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Julia Goodman

*Portland State University, [jmg@pdx.edu](mailto:jmg@pdx.edu)*

Connor Williams

*University of California - Berkeley*

Holly Elser

*University of California, Berkeley*

William H. Dow

*University of California - Berkeley*

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## Inequities in paid parental leave across industry and occupational class: Drivers and simulated policy remedies

Holly Elser<sup>a,\*</sup>, Connor Williams<sup>b</sup>, William H. Dow<sup>b</sup>, Julia M. Goodman<sup>c</sup>

<sup>a</sup> Department of Neurology, Hospital of the University of Pennsylvania, USA

<sup>b</sup> Division of Health Policy & Management, School of Public Health, University of California, Berkeley, USA

<sup>c</sup> School of Public Health, Oregon Health and Sciences University and Portland State University, USA

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### ABSTRACT

**Introduction:** Paid family leave (PFL) has the potential to reduce persistent health disparities. This study aims to characterize differences in access to paid leave by industry sector and occupational class.

**Methods:** The Bay Area Parental Leave Survey of Mothers included respondents 18 years of age or older who worked in the San Francisco Bay Area and gave birth from 2016 to 2017. Using linear probability models, we examined differences in five separate measures of PFL by industry sector and occupational class. We extended our regression analysis to simulate the full pay equivalent (FPE) weeks of leave that would have been taken under hypothetical scenarios of increased uptake and wage replacement rates.

**Results:** Our study included 806 women in private for-profit or non-profit jobs. In fully adjusted models, blue-collar workers were 10.9% less likely to take 12 weeks of paid parental leave versus white-collar workers (95% CI: -25.9, 4.1). Respondents were 19.2% less likely receive 100% of their regular pay if they worked in education and health services (-29.1, -9.3) and 17.0% less likely if they worked in leisure and hospitality (-29.5, -4.4) versus respondents in professional and financial services. Respondents in leisure and hospitality reported 1.6 fewer FPE weeks of leave versus respondents in professional and financial services (-2.73, -0.42) and blue-collar respondents reported an average of 1.5 fewer FPE weeks versus white-collar workers (-2.66, -0.42). In our simulation analysis, when we manipulated rates of uptake for paid leave, the disparities in FPE by industry sector and occupational class were eliminated.

**Conclusion:** We observed substantial inequities in access to paid leave by industry sector and occupational class. These findings underscore the potential importance of universal PFL programs with universal benefits to reduce clear inequities that persist within the labor market today.

### 1. Introduction

Paid family leave (PFL) policies provide essential time away from work for new parents to care for a newly born, adopted, or fostered child. Past research identifies numerous health benefits associated with PFL, including increased initiation and duration of breastfeeding (Berger et al., 2005; Chatterji & Frick, 2005; Chuang et al., 2010; Fein & Roe, 1998; Guendelman et al., 2009; Hawkins et al., 2007; Johnston & Esposito, 2007; Lindberg, 1996; Ogbuanu et al., 2011; Staehelin et al., 2007; Visness & Kennedy, 1997), reduced depressive symptoms among mothers (Chatterji et al., 2011; Chatterji & Markowitz, 2008; Dagher et al., 2011), and increased bonding and participation in childcare activities for fathers (del Carmen Huerta et al., 2013; Nepomnyaschy &

Waldfoegel, 2007). Availability of PFL is further associated with greater economic stability particularly for low-income and single mothers, and employers potentially stand to benefit from PFL through increased labor force attachment, improved employee morale, and increased productivity.

Despite the well-documented health benefits of PFL, the United States does not have a national PFL policy, and in fact is the only country in the Organization for Economic Cooperation and Development (OECD) without a national guarantee of paid leave (Raub et al., 2018). The Family and Medical Leave Act (FMLA) of 1993 established 12 weeks of unpaid but job-protected leave for covered employees to care for a newly born, adopted, or fostered child; a seriously ill family member; or to recover from one's own serious illness. Nine states and the District of

\* Corresponding author.

E-mail address: [holly.elser@pennterapeutics.com](mailto:holly.elser@pennterapeutics.com) (H. Elser).

Columbia (D.C.) have since passed laws to extend FMLA and provide statewide *paid* leave (Chatterji & Frick, 2005). California was the first state to enact such a policy, in 2002, by extending State Disability Insurance (SDI) to provide up to six weeks of partial wage replacement during qualified family or medical leave (Employment Development De, 2020). Some local policies have been even more expansive. In 2016, San Francisco passed the Paid Parental Leave Ordinance (PPLO), the first fully paid parental leave policy in the U.S., mandating that covered employers provide supplemental wage replacement for the six weeks of parental leave provided by California's statewide PFL program (Dow et al., 2017).

Overall, the existing system of unpaid and paid family leave in the U.S. remains piecemeal, leaving many workers to either rely on their employers to voluntarily provide leave, or without access to leave altogether. Almost half of U.S. workers lack FMLA protection for unpaid leave (Brown et al., 2020), and four out of five workers lack paid family leave through their jobs (US Department of Labor BoLS, 2013). Research has also shown that with this complicated patchwork of coverage, many workers fail to use the benefits available to them. Barriers include the administrative burden of applying for PFL benefits and limited awareness and understanding of available benefits (Appelbaum & Milkman, 2015; Dow et al., 2017; Goodman et al., 2020; Office of Labor Standards, 2021). These barriers collectively produce marked disparities in PFL use by income, educational attainment, marital status, and race. Furthermore, firm-level data indicate substantial disparities in PFL by industry, with substantially higher coverage in professional sectors than in those dominated by low-wage essential workers such as manufacturing and retail trade (Goldin et al., 2020).

The present study offers a natural extension of the extant literature on unequal access to PFL, with specific focus on paid parental leave among mothers in the San Francisco Bay Area. A key contribution is the availability of detailed individual-level data. We consider both industry sector and occupational class as potential determinants of leave-taking, adjusting for employment and demographic characteristics. Another contribution is our examination of several distinct measures of leave-taking, including duration of leave taken, access to government versus employer paid leave, and wage replacement rates. We also develop a novel measure of "full pay equivalent" (FPE) weeks, combining duration of available leave with the wage replacement rate to compare paid leave generosity by industry sector and occupational class. Finally, we include a simulation of the extent to which inequities in FPE parental leave-taking by industry sector and occupational class could be reduced through hypothetical interventions that specifically increase wage replacement rates and uptake. Collectively, these analyses are intended to offer a detailed and comprehensive picture of the extent and nature of unequal leave-taking that persists in this area of the contemporary U.S. labor market.

## 2. PFL background and literature review

Past research identifies significant health benefits for workers and their families associated with PFL. There is a clearly demonstrated relationship between duration of paid maternity leave and breastfeeding, with earlier returns to work consistently associated with reduced initiation and duration of breastfeeding (Berger et al., 2005; Chatterji & Frick, 2005; Chuang et al., 2010; Fein & Roe, 1998; Guendelman et al., 2009; Hawkins et al., 2007; Johnston & Esposito, 2007; Lindberg, 1996; Ogbuanu et al., 2011; Staehelin et al., 2007; Visness & Kennedy, 1997). Infants whose mothers take time from work after childbirth are also more likely to attend well-baby checkups and receive recommended vaccinations in their first year of life (Berger et al., 2005; Hajizadeh et al., 2015). Additional child health benefits include fewer low-birthweight and small-for-gestational-age births; decreased infant hospitalizations; decreased infant mortality rates; reduced likelihood of obesity, attention deficit hyperactivity disorder, hearing problems, and ear infections (Lichtman-Sadot & Bell, 2017; Pihl & Basso, 2019; Rossin,

2011; Stearns, 2015; Tanaka, 2005). Benefits of PFL extend to new parents, including reduced depressive symptoms and risk of severe depression in mothers (Chatterji et al., 2011; Chatterji & Markowitz, 2008; Dagher et al., 2011), and increased bonding and participation in childcare activities for fathers (del Carmen Huerta et al., 2013; Nepomnyaschy & Waldfogel, 2007).

