimating the group-time average treatment effect on the treated *ATT(g,t)* for workers for the cohort of individuals first treated in period g at time t:

$$ATT(g,t) = \mathbb{E}[Y_t(g) - Y_t(0)|G_i = g], \tag{1}$$

where $Y_t(g)$ is the potential outcome under treatment in period t, $Y_t(0)$ is the potential outcome in the absence of treatment, and $G_i = g$ is a binary indicator equal to one if individual i is first treated in period g. This estimator is defined for periods $t \geq g$. We use the improved doubly-robust estimation procedure based on the inverse probability of tilting and weighted least squares from Sant'Anna and Zhao (2020) to estimate the $ATT(g,t)$. Given the differences we see in which demographic groups report selection into risk of workplace sexual harassment, we include a vector of covariates. The covariates we include are education, occupation, gender, age, and age squared. We also restrict the sample to individuals who have been employed at their firm for at least one year to ensure that their responses correspond with their workplace at the time of the survey.

In order to aggregate these estimated effects over groups and time, we construct a simple weighted average of all $ATT(g,t)$'s, given as:

$$\theta = \sum_{g \in \mathcal{G}} \sum_{t=2}^{\mathcal{T}} w(g,t) ATT(g,t), \tag{2}$$

where $\mathcal{G}$ is the set of groups and $w(g,t)$ is a weighting function. We use the simple weights from Callaway and Sant'Anna (2021), which create a weighted average of the $ATT(g,t)$'s, where the weights sum to one (avoiding any negative weight issues) and put more weight on larger units.

[7] Our never treated group is defined from the point of view of what we observe in the data. While this group of workers either is not surveyed or does not report sexual harassment in the survey, they may indeed experience sexual harassment.

[8] We examine the validity of the conditional parallel trends assumption in Appendix C.

4 Results

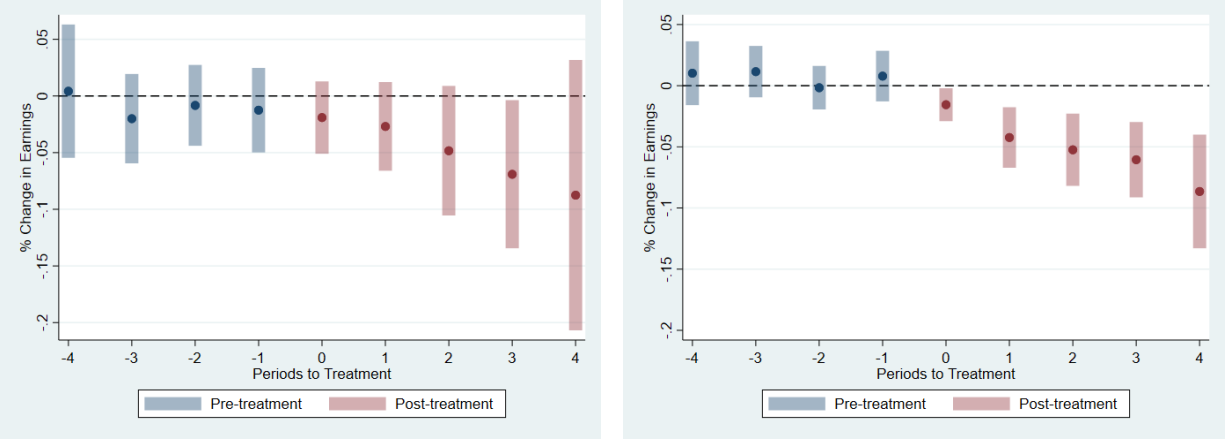
In this section, we examine whether workers who have experienced sexual harassment earn less, whether they move to other firms, and we finally investigate the mechanisms behind the results. We also examine how outcomes vary by the source of workplace sexual harassment and by gender.

4.1 Earnings

Effect of workplace sexual harassment from all sources: For our main results, we examine the dynamics of earning losses following workplace sexual harassment whether from clients or coworkers. We construct the aggregate dynamic weighted average of the $ATT(g,t)$'s, which provides the average effect of participating in the "treatment" for the group of units that have been exposed to the treatment for exactly e periods. This analysis is similar to the standard two-way fixed effect regression in terms of outcomes of interest but avoids the issues with negative weighting that have been highlighted by Goodman-Bacon (2021). The dynamic aggregator gives us a sense of the dynamic impact of workplace sexual harassment and allows us to examine the conditional parallel trends assumption.

Figures 3a plots the result for men and 3b reports the results for women pooling all sources of workplace sexual harassment. We follow earnings outcomes for workers up to four years after they were surveyed. In terms of point estimates, men and women follow similar trends with earnings showing a steady decline after the reported workplace sexual harassment. It is important to note that we do not see earnings recover in the years that follow workplace sexual harassment. It appears that these earnings losses are persistent and potentially growing with time. We also observe that the confidence intervals on the estimates for men are less precise than for women.

Our key identifying assumption is that potential outcomes evolve in parallel for workers absent the experience of workplace sexual harassment, controlling for various demographic characteristics. To test this, we extend the pre-period to show no evidence of pre-trends between control and treatment groups for log annual labor earnings. Indeed, we show that the parallel trends assumption holds even after extending the pre-period to seven years long



(a) Men (b) Women

Figure 3: Dynamic ATT for earnings by gender

Notes: Panel (a) plots the estimates for the dynamic ATT aggregator for earnings for men (b) plots the estimates for the dynamic ATT aggregator for earnings for women. Both samples include all sources of workplace sexual harassment.