Household economic benefits associated with paid leave include increased household income, decreased risk of poverty, and reductions in some forms of material hardship, especially among less-educated and low-income single mothers (Fein & Roe, 1998; Visness & Kennedy, 1997). Research-to-date suggests further that employers may benefit from paid leave policies through increased chances that workers will return to their jobs after childbirth (i.e. greater labor force attachment) (Berger & Waldfogel, 2004; Joesch, 1997; Rossin-Slater et al., 2013), improvements in employee morale, and increased worker productivity through higher retention and lower turnover rates (Appelbaum & Milkman, 2011; Bassanini & Venn, 2008). Evidence from ongoing paid leave programs further suggests that firm costs associated with paid leave – including hiring and training of temporary replacements or overtime paid out to existing workers – are minimal (Dube et al., 2016; Tracey & Hinkin, 2006; Trzcinski & Finn-Stevenson, 1991).

### 2.1. Unpaid family leave in the United States

Despite the wide-ranging benefits of PFL policies for employers, workers and their families, the United States remains the only country in the Organization for Economic Cooperation and Development (OECD) without a national-level guarantee of paid leave for mothers and one of two OECD countries without any paid leave for fathers (Raub et al., 2018). There are two primary national policies affecting parental leave in the U.S. The Pregnancy Discrimination Act (PDA) of 1978 amended Title VII of the Civil Rights Act of 1964 to prohibit acts of discrimination against female employees or applicants – including hiring, firing, pay, job assignments, promotions, layoffs, training, and fringe benefits – on the basis of pregnancy, childbirth, or any related medical condition. The PDA played a key role in increasing both the labor force participation and earnings of new mothers who had previously been denied benefits including paid sick leave, health insurance, and temporary disability insurance (Gault et al., 2014, pp. 1–66; Spalter-Roth et al., 1978).

The Family and Medical Leave Act (FMLA) of 1993 later established 12 weeks of unpaid leave annually during any 12-month period to care for a newly born, adopted, or fostered child; a seriously ill family member; or to recover from one's own serious illness. Eligible workers are further guaranteed continued health insurance benefits as ordinarily provided by their employer and return to the same or equivalent job (Department of Labor., 2020; Mayer, 2013). Although the FMLA covers both public- and private-sector workers, provision of job-protected, unpaid leave only extends to those workers employed by a covered employer who meet specific eligibility requirements. Covered employers are those that employ at least 50 workers within a 75 mile radius, and eligible workers are those who have worked for a covered employer for at least 12 months and have worked at least 1250 h over a 12-month period (Fliegel, 2006). Job protection is somewhat stronger in California. In 2018 (after the period covered by the 2016-17 data in the present manuscript), California extended the FMLA protections for unpaid leave to firms with 20 or more employees, and in 2020 to firms with five or more employees, but with exclusions still for newer and part-time workers (Goodman & Dow, 2020).

### 2.2. Paid family leave in the U.S.

Several states have policies that build on FMLA to provide *paid* family leave. California, Hawaii, New Jersey, New York, Rhode Island, and Puerto Rico have longstanding Temporary Disability Insurance (TDI) programs that provide workers with at least partial wage replacement while on disability leave, including leave related to

pregnancy and childbirth.

In addition, nine states – California, Rhode Island, New Jersey, New York, Washington, Massachusetts, Connecticut, Oregon, Colorado – and the District of Columbia have enacted statewide *paid* family leave programs that go beyond TDI's pregnancy disability coverage (Chatterji & Frick, 2005). In 2002, California established the first PFL program in the U.S., extending its State Disability Insurance (SDI) program to also provide up to six weeks of partial wage replacement to bond with a newborn or newly adopted or fostered child or to care for a seriously ill family member. In 2018, wage replacement rates for California state PFL increased from 55% to 60% for workers earning above one-third of the statewide average and 70% below this threshold (Employment Development De, 2020). In an effort to make paid leave more accessible to lower wage workers, the most recently enacted state PFL policies provide higher wage replacement, including at least one state (Oregon) that provides full wage replacement for the lowest paid workers (National Partnership for, 2021).

At the local level, San Francisco passed the Paid Parental Leave Ordinance (PPLO) in 2016, the first fully paid parental leave policy in the U.S. The PPLO mandates that covered employers provide supplemental wage replacement for the six weeks of parental leave provided by California's statewide PFL program, bringing workers' wages up to 100 percent of their gross weekly wages, subject to a cap (Dow et al., 2017).

### 2.3. Persistent barriers in access and uptake

Despite states' efforts to increase access to PFL, the existing system of unpaid and paid family leave in the U.S. remains piecemeal at best, leaving many workers to either rely on their employers to voluntarily provide leave or without access to leave altogether. For example, FMLA eligibility requirements create substantial gaps in access to unpaid, job-protected leave that exclude part-time workers and those employed by smaller firms. As of 2018, only 56 percent of U.S. workers were eligible for FMLA and only 10 percent of worksites in the private sector were part of firms large enough to be covered by FMLA (Brown et al., 2020). Based on data from the National Compensation Survey (NCS), only 21% of U.S. workers had access to some form of paid leave in 2020, and workers in the highest-paid decile of the workforce were more than four times as likely to have employer-paid family leave versus those in the bottom quartile (US Department of Labor BoLS, 2013). Previous studies also find that women are more likely to have access to some form of paid leave before or after childbirth if they are older, have attended college, and are white and non-Hispanic (Laughlin, 2011, p. P70; Zagorsky, 2017).

There are substantial disparities in access to paid leave by industry and occupation. Firm-level data suggests that, whereas offering of PFL nearly doubled from 20% in 2010 to 40% in 2018 in the Information and Professional & Technical sectors, offering in Manufacturing and Retail Trade remained limited over this period.<sup>25</sup> According to the 2020 National Compensation Survey, an estimated 21% of private-sector sales and office workers and just 12% of service workers had access to paid family leave, in contrast with 33% of management, professional, and related workers (Labor USDoStatistics USBoL, 2020, p. 552). We therefore hypothesized that workers in retail and trade or in leisure and hospitality would have decreased access to and uptake of PFL as compared with workers in professional and financial activities, even after controlling for covariates. As firms may preferentially extend PFL to some workers but not others (i.e., contract and contingent workers) we further hypothesized that workers in blue-collar jobs would have decreased access to and uptake of PFL as compared with white-collar workers.