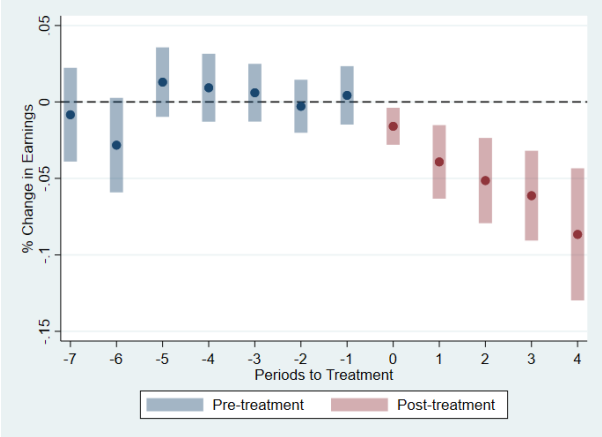
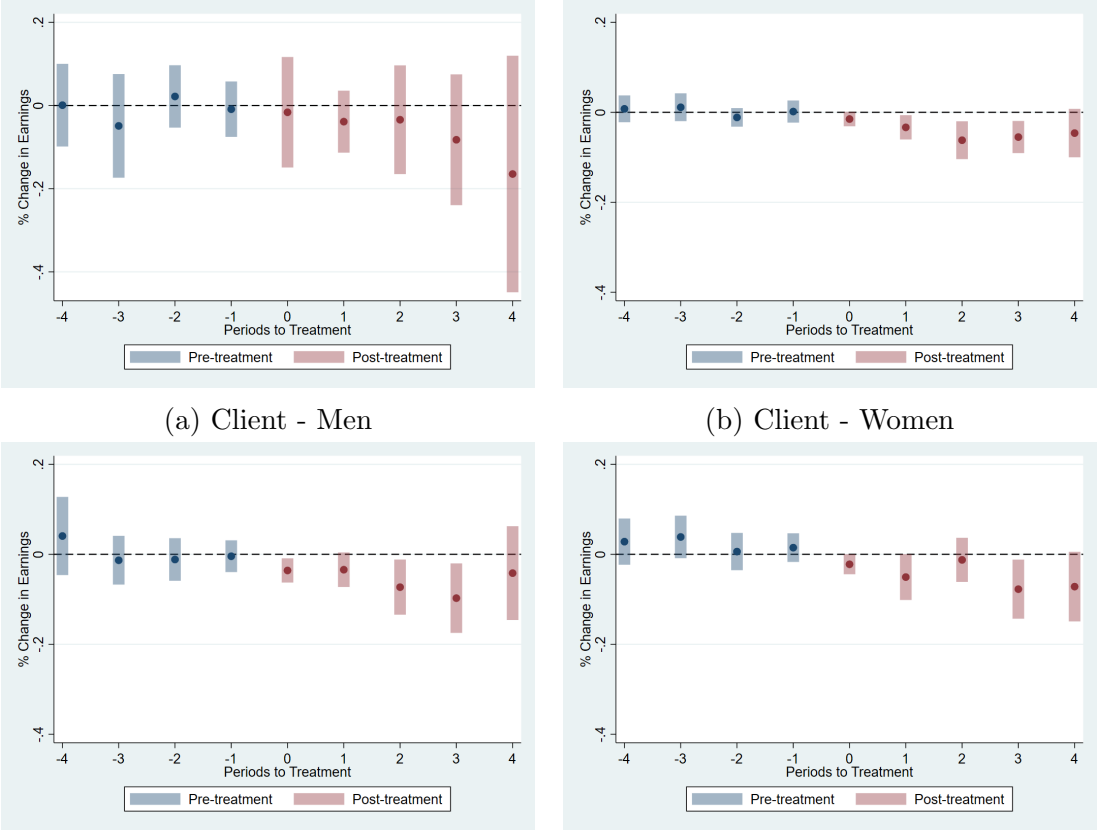


Figure 4: Dynamic ATT for earnings

Notes: Panel plots the estimates for the dynamic ATT aggregator for earnings. The sample include men and women and all sources of workplace sexual harassment.

in Figure 4. For further robustness, we conduct a random inference-based placebo test which confirms that our earnings results are not driven by selection on-trend. The details and results of this approach are included in Appendix E.

Effect of client vs. coworker workplace sexual harassment: Next, we report the dynamic earnings effects of workplace sexual harassment separately for sexual harassment perpetuated by a coworker or a client. We again report the results separately by gender. Figure 5 reports the results. Both men and women see declines in their earnings in the years following a



(a) Client - Men

(b) Client - Women

(c) Coworker - Men

(d) Coworker - Women

Figure 5: Coworker and client dynamic ATT for earnings by gender

Notes: Panel (a) plots the estimates for the dynamic ATT aggregator for earnings following client workplace sexual harassment for men, $n_m = 212$ *(b) plots the estimates for the dynamic ATT aggregator for earnings following client workplace sexual harassment for women,* $n_f = 1812$*. Panel (c) plots the estimates for the dynamic ATT aggregator for earnings following coworker workplace sexual harassment for men,* $n_m = 509$ *and finally (d) plots the estimates for the dynamic ATT aggregator for earnings following coworker workplace sexual harassment for women,* $n_f = 1176$*.*

report that they faced workplace sexual harassment from a coworker in the survey, although estimates in some years are less precise.

We note that we face smaller sample sizes when analyzing results by source, gender, and year which may contribute to the lower precision we see for some of our estimates. For instance, only 212 men in our sample reported facing workplace sexual harassment perpetuated by a client and 509 men by a coworker. Sample sizes for women are larger with 1,812 women reporting workplace sexual harassment perpetuated by a client and 1,176 by a coworker. We thus perform a static ATT analysis to leverage the additional power by pooling the time dimension to compare pre- versus post-workplace sexual harassment.

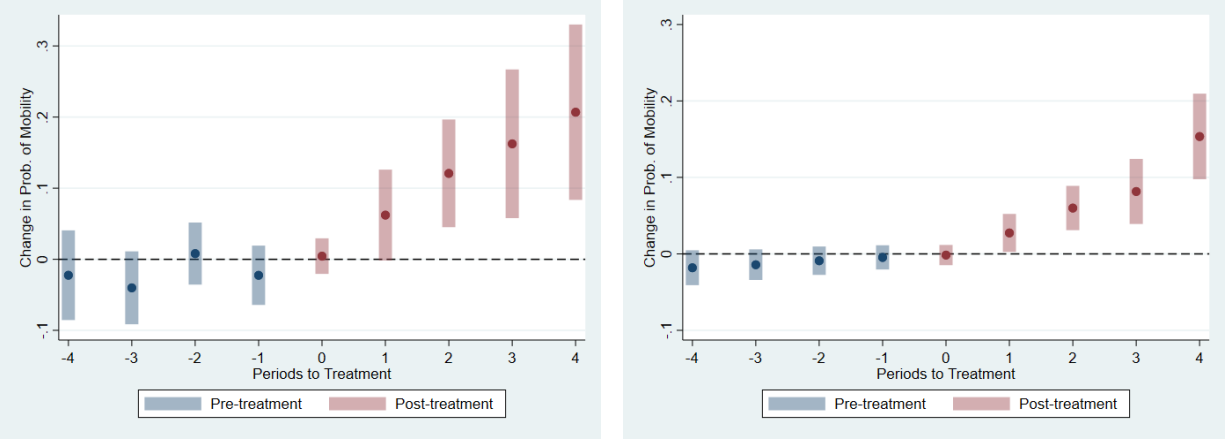
Individual Earnings Losses Following Sexual Harassment

	(1) Women	(2) Men
Coworkers & Clients	-0.0619***	-0.0589***
	[-0.0770,-0.0469]	[-0.0899,-0.0278]
Clients	-0.0532***	-0.114*
	[-0.0700,-0.0364]	[-0.211,-0.0172]
Coworkers	-0.0699***	-0.0557**
	[-0.0993,-0.0406]	[-0.0914,-0.0200]
Mean	10.70	10.92

95% confidence intervals in brackets
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 3: Estimated earnings losses following workplace sexual harassment by source
Notes: This table reports individual earning losses following sexual harassment by coworkers and clients. Coefficient estimates are expressed as a percentage of earnings. Estimates are derived using a multiple-period difference-in-difference approach. 95 percent confidence intervals and p-values are obtained following Callaway and Sant'Anna (2021). Pre-period mean log earnings for men and women are presented in the last row. Sample sizes are $n_m = 212$ *and* $n_f = 1812$ *for male and female client harassment, respectively, and* $n_m = 509$ *and* $n_f = 1176$ *for male and female coworker harassment, respectively.*

Table 3 reports the estimated static aggregate ATT for earnings. The first row reports the ATT for earnings with all sources of workplace sexual harassment for women and men. Overall, women experience a 6.2 percent decline in earnings due to workplace sexual harassment, while men see a 5.9 percent decline. We also estimate the earnings results separately for exposure that comes from coworkers and exposure that comes from clients. The second row reports the estimated ATT for client-based sexual harassment and row three reports the estimates for coworker-based sexual harassment. The biggest gap in earnings effects between men and women comes from client-based sexual harassment, with men's earnings losses at almost twice the magnitude of women's losses. Although, as in the dynamic event study it should be noted that this result for men has a larger confidence interval than for women. The third row reports the results for coworkers, women and men face roughly similar losses following coworker sexual harassment as we observed in the dynamic event study. Again, while the results are more precise the confidence interval for men remains quite large, so while the effect appears to be negative it is difficult to make conclusions about the magnitude of the effect. Appendix C reports the results of the parallel trend tests of the static ATT for worker earnings. This is an additional test of our assumption of parallel trends in relation to the never-treated units.



(a) Men (b) Women

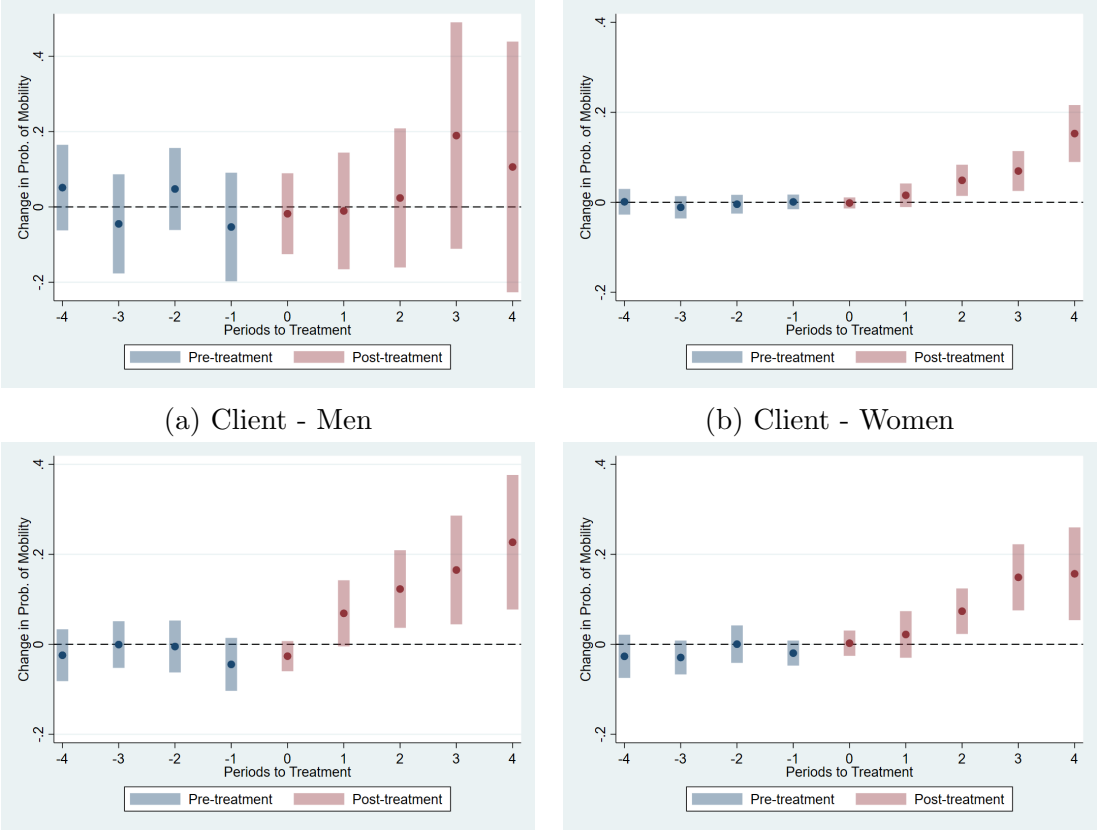
Figure 6: Dynamic ATT for mobility by gender