Even workers who are eligible for PFL through state and local programs often face substantial barriers to uptake. First, the administrative burden of applying for PFL benefits may prevent eligible workers from accessing them. For example, to receive PPLO benefits in San Francisco, workers must first apply for PFL through the state and then submit a

separate claim to their employer (Office of Labor Standards, 2021). Once a worker has successfully applied for state PFL, their employer can directly pay their supplemental wages. Systems such as this are a known source of confusion for both workers and employers (Dow et al., 2017; Goodman et al., 2020). Workers at small firms without designated human resources representatives, and workers for whom English is a second language, face even greater challenges.

Second, PFL programs suffer from low worker awareness of eligibility details. Milkman and Appelbaum found that just 49% of California workers who had recently experienced a qualifying event (e.g., becoming a parent or having a close family member become seriously ill) were aware of the state's PFL program five years after the policy went into effect, with even lower awareness among low-wage workers, immigrants, Latinos, and workers who had not finished high school (Appelbaum & Milkman, 2015). Similarly, after the PPLO was implemented in San Francisco, there was little change in leave uptake among mothers; data from a survey of women who gave birth and worked in San Francisco suggested that limited uptake was attributable – at least in part – to limited awareness of available maternity benefits particularly among low-income mothers (Goodman et al., 2020).

Finally, some PFL programs disadvantage workers in the industries where access to paid leave is already limited. Whereas the California state PFL program calculates wage replacement inclusive of tips, under the PPLO, employers who have tipped workers are not responsible for the portion of their workers' wages normally comprised of tips. This implies that tipped workers will not receive 100% of their prior earnings while on leave (Dow et al., 2017).

### 2.4. Policy interventions to address barriers

One policy remedy for the above disparities in PFL access and take-up would be a universal, national policy, as in other OECD countries. Absent this type of major new policy, efforts to narrow disparities could be informed through a more nuanced understanding of the patterns and drivers of these disparities. Outreach, monitoring, and advocacy are often targeted by industry and occupational group, thus the present study focuses on characterizing differences in offering and uptake of PFL by industry sector and occupational class. Given the administrative barriers to uptake, one specific policy intervention that might increase uptake is a benefits navigator, which could be offered through a variety of settings, including state or local government agencies, healthcare settings, or community-based non-profits. A fully effective navigator program under ideal conditions could help to ensure that all individuals are aware of and are able to enroll in and fully utilize all paid leave they are eligible for.

## 3. Methods

The present study leverages survey data from the 2016 and 2017 Bay Area Parental Leave Survey of Mothers. Survey respondents resided in San Francisco or one of five surrounding Bay Area counties and were identified on the basis of birth certificate records for 2016 and 2017 from the California Department of Public Health. The sample included mothers ages eighteen and older at the time of the survey who had given birth between January through September in 2016 or 2017. Respondents were initially invited by mail to complete an online survey in either English or Spanish and were mailed a paper survey to complete and return if they did not initially respond. The first survey wave for respondents who gave birth in 2016 was conducted between December 2017 and December 2018. The second survey wave for respondents who gave birth in 2017 was conducted between November 2018 and May 2019. The response rate was 20 percent (for details on representativeness see Goodman et al. (2020) (Goodman et al., 2020). The present analysis is restricted to workers employed by private for-profit or non-profit employers. Respondents who were less likely to have been covered by state and employer-provided paid leave policies –

government employees, self-employed, and who did not plan to return to their same job after pregnancy – were excluded. All study procedures were approved by the Institutional Review Boards of the University of California, Berkeley and Portland State University.

### 3.1. Industry sector and occupational class

All survey respondents who were employed during pregnancy were asked to report the business name and industry they worked in and their job title. Respondents' business or industry was classified based on the North American Industry Classification System (NAICS) (Murphy, 1998), from which we created four industry sector categories: (1) professional and financial activities; (2) manufacturing, retail, and trade; (3) education and health services; (4) and leisure and hospitality. The education and health services category and leisure and hospitality industry sector category are consistent with the two-digit NAICS classification. The professional and financial activities category combined respondents employed in the professional and business activities; financial activities; information; and public administration industries. The manufacturing, retail and trade combined respondents employed in the trade, transportation and utilities; manufacturing; construction; and natural resources and mining industries (Bureau of Labor Statistics, 2020).

We used job titles to classify respondents as working in white-collar or blue-collar and service occupations during their pregnancy (Bernstein & Gittleman, 2003; Foster, 2003). Blue-collar and service occupations included precision production, craft, and repair; machine operators and inspectors; transportation and moving; and handlers, helpers, and laborers; and service occupations. White-collar jobs were those that would typically be performed in an office environment, including clerical, administrative, and managerial duties.

### 3.2. Dependent variables: parental leave access and uptake

Taking advantage of a rich battery of questions on leave taking included in this survey, we created five distinct measures of parental leave. First, we created an indicator variable for whether respondents took at least 12 weeks of (postnatal) parental leave. Employees who qualify for FMLA are entitled to 12 weeks of unpaid, job-protected leave. In California, where our study population is based, virtually all private sector workers were eligible for six weeks of initial paid leave through the government SDI program for recovery following childbirth, followed by another six weeks of bonding leave through SDI's PFL program, both at 55% partial wage replacement during our study period. The exception is private workers who are independent contractors or self-employed, who are not required to pay into the SDI system; we have excluded such workers from the current analysis based on their reported employment.

In addition, San Francisco mothers who were covered by the PPLO were eligible for 100% wage replacement during this latter six weeks of bonding leave because PPLO required employers to pay the additional 45% of pay above the 55% wage replacement through SDI. PPLO-covered employees included those working in San Francisco firms with 50 or more employees after January 1, 2017, or at least 35 employees after July 1, 2017. However, prior research has found low awareness of PPLO and no change in San Francisco maternal leave-taking during 2017 (Goodman et al., 2020), thus we do not focus on PPLO effects in the current analysis, and for power purposes we retain in the data that subset of 2017 San Francisco women who were potentially eligible for increased wage replacement in 2017.

Respondents may end up taking fewer than twelve weeks of leave for a variety of reasons, including fear of losing their job if they do not qualify for FMLA protections and hence do not have job protection (42% of the working new mothers in our 2016-17 Bay Area survey lacked job protection due to working in firms with fewer than 50 employees, or because they were part-time or recently hired). Others may have taken

fewer than twelve weeks of maternity leave because they could not afford to take so many weeks off without full pay, even with job protection.

Our second measure was an indicator for whether the respondent received any employer pay during parental leave. Respondents may have received no employer pay during parental leave if their employer had no voluntary paid leave policy in place, and if the employer was either not covered by PPLO or the employee was not aware of PPLO benefits or how to successfully apply.

Our third measure was an indicator for whether the respondent received any government pay during parental leave. Respondents may have received no government pay during parental leave if they were either unaware of benefits or were unable to successfully navigate the system to obtain them. Virtually all of the private employees in our analysis did report taking some parental leave, and should have been eligible for government pay during that leave. Importantly, because measures of both types of paid leave are self-reported, responses also reflect respondents' understanding of the leave that was available to them and how they were compensated while on parental leave. The government leave through the SDI program is clearly labeled as a state rather than employer program, with the pay arriving from the state, so confusion as to the origin of the pay should not be a major source of measurement error.

Our fourth measure of leave-taking was an indicator for whether the respondent received 100% of their regular pay while on leave, including both employer- and government-pay.