Notes: Panel (a) plots the estimates for the dynamic ATT aggregator for firm departures for men (b) plots the estimates for the dynamic ATT aggregator for firm departures for women. Both samples include all sources of workplace sexual harassment.

4.2 Mobility

In this subsection we investigate whether victims "escape" workplace sexual harassment after they report exposure by leaving their workplace. To measure workplace mobility, we record an indicator for every period in which the worker has left the firm where they were employed in the survey year (either to another firm or unemployment). We present the results for mobility in the main sample with all sources of workplace sexual harassment for both men and women in Figure 6. We observe that both men and women leave their firms at a higher rate after workplace sexual harassment. Women have an approximately 15 percent higher rate of firm mobility by the fourth year following workplace sexual harassment from a base rate of 0.475. Men are more likely to leave their firm following a report in the survey of workplace sexual harassment, with approximately a 20 percent higher rate of mobility from a base rate of approximately 0.5. The steadily increasing rate of mobility over time may suggest that workers facing workplace sexual harassment are not always able to quickly escape the sexual harassment they face at work.

Next, we consider heterogeneity in mobility outcomes depending on the source of workplace sexual harassment. Figure 7 reports the results. As one would expect, both men and women who were exposed to workplace sexual harassment by coworkers have a higher rate of



(a) Client - Men

(b) Client - Women

(c) Coworker - Men

(d) Coworker - Women

Figure 7: Coworker and client dynamic ATT for mobility by gender

Notes: Panel (a) plots the estimates for the dynamic ATT for mobility following client workplace sexual harassment for men (b) plots the estimates for the dynamic ATT aggregator for mobility following client workplace sexual harassment for women. Panel (c) plots the estimates for the dynamic ATT aggregator for mobility following coworker workplace sexual harassment for men (b) plots the estimates for the dynamic ATT aggregator for mobility following coworker workplace sexual harassment for women.

firm departures. After four years, men were around 20 percent more likely than non-exposed coworkers to have left the firm and women were around ten percent more likely to have left the firm where they were exposed to sexual harassment. Unlike the consequences of workplace sexual harassment perpetrated by coworkers, the effects of exposure to workplace sexual harassment perpetuated by clients seem to diverge for men and women. Women facing workplace sexual harassment by clients have greater rates of firm mobility, but we see no statistically significant effect on firm mobility for men. Again, while our conclusions should be tempered by the smaller sample size for men who report exposure to workplace sexual harassment by clients, it appears that the effect of workplace sexual harassment by clients has a larger affect on mobility for women than for men.

4.3 Mechanisms

So far, we have established that workplace sexual harassment leads to earnings losses and greater rates of workplace mobility for both men and women who report workplace sexual harassment when surveyed. Next, we will examine the characteristics and consequences of these transitions for labor market outcomes, and then explore the impacts of exposure to workplace sexual harassment on labor supply and worker productivity.

4.3.1 Firm and occupational outcomes

First, we analyze the role of workplace sexual harassment in how workers sort into firms. Previous research suggests that women subject to workplace sexual harassment may transition to lower-productivity or lower-paying firms.

We consider the average firm wage, firm size, and the firm-level male share as outcomes. Table 4 reports the static ATT for each firm-level outcome by gender. Women end up at firms with approximately 4.1 percent lower average wages, ten percent smaller firm size, and less than one percent lower male share. Men see a roughly similar pattern and move to firms with a 5.8 percent lower average wage and firm composition that is 1.3 percent more male. However, we fail to reject the null that men move to smaller firms as the estimates are less precise. While we do find evidence of increased gender segregation after workpalce sexual harassment that corroborates prior work, it appears that moves to firms that are smaller and offer lower wages play a larger role in terms of magnitudes of what is driving the earnings declines following workplace sexual harassment than workers paying some type of amenity cost to move to a firm with a higher share of their own gender.