Finally, we created a continuous variable that represented weeks of full-pay equivalent (FPE) leave, which was calculated as the product of the percentage of wage replacement reported and their total duration of parental leave. FPE leave is a summary measure of the financial benefits received during leave, relative to a worker's usual weekly pay. Because percentage wage replacement received was measured as a categorical variable (<50%; 50%; 51–75%; 77–99%; 100%), the mid-point of each percentage range was used to calculate FPE weeks of paid leave taken. Virtually all respondents should have been eligible for at least 12 weeks of leave at 55% pay through SDI; those with complicated childbirth, including c-section, were eligible for additional weeks. To abstract from this issue, we top-coded leave at 12 weeks for the purposes of calculating FPE weeks.

Additional variables analyzed included an indicator variable for whether the respondent stated that they understood the maternity leave benefits that were available to them "extremely well" or "very well" and an indicator for whether the respondent stated that their employer helped them to learn about the maternity leave benefits available to them.

### 3.3. Covariates

Job and work-related characteristics of interest included an indicator variable for whether the respondent was employed by a not-for-profit (versus for-profit) employer; a categorical measure of employer size based on the approximate number of employees at their place of work during pregnancy (1–19; 20–49; 50–99; 100–199; 200–499; 500 or more); a categorical measure of tenure based on how long respondents had worked continuously for their employer before taking parental leave (less than six months; six to 11 months; one to four years; five or more years); and average weekly work hours (less than eight; between eight and 23; between 24 and 35; more than 35 hours per week). Demographic characteristics included an indicator variable for whether they were Medicaid insured and categorical race/ethnicity (non-Hispanic white, non-Hispanic Black, non-Hispanic Asian, non-Hispanic other, and Hispanic of any race). We created an indicator for whether the respondent completed the survey during the second wave in 2017 versus the first survey wave in 2016. Finally, we created an indicator variable that equaled one if the respondent was employed within San Francisco versus one of five surrounding Bay Area counties.

### 3.4. Statistical analysis

For all analyses, we incorporated probability weights to account for nonresponse and oversampling of San Francisco residents, Spanish speakers (proxied by mother's immigration from a Spanish-speaking country), and low-income women (proxied by whether they were Medicaid insured).

#### 3.4.1. Regression analysis

We examined the associations of industry sector and occupational class and each measure of parental leave uptake separately using linear regression. For each outcome measure, we specified three separate models. First, we included industry sector and occupational class as well indicator variables for survey wave and whether the respondent resided within San Francisco. Second (shown in the Supplemental tables), we included measures of employer size, tenure, and average weekly work hours. Third, we included measures of race/ethnicity and whether they were Medicaid-insured. The objective of this three-stage modeling approach was to examine the extent to which any differences in parental leave uptake by industry sector or occupational class persisted after accounting for differences in work-related characteristics and individual demographic characteristics. As a robustness check, we repeated our regression analysis using probit and logit models for all dichotomous outcomes, adjusting for occupational class, industry sector, survey wave, residing in San Francisco, employer size, tenure, and average weekly work hours.

#### 3.4.2. Simulation analysis

Lastly, we conducted simulation analysis in order to estimate the average weeks of full-pay equivalent (FPE) leave taken under hypothetical policy scenarios. We implemented a micro-simulation in which we updated the actual FPE weeks of leave for each woman after imputing new values for the wage replacement rate and weeks of leave taken, per the specific policy simulation. Survey weighted means and standard errors of FPE weeks were re-calculated for each simulated scenario.

Partial wage replacement may create economic barriers to leave-taking, particularly for low-income mothers. Therefore, in our first set of simulations, we increased the wage replacement floor for everyone who received government paid leave to 60%, and to 70% for Medicaid insured workers. This mimics the actual 2018 reform which increased the SDI replacement rate to at least 60% for all workers, and to 70% for workers making less than one-third of statewide average weekly earnings. We then simulated further increasing the Medicaid insured replacement rate to 90%, and then to 100%. These reflect wage replacement rates in states with more recently enacted policies and have been proposed as a way help narrow disparities in uptake. These imputed government wage replacement rates were multiplied by the mothers' actual duration of parental leave to calculate a new hypothetical number of FPE weeks of parental leave. This set of simulations is intended to capture the duration of FPE weeks of paid parental leave that would have been observed if the government-funded paid family leave rate was raised as a stand-alone policy change.

In our second set of simulations, we re-calculated FPE weeks of parental leave with the same set of wage replacement rates described above, but with the additional assumption that all respondents took at least the amount of government- or employer-provided paid leave available to them (i.e., 12 weeks for respondents reporting any government-provided leave). This second simulation reflects an intervention on both wage replacement rates and uptake, as it assumes complete uptake of whatever level of paid leave the respondent is eligible for. The intervention implied by this simulation approximates what a fully-effective navigator program might achieve under ideal conditions, helping to ensure that all individuals are aware of and are able to enroll in and fully utilize all paid leave they are eligible for. We note that implied in these simulations is the assumption that the only

factors that change are rates of wage replacement and uptake, but that all other individual, employer, and government-level forces remain fixed.

This navigator simulation also ignores that some women would optimally choose not to take a full 12 weeks of leave even if possible. Thus in a final simulation we calculated the number of FPE weeks of paid parental leave based on the duration of leave survey respondents said that they *would have taken* if 12 weeks of *fully* paid leave had been offered. We hypothesized that these simulated interventions would not only increase both wage replacement rates and uptake but would also reduce industry and occupation class disparities in average weeks of FPE leave taken. As a sensitivity analysis, we repeated our simulation analyses with wage replacement rates for those in the lowest wage replacement category (0–50%) imputed at the extremes (i.e., 49% and 0%) rather than median.

## 4. Results

Of 1304 survey respondents, we excluded 206 who were not working for pay during pregnancy. We further excluded 23 federal employees, 45 state employees, 88 city or county employees, 88 self-employed workers, and 19 with missing job type. Finally, we excluded 116 respondents who did not intend to return to work after giving birth ([Supplemental Figure 1](#)). This yielded the final sample size of 719, the majority of whom were white-collar workers (83.0%) and were employed in either professional and business services (45.3%) or education and health services (27.8%). Most respondents worked more than 35 hours per week on average (77.0%). Slightly less than half worked for large firms with 500 or more workers (48.3%). Although most workers (79.7%) took at least 12 weeks of parental leave, only 30.5% received 100% of their regular pay. Whereas only 18.7% of workers reported receiving no government pay, nearly half (47.1%) reported receiving no employer pay ([Table 1](#)).

Blue-collar workers were more likely to be employed in leisure and hospitality or in manufacturing, trade and retail as compared to their white-collar counterparts. Blue-collar workers and workers employed in leisure and hospitality were also more likely to be employed by small firms, work less than 35 hours per week, and be Medicaid insured. Blue-collar workers were less likely to take at least 12 weeks of leave or receive 100% of their regular pay on leave versus white-collar workers. During, leave, and the median FPE weeks of leave taken among blue collar workers was 3.0 versus 7.6 weeks among white-collar workers. Distribution of characteristics by occupational class was similar for both crude percentages and those that were calculated by incorporating survey weights ([Supplemental Table 1](#)).

Relative to other industry sectors, leisure and hospitality workers were least likely to report that they understood the maternity leave benefits available to them or that their employer helped them to learn about these benefits. As compared with white-collar workers, blue-collar workers were also less likely to report that they understood the maternity leave benefits available to them or that their employer helped them to understand these benefits ([Fig. 1](#)). Although there were some differences between weighted and unweighted estimates, the overall pattern of findings was unchanged ([Supplemental Table 2](#)).

### 4.1. Regression analysis

Results of the regression analysis are presented in [Fig. 2](#) and [Supplemental Table 3–7](#). Our first outcome was whether workers took at least 12 weeks of parental leave. We noted no evidence of differences across industry sectors. By occupational class, 13.9% fewer blue-collar workers reported using 12 or more weeks of total leave-time as compared with white-collar workers after adjusting for industry sector, employment in San Francisco County, and survey wave (95% CI: -27.1, -0.7) with results somewhat attenuated after controlling for employment and demographic characteristics in our fully adjusted model

**Table 1**  
Employment and demographic characteristics for Bay Area Mothers, 2016–2017

	N (%) <sup>a</sup>
<b>Total</b>	719 (100.0)
<b>Industry Sector</b>	
Leisure and hospitality	75 (10.6)
Manufacturing, trade, and retail	120 (16.3)
Education and health services	198 (27.8)
Professional and business services	314 (45.3)
Missing	12 (1.7)
<b>Occupational Class</b>	
Blue collar	108 (13.5)
White collar	586 (83.0)
Missing	25 (3.4)
<b>Employer Non-Profit Status</b>	
For Profit	555 (77.3)
Non-Profit	164 (22.7)
<b>Employer Size</b>	
1–19 employees	110 (15.2)
20–49 employees	85 (10.7)
50–99 employees	55 (7.2)
100–199 employees	59 (8.7)
200–499 employees	65 (9.2)
500+ employees	340 (48.3)
Missing	5 (0.6)
<b>Tenure</b>	
Less than six months	38 (5.5)
6–11 months	89 (12.0)
1–4 years	354 (48.7)
5 or more years	228 (32.3)
Missing	10 (1.6)
<b>Average Work Hours per Week</b>	
Less than 8 h per week	9 (1.1)
Between 8 and 23 h per week	65 (7.4)
Between 24 and 35 h per week	99 (13.3)
More than 35 h per week	538 (77.0)
Missing	8 (1.1)
<b>Race/Ethnicity</b>	
White	293 (42.9)
Black	211 (29.6)
Asian	38 (4.4)
Hispanic	129 (16.6)
Other	29 (4.0)
Missing	19 (2.5)
<b>Medicaid Insured</b>	
Yes	155 (15.0)
No	564 (85.0)
<b>Leave-Taking</b>	
Took ≥12 weeks of leave	565 (79.7)
Received no employer pay	339 (47.1)
Received no government pay	127 (18.7)
Received 100% of regular pay	214 (30.5)
<b>FPE weeks of leave taken – Median (IQR)</b>	7.6 (3.3–10.5)

<sup>a</sup> Survey weights incorporated into calculation of all percentages.

(–10.9%, 95% CI: –25.9, 4.1).

Our second outcome was whether workers received no employer pay. In fully adjusted models, respondents were more likely to report they received no employer pay if they worked in education and health services (24.7%, 95% CI: 14.4, 35.0), manufacturing, trade and retail (19.2%, 95% CI: 8.4, 30.0), and leisure and hospitality (20.1%, 95% CI: 5.0, 35.3) as compared with workers in professional and business services. By occupational class, blue-collar workers were more likely to report that they received no employer pay versus white-collar workers (6.4%, 95% CI: –9.1, 21.9).

Our third outcome was whether workers received no government pay. By industry sector, workers in leisure and hospitality were 8.5% more likely to report receiving government pay than workers in professional and business services in fully adjusted models (95% CI: –6.6, 23.5). By occupational class, 9% more blue-collar workers reported that they received no government pay as compared with white-collar workers in fully adjusted models (95% CI: –6.5, 24.5).

Our fourth outcome was whether workers received full pay while on

leave. In fully adjusted models, workers were less likely to report they received full pay if they worked in leisure and hospitality (–14.5%, 95% CI: –27.2, –1.9), manufacturing trade and retail (–19.4, 95% CI: –29.5, –9.3) and to some extent in education and health services (–6.0, 95% CI: –15.6, 3.6) versus workers in professional and business services. We noted no evidence of a difference between blue- and white-collar workers for this outcome.

Our final outcome in regression analyses was the number of FPE weeks of leave taken. In fully adjusted models, workers in leisure and hospitality reported 1.52 fewer weeks of FPE leave as compared with workers in professional and business services. Average FPE weeks of leave taken were similar to professional and business services for workers in education and health services or manufacturing, trade, and retail. By occupational class, workers in blue-collar jobs reported an average of 4.06 fewer weeks of FPE leave as compared with white-collar workers in models adjusting for industry sector, residence in San Francisco County, and survey wave. This result was attenuated to 1.59 fewer weeks of FPE leave in our fully adjusted model (95% CI: –2.71, –0.47). Model results for dichotomous outcomes were robust to alternative probit and logit specifications ([Supplemental Tables 8 and 9](#)).

#### 4.1.1. Simulation analysis

We conducted a simulation analysis to examine differences in the average FPE weeks of parental leave by industry sector and occupational class under hypothetical scenarios in which rates of wage replacement and uptake were increased. Results by industry sector are presented in [Fig. 3](#). Respondents in leisure and hospitality reported an actual average of 3.8 FPE weeks versus 7.9 weeks among respondents in professional and business services. In our hypothetical scenario with the most generous rates of wage replacement, the average FPE weeks increased to 5.0 weeks and 8.6 weeks, respectively. Under the scenario in which we simultaneously improved uptake of parental leave among eligible individuals, the inequities in FPE weeks between workers in professional and business services and workers in leisure and hospitality is reduced substantially, with 9.6 FPE weeks estimated for those in professional and business services and 9.3 weeks among those in leisure and hospitality.