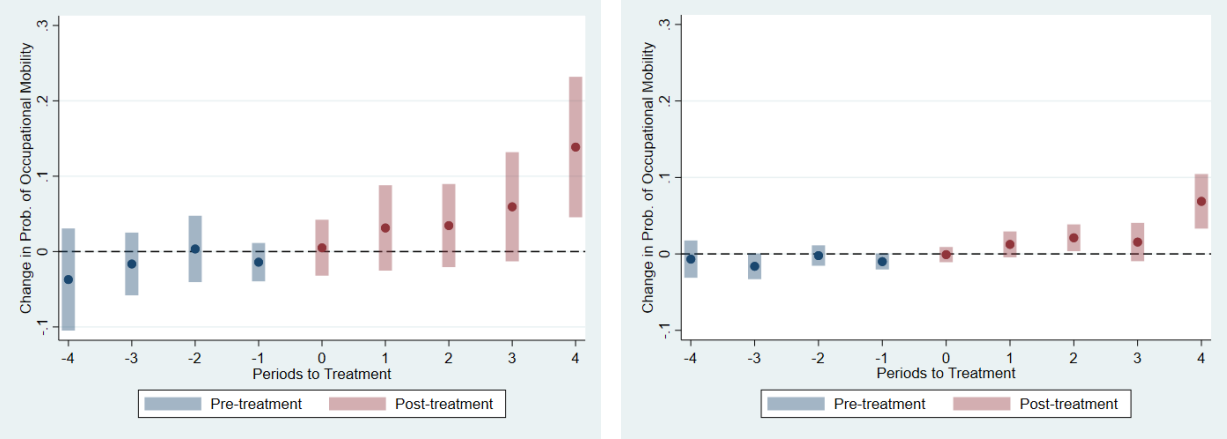
Given the significance of mobility, we ask whether workplace sexual harassment impacts occupational sorting. We define occupational mobility as an indicator equal to one when the worker is employed in an occupation different from the one they reported in the survey year. This classification is determined at the six-digit occupational code level. We find limited evidence of differential occupational mobility in the years after workplace sexual harassment, as illustrated in Figure 8. Men who experience sexual harassment at work have similar rates of occupational mobility than those who do not in the three years following (in

Firm Characteristics

	Avg. Firm Wage		Firm Size		Firm Male Share	
	(1)	(2)	(3)	(4)	(5)	(6)
	Women	Men	Women	Men	Women	Men
Coworkers & Clients	-0.0409***	-0.0583*	-0.101**	-0.145	-0.0067**	0.0130*
	[-0.064,-0.017]	[-0.112,-0.005]	[-0.172,-0.029]	[-0.308,0.018]	[-0.010,-0.002]	[0.001,0.024]
Mean	10.69	10.82	6.51	5.33	0.36	0.63

95% confidence intervals in brackets
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 4: Estimated ATT for firm characteristics by gender
Note: This table reports estimated changes in firm characteristics, such as average firm wages, firm size, and firm male share. Coefficient estimates are expressed as a percentage of the respective outcome variable. Estimates are derived using a multiple-period difference-in-difference approach. 95 percent confidence intervals and p-values are obtained following Callaway and Sant'Anna (2021). Pre-period means of each outcome for men and women are presented in the last row.



(a) Men (b) Women

Figure 8: Dynamic ATT for occupational mobility by gender
Notes: Panel (a) plots the estimates for the dynamic ATT aggregator for occupational moves among men (b) plots the estimates for the dynamic ATT aggregator for occupational moves among women. Both samples include all sources of workplace sexual harassment.

panel (a)). It is not until four years after workplace sexual harassment where we observe a significant increase in occupational mobility among treated workers. This pattern is similar for women (in panel (b)). This finding suggests that losses in occupation-specific human capital are not a significant factor driving the earnings losses we document in Section 4.1 which are immediate.

4.3.2 Declining hours worked

Above, we illustrate that women who experience sexual harassment at work transition to firms that are lower-paying and smaller on average. While this suggests that victims of workplace sexual harassment transition to lower "quality" workplaces, one might expect that victims and those around them would attempt to reduce exposure to workplace sexual harassment by limiting time spent at work. Thus, we examine the impact of experiencing workplace sexual harassment on hours worked second.[9] We study the direct impact of sexual harassment experiences on the log of paid hours worked, a measure that includes overtime hours worked for pay, by estimating the aggregate average treatment effect on the treated from equation (1) and (2).

Table 5 reports the results on the change in hours for women and men (first row). Overall, women's hours worked declines by six percent on average following exposure to workplace sexual harassment while men's hours worked is unaffected.

One would expect transitory declines in hours worked among victims of workplace sexual harassment who are more likely to leave the firms in which they experienced the harassment and transition to another workplace. However, the persistent decline in earnings we document point to a long-run impact of harassment on labor market outcomes that do not converge. Indeed, when we analyze the change in hours separately for women who stay at the firm in which they were exposed to sexual harassment and those who leave, we show that both experience declines in hours worked in column (1) of Table 5. Women who leave the workplace that exposed them to sexual harassment reduce their labor supply by about 20% over the next four years compared to stayers who only reduce hours worked by about 5%. Overall, men's hours worked (in column (2)) do not change on average following exposure to workplace sexual harassment. However, we show that there is a heterogeneous response in hours for men. Similarly to women, men who leave the workplace that exposed them to sexual harassment reduce their labor supply by about 20% over the next four years, whereas we find no effect on hours worked for stayers.

[9]We also study the impact of workplace sexual harassment on the extensive margin of employment; however, we find no evidence on employment. See Appendix D for the results.

Hours Worked		
	(1) Women	(2) Men
All	-0.0608***	0.0021
	[-0.0912,-0.0303]	[-0.0786,0.0827]
Stayer	-0.0543***	-0.0237
	[-0.0814,-0.0273]	[-0.110,0.0621]
Leaver	-0.207***	-0.197**
	[-0.274,-0.140]	[-0.324,-0.0706]
Mean	6.85	6.92

95% confidence intervals in brackets
* $p < 0.05$,** $p < 0.01$, *** $p < 0.001$

Table 5: Estimated response of the log of hours worked for stayers and leavers by gender
Note: This table reports estimated changes in hours worked. Coefficient estimates are expressed as a percentage of the respective outcome variable. Estimates are derived using a multiple-period difference-in-difference approach. 95 percent confidence intervals and p-values are obtained following Callaway and Sant'Anna (2021). Pre-period means of each outcome for men and women are presented in the last row.