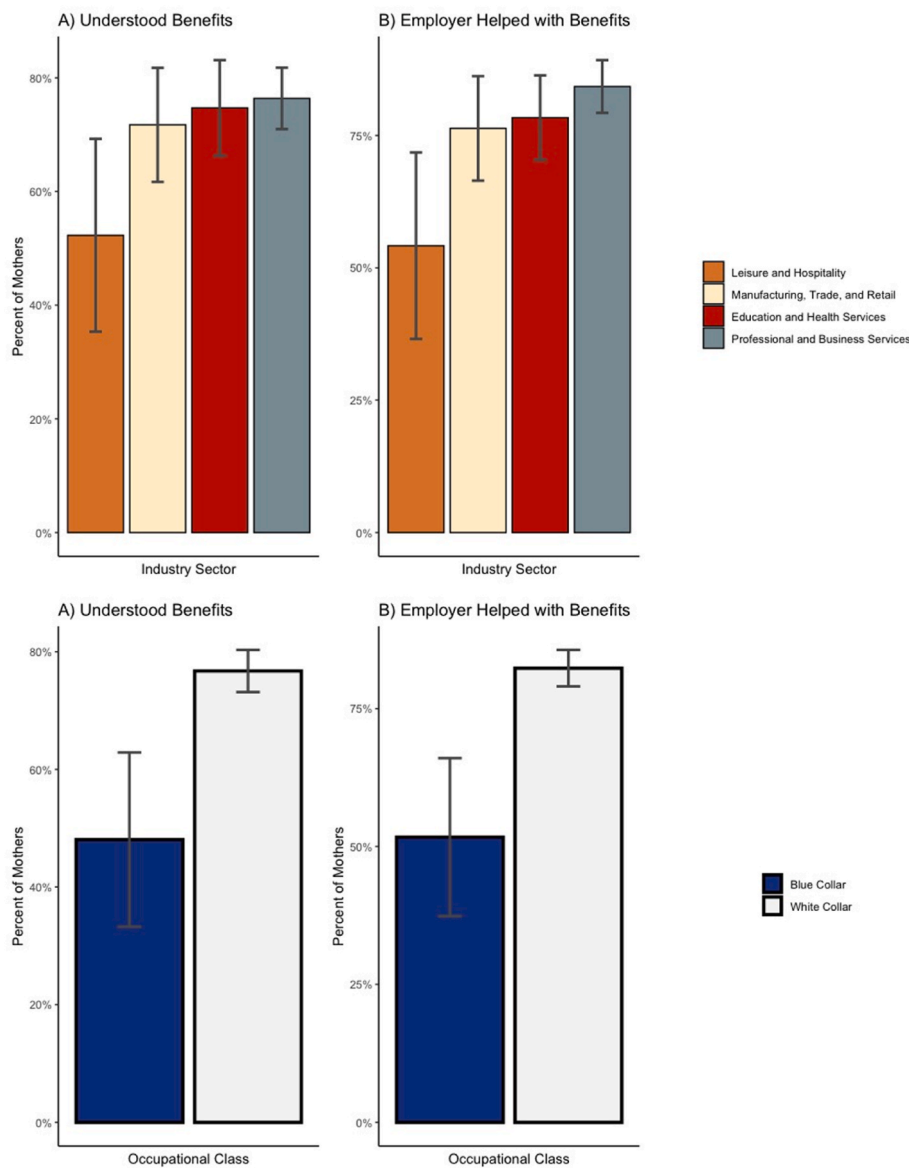
Results by occupational class are presented in [Fig. 4](#). We observed an actual average of 3.0 FPE weeks among blue-collar respondents and 7.7 FPE weeks among white-collar respondents. In our hypothetical scenario with the most generous rates of wage replacement but no intervention on uptake, estimated FPE weeks increase to 4.7 weeks among blue-collar respondents and 8.4 weeks among white-collar respondents. Under the most generous rates of wage replacement and additional “navigator” style intervention on rates of uptake, the inequity between blue- and white-collar workers is eliminated with an estimated 9.5 FPE weeks for white-collar respondents and 9.7 weeks of FPE weeks among blue-collar respondents ([Supplemental Table 10](#)).

#### 4.2. Sensitivity analyses

As noted above, a limitation of our measure of wage replacement is its categorical measurement, with the bottom bin ranging from 0% to <50%. Our above analysis imputed FPE weeks using the midpoint of each replacement rate category, i.e., 25% for the bottom bin. As a sensitivity analysis, [Supplemental Tables 11 and 12](#) show the results of repeating the simulations in [Fig. 3](#) and [Fig. 4](#) alternatively imputing the replacement rate in this bin at 49% and at 0%. The results from these simulations were consistent with those of our main simulations for both industry sector and occupational class.

### 5. Discussion

In this study, we used detailed measures of leave-taking from the Bay Area Parental Leave Survey of Mothers in order to characterize differences in parental leave access and uptake by broad industry sector and occupational class. Importantly, this study was based in a state that has



**Fig. 1. Respondents' understanding of paid leave benefits and helpfulness of their employer.** The left panel depicts the percentage of respondents who stated that they understood the maternity leave benefits that were available to them “extremely well” or “very well” by industry sector (top) and occupational class (bottom). The right panel depicts the percentage of respondents who stated that their employer helped them to learn about the maternity leave benefits available to them, by industry sector and occupational class. Survey weights were incorporated in calculation of all percentages.

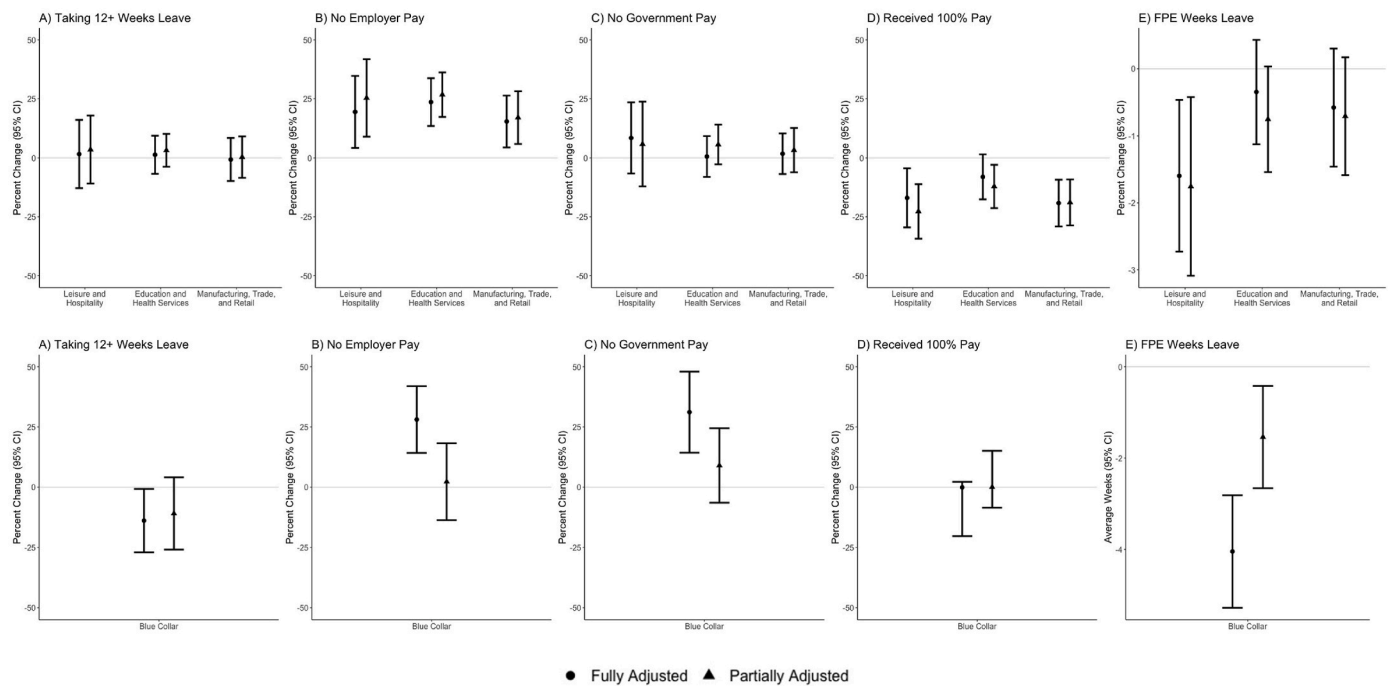
provided partial wage replacement for nearly twenty years. Nevertheless, we document substantial discrepancies in leave-taking by industry sector and occupational class. Our policy simulations suggest that disparities in weeks of FPE leave by industry sector and occupational class are driven in part by low rates of wage replacement, but also that interventions to increase uptake of available paid leave are essential to narrow disparities.