4.3.3 Productivity losses

In addition, we examine potential changes in productivity, motivated by prior work which suggests that individuals who face workplace sexual harassment are less productive (Cici et al., 2021). We would like to examine if workplace sexual harassment decreases worker productivity. To do so we estimate the impact of a workplace sexual harassment shock on an AKM residual (Abowd et al., 1999).

An AKM model allows us to decompose changes in earnings by separately identifying factors that determine individual wages. Consider a classic AKM-style decomposition of worker's i wage at firm j in time t as follows.

$$log(w_{i,t}) = \beta_1 age_{i,t} + \beta_2 tenure_{i,t} + \alpha_i + \psi_j + \varepsilon_{i,t}, \tag{3}$$

where t is year, age, and tenure are covariates, α_i is the individual fixed effect, ψ_j is the firm fixed effect, and $\varepsilon_{i,t}$ is the AKM residual.

The variation in wages is decomposed into an individual component, a firm component, and a residual component which captures the portion of wage variation not explained by individual or firm effects. In order to separately identify the determinants of wages, we need

to be able to observe wages within and across firms both before and after job transitions, and we need these job transitions to be exogenous. Our large employer-employee matched dataset includes job histories and wages, which allows us to capture variation in wages within and across firms both before and after job transitions. However, the AKM residual is not identified because the assumption that job transitions are exogenous is violated. Indeed, we show that experiences of workplace sexual harassment leads to a higher rate of firm departures in section 4.2. Thus, we cannot interpret changes in the residual component, $\varepsilon_{i,t}$, as capturing the variation in wages due to changes in productivity alone from estimating the ATT (from equation 1) on the AKM residual.[10]

In particular, through the lens of the model, changes in the residual $\varepsilon_{i,t}$ may be due to productivity losses, or for workers who transition from one firm to another, losing a compensating differential for a high hazard rate of workplace sexual harassment. In other words, we will not be able to isolate whether a decrease in the residual component of wages is coming from productivity declines after a sexual harassment shock or from moving to a firm that has a lower hazard rate of sexual harassment which requires less of a compensating differential in the wage. However, for workers who do not move from one firm to another, the fixed-effects of the worker and the firm in 3 are constant, so differences in wages among these workers must be driven by productivity losses. In particular, there is no change in the compensating differential since the worker's work environment has not changed. Thus, deviations in the hourly wage must be driven by changes in worker productivity.

In light of the potential bias in our estimates of the change in the AKM residual following a workplace sexual harassment shock, Table 6 presents the impact of a workplace sexual harassment shock on hourly wages among workers who stay at their firms and workers who leave their firm in addition to the impact on the AKM residual for women and men. We find no evidence of productivity losses as measured by the AKM residual following workplace sexual harassment. However, we show that average wages for women who stay at the firm in which they were exposed to workplace sexual harassment, and thus could not have lost a compensating differential, fall by nearly six percent. Through the lens of

[10]In addition, limited mobility bias is known to be a problem in estimating such wage determination models as highlighted in Bonhomme et al. (2023).

Productivity Measures

	AKM residual		Stayer's Wages		Leaver's Wages	
	(1)	(2)	(3)	(4)	(5)	(6)
	Women	Men	Women	Men	Women	Men
Coworkers & Clients	0.0175	-0.0255	-0.0586***	-0.0355	-0.215***	-0.204**
	[-0.00113,0.0362]	[-0.0806,0.0297]	[-0.0858,-0.0314]	[-0.120,0.0492]	[-0.282,-0.148]	[-0.345,-0.0620]
Mean	4.5e-11	2.5e-11	12.18	12.40	12.18	12.40

95% confidence intervals in brackets
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 6: Estimated ATT for productivity measures by gender
Note: This table reports estimated changes in measures of worker productivity, such as the estimated AKM residual, hourly wages for stayers, and hourly wages for leavers. Coefficient estimates for the AKM residual are expressed as a level change in the residual and coefficient estimates for wages are expressed as a percentage of the respective outcome variable. Estimates are derived using a multiple-period difference-in-difference approach. 95 percent confidence intervals and p-values are obtained following Callaway and Sant'Anna (2021). Pre-period means of each outcome for men and women are presented in the last row.

a wage determination model, this would suggest that these women's earnings were driven by a loss in productivity. In contrast, we do not find significant wage effects for men who stay at the firms in which they experienced harassment. On the other hand, the hourly wages of workers who leave the firms where they were exposed to sexual harassment decline substantially for both men and women. Average wage losses are surprisingly similar across gender, declining by about 20% for these workers. As mentioned above, we are unable to isolate whether the impact of a workplace sexual harassment shock on hourly wages for leavers is driven by productivity declines after a sexual harassment shock or the loss of a compensating differential in the wage.

4.4 Coworker Spillovers

Finally, workplace sexual harassment can affect the workplace environment of a firm more broadly impacting not only the victims, but also their coworkers. To examine the spillovers of workplace sexual harassment on earnings for individuals who work at a firm that is exposed to sexual harassment, we conduct an analogous event study. We measure the effect of a workplace with sexual harassment on average firm earnings and the effect of a workplace sexual harassment event on non-harassed workers' average earnings.

Let $Y_t(g)$ be the average log annual earnings at the firm level in year t for group g from equation (1) for a workplace that was exposed to workplace sexual harassment. In Table 7 we estimate equation (1) for all employees at a firm and separately for those whose experiences

Coworker's Earnings Following Workplace Sexual Harassment

	(1) Women	(2) Men
Firm Spillover	0.0050	0.0011**
	[-0.0018, 0.0118]	[-0.0046, 0.0069]
Non-harassed Spillover	0.0051	0.0010**
	[-0.0017, 0.0119]	[-0.0047, 0.0068]

95% confidence intervals in brackets
* $p < 0.05$,** $p < 0.01$, *** $p < 0.001$

Table 7: Estimated avg. earnings growth at the firm following workplace sexual harassment by gender

Notes: This table reports estimated spillover effects on earnings of bystanders to workplace sexual harassment. Coefficient estimates are expressed as a percentage of the respective outcome variable. Estimates are derived using a multiple-period difference-in-difference approach. 95 percent confidence intervals and p-values are obtained following Callaway and Sant'Anna (2021).

of workplace sexual harassment we cannot identify, i.e., the "non-harassed".

Since we do not observe the universe of workers in our survey data, misclassification errors may be present in which firms have workplace sexual harassment incidents that are unobserved. Thus, we take these estimates as a lower bound on the earnings spillover of workplace sexual harassment. Column 1 and 2 of Table 7 report the earnings growth for women and men at a firm following a workplace sexual harassment event, respectively. We find that both the overall firm and the spillover for those who have not experienced workplace sexual harassment is near zero. For all male coworkers in a firm and for the "non-harassed", earnings grow by about one percent. We find no evidence of changes in female coworkers' subsequent earnings growth at firms that experience a workplace sexual harassment incident relative to those that do not. This may be due to the fact that women are, in general, more likely to experience workplace sexual harassment, and these types of events are therefore considered in alignment with the norm for women. Overall, we find little effect of workplace sexual harassment instances on coworker earnings spillovers.

5 Conclusion

The #metoo movement, which grew in prominence in 2017, put a greater spotlight on incidences of workplace sexual harassment. However, economic evidence has only just begun

to document the extent of the labor market consequences of workplace sexual harassment.

In this paper, our main contribution is that we are the first to estimate the earnings consequences of workplace sexual harassment by type of perpetrator. Using detailed survey and administrative data from Denmark, we can follow workers labor market histories after a report of exposure to workplace sexual harassment and identify whether the workplace sexual harassment was perpetuated by a coworker or a client. The earnings losses following workplace sexual harassment are significant, and average 6 percent for both women and men in the four years following exposure. Looking at the dynamics of these losses, we see no evidence that workers earnings recover, as losses are driven by workers switching to new jobs. We also provide further evidence that workplace sexual harassment can be disruptive to workers careers with workers who report exposure to workplace sexual harassment leaving their firms at a higher rate following exposure.

We are also able to provide direct evidence of who perpetuates workplace sexual harassment and analyze differences in the incidence and consequences of these sources by gender. We observe that clients are a key source of workplace sexual harassment particularly for women. Prior work has focused on the role of coworkers as a source of workplace sexual harassment, especially for workers in a gender minority group. We do find coworkers to be an important source of workplace sexual harassment, but we also find that clients are the source for significant proportion of incidences as well, and make up the majority of incidences for women. Our empirical results show that the earnings consequences of workplace sexual harassment are of a similar magnitude for coworker- and client-based sexual harassment for women, but diverge more for men. The sources of workplace sexual harassment should be a key consideration when developing workplace or government policies to address workplace sexual harassment.

Our work is part of a growing literature highlighting the economic implications of workplace sexual harassment and other forms of gender-based violence. We add more evidence to this work on the gender inequality of who faces workplace sexual harassment and the labor market consequences they face. Our findings can also inspire future work examining gender differences in workplace sexual harassment and the role of policy in addressing these inequalities on a larger scale.

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A Heterogeneity of Workplace Sexual Harassment

In this Appendix, we present additional empirical moments about the incidence of workplace sexual harassment across the age distribution by gender.

Figure 9 plots the percent of workers who reported any exposure to workplace sexual harassment in the past year by age and gender. We bin workers by age to meet release criteria since some age-gender groups have a small number of reports.

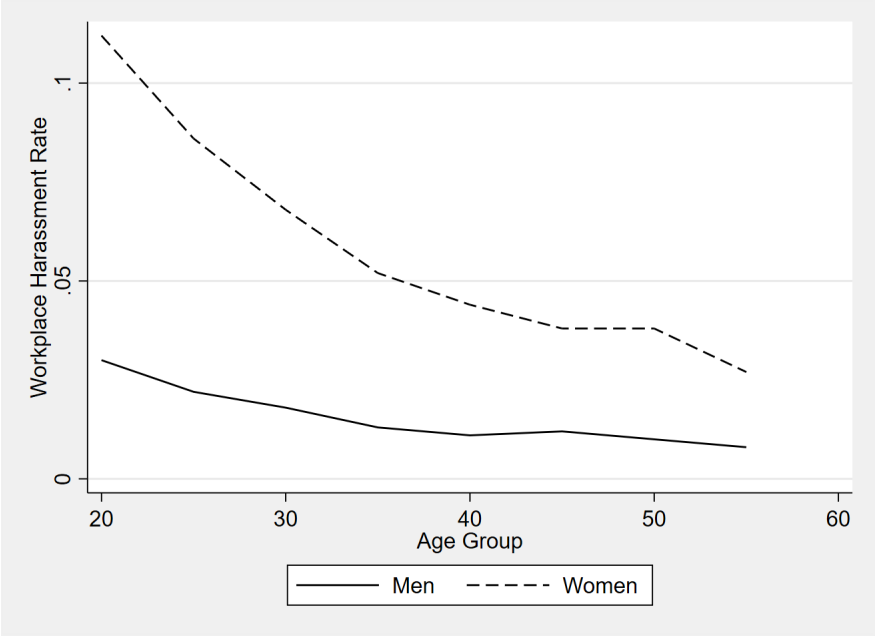


Figure 9: Incidence of workplace sexual harassment by age group and gender. Source: Author's calculations from AH data

B Descriptive Statistics Workplace Sexual Harassment

In this Appendix, we provide additional descriptive statistics of reported workplace sexual harassment by frequency and source of exposure.