By industry sector, workers in leisure and hospitality or manufacturing, trade, and retail were consistently less likely to report that they received any employer pay during leave or received 100% pay during leave as compared with workers in professional and business services. Workers in leisure and hospitality also reported the fewest average FPE weeks of leave for any industry sector. These discrepancies in access to PFL by industry sector are to some extent consistent with prior research on leave taking by industry sector. Goldin, Kerr, and Olivetti leveraged data that captures benefits offered by private U.S. firms through the 2010 and 2018 Bureau of Labor Statistics Employee Benefit Survey (EBS). The EBS data demonstrated that while nearly half (45%) of firms in the Information, Finance, and Insurance and the Professional and Technical industries offered PFL in their workers in 2018, less than 10% of larger firms in and Retail Trade offered PFL

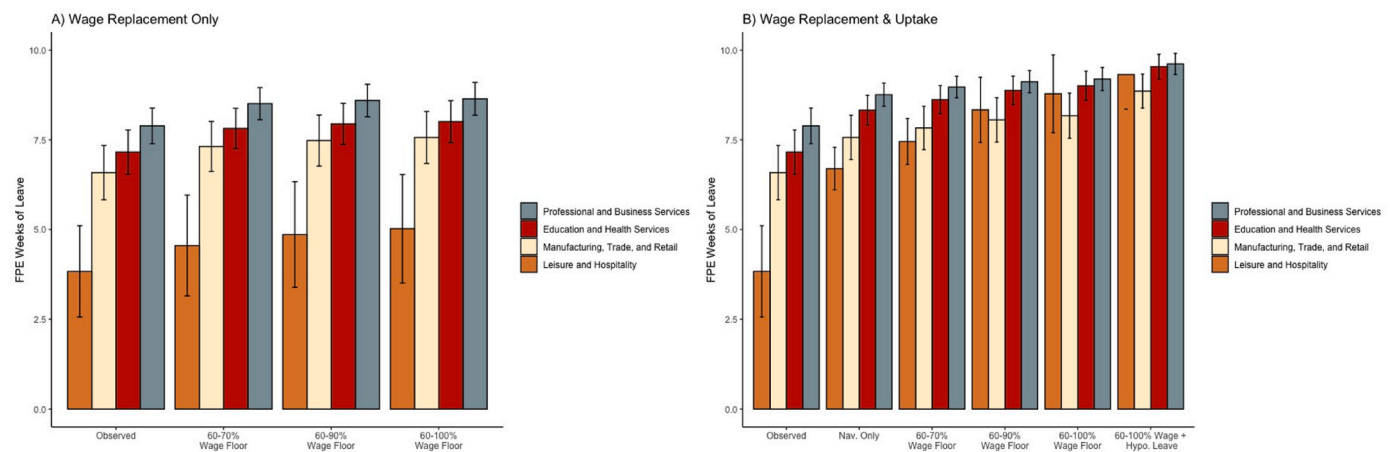
(Goldin et al., 2020). Our findings are also consistent with recent data from the National Compensation Survey, which suggests that workers in the service industry are systematically less likely to have access to retirement benefits, healthcare benefits, or insurance benefits as compared with workers in management, business, and finance. Regarding leave benefits specifically, NCS data indicate that in 2020 an estimated 59% of service workers had access to paid sick leave and 12% had access to paid family leave, in contrast with 92% of workers in management, business and finance who had access to paid sick leave and 33% who had access to paid family leave (Labor USDoStatistics USBoL, 2020, p. 552).

Our analysis also evidences persistent disparities in PFL access and uptake by occupational class. As compared with their white-collar counterparts, blue-collar workers in this study were less likely to take at least 12 weeks of leave or report that they received any employer pay and reported 1.59 fewer FPE weeks of leave on average. These findings should be considered within a broader literature that demonstrates inferior health among women in blue-collar jobs (Elser et al., 2018). There is ample prior research to suggest women in blue-collar jobs are at increased risk for a range of adverse health outcomes musculoskeletal disorders (Niedhammer et al., 2008; Roquelaure et al., 2008, 2009),





**Fig. 2. Regression-estimated differences in parental leave uptake (A–D) and duration (E) by industry sector (top) and occupational class (bottom).** Industry comparisons are relative to “professional and business services,” and occupational class is relative to “white collar.” Outcomes: (A) percentage of respondents who took 12 or more weeks of leave time; (B) percentage of respondents who received no employer-paid leave; (C) percentage of respondents who received no government-paid leave; (D) percentage of respondents who received 100% of their regular pay while on leave; and (E) average number of full-pay equivalent (FPE) paid weeks of leave taken. The **Partially Adjusted** model controls for industry sector, occupational class, and indicators for survey wave and residence within San Francisco County. The **Fully Adjusted** model additionally controls for employer non-profit status, employer size, average hours worked per week, respondent’s race/ethnicity and whether they were Medicaid insured.

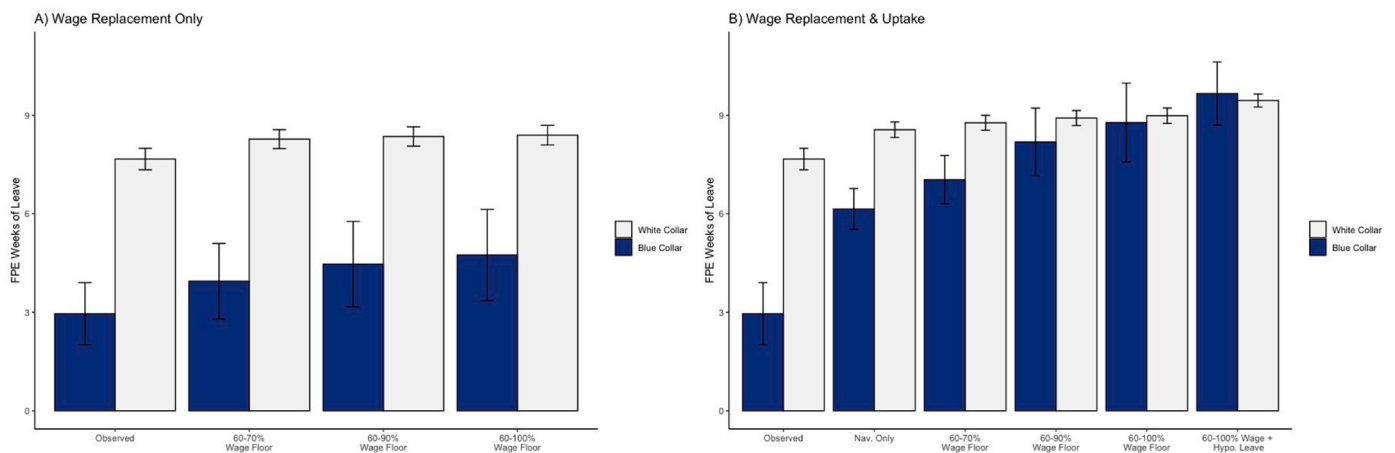


**Fig. 3. Simulations of Full Pay Equivalent (FPE) weeks of leave with manipulation of wage replacement and uptake rates by sector.** In our first set of simulations (Panel A), we increased the wage replacement floor for everyone who received government paid leave to 60%. For respondents who were Medicaid insured, we also simulated increasing the wage replacement rate to first 70%, then 90% then 100%. In our second set of simulations (Panel B), we re-calculated FTE weeks of paid parental leave with the same set of wage replacement rates described above, but with the additional assumption that all respondents took the amount of government- or employer-provided paid leave available to them (or their actual leave, if greater than this); e.g., 12 weeks for respondents reporting any government-provided leave.

cardiovascular disease (Clougherty et al., 2011; Wamala et al., 2001), depressive disorders (Elser et al., 2019; Joensuu et al., 2010), and adverse pregnancy-related outcomes (Eskensazi et al., 1993; Gissler et al., 2009; Jakobsson & Mikoczy, 2009) as compared with women in white-collar jobs.

Another notable finding is that in contrast to employer-paid leave, uptake of the government-paid SDI leave did *not* vary significantly across industries, indicating that a universal policy can indeed generate

more equitable outcomes. However, uptake of government-paid SDI leave did still vary substantially by occupational class, with Fig. 2 showing 31 percentage point lower uptake among blue collar mothers as compared to white collar. Based on prior work (Goodman et al., 2020), this may be driven particularly by lack of awareness, knowledge of details, and ability to navigate the enrollment process. Indeed, Fig. 1 shows that in our data about 30 percent fewer blue-collar mothers (compared to white-collar) reporting that they understood their maternity leave



**Fig. 4. Simulations of Full Pay Equivalent (FPE) weeks of leave with manipulation of wage replacement and uptake rates by class.** In our first set of simulations (Panel A), we increased the wage replacement floor for everyone who received government paid leave to 60%. For respondents who were Medicaid insured, we also simulated increasing the wage replacement rate to first 70%, then 90% then 100%. In our second set of simulations (Panel B), we re-calculated FTE weeks of paid parental leave with the same set of wage replacement rates described above, but with the additional assumption that all respondents took the amount of government- or employer-provided paid leave available to them (or their actual leave, if greater than this); e.g., 12 weeks for respondents reporting any government-provided leave.

benefits well, and a similar magnitude difference in reported help from their employer in learning about those benefits.

The simulations presented in Fig. 4 help to understand to what extent alternative policies could help to narrow these disparities in paid leave. California's 2018 increase in the SDI wage replacement rate (to 60%, and 70% for low wage workers) is shown in the simulations to achieve only a minor narrowing in these disparities. For example, while FPE weeks of leave would increase from 3.0 to 3.9 on average among blue-collar workers, the FPE would increase from 7.7 to 8.3 among white-collar workers, thus narrowing the size of the inequity from 4.7 to 4.4 FPE, or only about 6 percent. Raising the replacement rate up to 100% for low-income workers would narrow the size of the inequity by somewhat more, 21 percent, but still leave white collar workers with 79% more FPE weeks of leave than blue collar workers. Thus, while raising the replacement rate would be extremely helpful for those women who have managed to claim their eligible government paid SDI leave, the limited effect on narrowing overall disparities highlights the fact that a larger challenge may be overcoming the barriers to leave-taking such as limited awareness, bureaucratic challenges, and perhaps concern with job protection. Our subsequent simulations illustrate this by examining the effect of a navigator-style program that helped women take the leave to which they are entitled: this would cut the FPE weeks inequity in half even without a change in the wage replacement rate. When combined with an increase in the wage replacement rate for low-wage workers, the navigator style program could essentially eliminate the inequity. This simulation is of course a best-case scenario, and any actual navigator program would be challenging to adequately scale, and would no doubt be imperfect at reaching the target blue collar and higher-turnover industry workers such as in leisure and hospitality, but it suggests an untapped policy avenue for addressing disparities in paid leave.

### 5.1. Limitations

The present analysis is based on online and paper survey responses from 719 workers who gave birth in the San Francisco Bay Area in 2016 or 2017 with 586 white-collar workers, 108 blue-collar workers, and an overall response rate of 20%. Moreover, this survey was conducted in the year prior to and the year after implementation of the San Francisco PPLO; although PPLO uptake remained limited among women within the first year of its implementation, improved understanding of and experience with the ordinance may have modestly increased FPE weeks.

We recognize that our findings may not generalize to workers who give birth in other parts of the United States, or even California, where the composition of the labor market and policy landscapes may differ markedly from those experienced by workers in this study. Moreover, the small number of respondents in this study naturally raises the very real possibility that the results presented here are merely specific to the individuals who chose to complete this survey, and the relevance of the simulation studies presented herein is – to a degree – predicated upon the representativeness of the blue- and white-collar workers who participated in this study.

We note further that the validity of our policy simulations is conditioned upon the strong underlying assumption that increasing the generosity of government pay offered for paid leave does not modify women's duration of parental leave or employers' hiring behaviors. Our simulation assumes instead that the only mechanism by which duration of leave is increased is through a hypothetical navigator program. It is plausible that increasing the generosity (i.e., percentage wage replacement) of government pay would encourage or enable women to take longer duration of leave, which in turn could discourage employers from hiring workers of childbearing age. Because our simulations do not account for the many potential and perhaps countervailing individual, employer, and government-level factors that could influence both knowledge and uptake of paid leave, they should be interpreted cautiously as only a demonstration of how, based on the observed data, leave-taking might hypothetically have changed under very specific circumstances.

Although we incorporate a robust set of individual and employer-level control variables in our regression analysis, it is very possible that there is residual confounding by unmeasured individual- or employer-level characteristics. This should motivate ongoing work. Finally, because leave-taking endpoints were based on self-report, they are subject to individual respondents' recall and understanding of the PFL benefits available to them. We asked respondents to differentiate between employer pay, government pay, and percent of their regular pay received while on parental leave; given demonstrated limitations in knowledge of available PFL benefits, it is important to recognize that leave-taking endpoints in the present study capture individuals' perceptions of what was available to them, which may not be entirely concordant with their employer's actual leave offering.

## 5.2. Conclusions

In the absence of a universal national PFL policy such as those that exist in all other OECD countries, most workers in the U.S. do not have PFL access. We analyzed private sector workers in California in this paper, where even in the presence of a long-standing PFL program there are significant gaps and disparities in uptake. California workers' PFL eligibility and enrollment processes differ from employer to employer even in the private sector, differ even more across varying public sector employers, and are generally non-existent for self-employed and independent contractors. Particularly among workers with low average job tenure, whose social networks may include workers with heterogeneous PFL policies, it is little surprise that many workers do not understand their benefits and that uptake is incomplete. Interventions such as navigators to help workers understand their benefits are one potential strategy to increase uptake. Targeting such interventions to the most affected industry and occupation groups could help narrow the disparities that we have documented. Ultimately, these findings argue for universal PFL programs with universal benefits to reduce clear inequities that persist within the labor market today.

## Ethical statement

Support for this research was provided by the Robert Wood Johnson Foundation. The views expressed here do not necessarily reflect the views of the foundation. The authors declare no conflicts of interest.

## Author statement

**Holly Elser:** Conceptualization, Methodology, Data Curation, Formal analysis, Writing – Original Draft, Writing - Review & Editing. **Connor Williams:** Data Curation, Formal analysis, Writing - Review & Editing. **William H. Dow:** Conceptualization, Methodology, Writing - Review & Editing, Supervision, Project administration, Funding acquisition. **Julia M. Goodman:** Conceptualization, Methodology, Writing - Review & Editing, Supervision, Project administration, Funding acquisition.

## Declaration of competing interest

The authors declare no conflicts of interest or other financial disclosures.

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## Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.ssmph.2022.101045>.

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