Table 8 displays the analysis sample's reported frequency of workplace sexual harassment incidents by worker characteristics. Annual earnings are the annual gross labor market income deflated to the 2015 price level, tenure is measured in years and college is an indicator variable. Number of observations in each category are in the final column.

Table 8: Summary Statistics by Workplace Sexual Harassment Frequency

	% Women	Age	Ann.Earn (USD)	Tenure	College	Obs
Daily	0.53	41.80	52,597	6.46	0.21	91
Weekly	0.79	41.00	46,930	5.68	0.20	223
Monthly	0.77	38.77	49,492	6.07	0.28	310
At least once	0.84	42.86	51,536	7.21	0.39	2,308
Never	0.53	46.89	61,393	8.65	0.43	99,539
Total	0.54	46.76	61,096	8.61	0.43	102,471

Table 9 displays the reported source of workplace sexual harassment incidents by worker characteristics for victims in our analysis sample. Annual earnings are the annual gross labor market income deflated to the 2015 price level, tenure is measured in years and college is an indicator variable.

Table 9: Summary Statistics by Workplace Sexual Harassment Source

	% Women	Age	Ann.Earn (USD)	Tenure	College	Obs
Client, Patient, etc.	0.91	43.44	48,211	7.12	0.33	1,748
Colleague	0.68	40.63	54,490	6.91	0.38	736
Manager	0.79	39.81	53,457	6.17	0.45	349
Subordinate	0.41	41.80	71,554	7.36	0.39	82
Total	0.82	42.25	51,074	6.96	0.36	2,915

C Parallel Trends

In this Appendix, we present the results of our parallel trends test for log annual earnings.

The average coefficient from our parallel trends test of pre-trends for various firm and individual outcomes are reported in Table 10.

Pre-Trends Test for Parallel Trends

	Average Pre-Trend Coefficient
Avg. Firm Log Wage	2.11e-70
Avg. Individual Log Wage	.0049525
Firm Male Share	.0628844

Table 10: Average pre-trends test on firm and worker characteristics

D Employment

In this Appendix, we document the empirical results of the impact of exposure to workplace sexual harassment (by source) on annual employment.

Table 11 provides the estimated aggregate ATT for an annual employment indicator to examine whether workers who experience workplace sexual harassment at work are choosing not to participate in the labor force. However, we do not find evidence that these workers move into non-employment following such events.

Employment Following Workplace Sexual Harassment

	(1) Women	(2) Men
Coworkers & Clients	-0.0014	-0.0002
	[-0.0041, 0.0013]	[-0.0008, 0.0003]
Clients	-0.0001	0.0001*
	[-0.0002, 0.0001]	[0.0000, 0.0001]
Coworkers	-0.0019	-0.0008
	[-0.0056, 0.0018]	[-0.0025, 0.0009]

95% confidence intervals in brackets
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 11: Estimated ATT for individual annual employment following workplace sexual harassment

E Robustness

In this Appendix, we provide the results from a robustness exercise testing for selection on pre-treatment trends.

For further robustness, we implement a random inference-based placebo test. In particular, we simulate artificial experiences of workplace sexual harassment by randomly assigning treatment indicators in the data while maintaining the same overall prevalence as observed in the actual data. This random assignment breaks any systematic relationship between treatment and potential confounders. Then we estimate aggregate average treatment effects on the treated (ATTs) using the placebo indicators. Under the null hypothesis of no effect, and given that the treatment is randomly assigned, we expect these placebo ATTs to be close to zero. Significant deviations from zero would suggest that our original estimates may reflect underlying correlations—such as individuals experiencing workplace sexual harassment also being more likely to face contemporaneous shocks to earnings—rather than causal effects of workplace sexual harassment on earnings. We repeat this procedure 500 times to obtain a distribution of placebo estimates. The results of this exercise in Figure 10 confirm that in our sample, the event study results are not driven by selection on-trend.

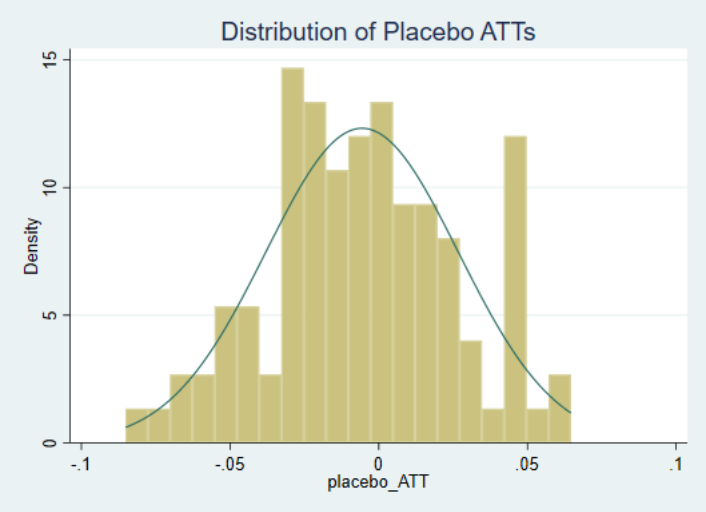


Figure 10: This figure displays the distribution of ATT estimates based on 500 placebo treatment assignments, where workplace sexual harassment indicators are randomly reassigned. The null distribution is centered around zero. This placebo test confirms that our main findings are not driven by selection on pre-treatment trends.