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IZA DP No. 15007

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**Breno Braga**
*Urban Institute and IZA*

**Barbara A. Butrica**
*Urban Institute*

**Stipica Mudrazija**
*Urban Institute*

**H. Elizabeth Peters**
*Urban Institute*

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**IZA – Institute of Labor Economics**

Schaumburg-Lippe-Straße 5–9
53113 Bonn, Germany

Phone: +49-228-3894-0
Email: publications@iza.org

www.iza.org

# ABSTRACT

## Impacts of State Paid Family Leave Policies for Older Workers with Spouses or Parents in Poor Health*

Since 2004 six states plus Washington, DC have implemented laws that provide paid leave benefits to workers caring for family members who have a disability or serious medical condition. Focusing on the most established state programs—California and New Jersey—this paper investigates whether paid family leave (PFL) policies facilitate greater labor supply, caregiving, and improvements in health outcomes for those likely to provide family care. Using our preferred estimation method, we find that women with a spouse in poor health are 7.4 percentage points more likely to work while providing care after the implementation of PFL compared to those not living in a PFL state. Similarly, women living within 10 miles of a parent in poor health are more likely to work while providing care (5.6 percentage points) after PFL. The implementation of state PFL also leads to improvements in mental health outcomes for these two groups of women. We fail to find strong evidence that PFL affects labor and care decisions for women living more than 10 miles from a parent in poor health. PFL also has less consistent effects on men.



**JEL Classification:** I38, J14, J16

**Keywords:** family leave, older workers, caregiving



**Corresponding author:**
Breno Braga
Urban Institute
500 L'Enfant Plaza SW
Washington, DC 20024
USA

E-mail: bbraga@urban.org



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## Introduction

The US population is aging, thus increasing the demand for caregiving, much of which is provided informally by family members (Spillman et al. 2014). Research has shown that providing care can negatively impact caregivers' labor supply and economic well-being (Butrica & Karamcheva 2014; Fahle & McGarry 2018) and health (Pinquart & Sorensen 2007; Schulz & Martire 2004). Some researchers have suggested that the lack of policies that provide work-family supports for caregivers, such as paid family leave (PFL), may help explain these adverse outcomes (NASEM 2016).

Although the US has no national PFL policy, since 2004 six states and the District of Columbia have implemented laws that provide paid leave benefits to both new parents and family caregivers such as those caring for spouses, parents, or other family members who have a disability or serious medical condition. Three more states are scheduled to implement these policies within the next two years.[1] Rigorous research on the impacts of these programs is still relatively limited and largely focused on new parents (Isaacs, Healy, & Peters 2017).

This paper uses data from the Health and Retirement Study (HRS) to fill key knowledge gaps and applies rigorous quasi-experimental methods to better understand the impacts of PFL on older workers who have aging spouses or parents in poor health. Focusing on the most established state programs—California and New Jersey—the paper considers whether paid leave policies facilitate greater labor supply, caregiving, and health outcomes (e.g., increased mental health and reduced stress-related illness) for these older workers at risk of becoming caregivers, and, if so, whether these impacts vary by gender or relationship to the potential care recipient (spouse or parent).

Understanding these questions is critical for informing PFL policy. The changing demographics of the US suggest that there is a large and growing need for support for caregivers of older adults. Half of about 18 million caregivers of older adults are employed, mostly in full-time jobs (Mudrazija & Johnson 2020). The majority of employed caregivers report that caregiving interferes with their work activities and that they need to make various workplace accommodations to manage their work and caregiving activities (Mudrazija et al. 2021, NAC/AARP 2015). The prevalence of family caregiving needs will only increase as the US population continues to age. By mid-century, the population age 65 and older and the

[1] The states are California (implemented in 2004), New Jersey (2009), Rhode Island (2014), New York (2018), Washington state (2020) and Massachusetts (2021). The District of Columbia implemented its PFL policy in 2020. Connecticut, Oregon and Colorado have enacted PFL policies which will become effective in the next years (Bipartisan Policy Center 2021).

number of Americans with disabilities are projected to nearly double in size (Favreault & Dey 2015; JCHS 2016).

Using our preferred difference-in-differences method, we find that older women with a spouse in poor health are 7.4 percentage points more likely to work while providing care after the implementation of PFL compared to those in the control states. Similarly, after PFL women living within 10 miles of a parent in poor health are more likely to work while providing care (5.6 percentage points). We find no evidence of changes in work or care decisions for women living more than 10 miles away from a parent in poor health. In terms of health outcomes, both women with spouses in poor health and women living within 10 miles of parents in poor health are less likely to be depressed after the implementation of the policy (7.9 and 8.2 percentage points respectively). These results are generally robust to different model specifications commonly used in the PFL literature. We do not find consistent evidence that men with a spouse or parent in poor health change their work or care decisions.

Our study contributes to the literature evaluating the benefits of the PFL policies beyond new parents and, by distinguishing those living close to parents, helps to reconcile some of the differences across the small number of papers that address this topic. Our results support the conclusion that PFL policies help women provide care to their parents and spouses while remaining in the labor force. We also observe improvements in mental health outcomes for those likely to provide care after the implementation of PFL policies.

## Literature Review and Contribution

The majority of empirical research suggests that family caregiving is negatively correlated with labor force participation (e.g., Butrica & Karamcheva 2014; Crespo & Mira 2010; Fahle & McGarry 2018; Lee & Tang 2015; Lilly, Laporte, & Coyote 2010; Van Houtven, Coe, & Skira 2013; Wakabayashi, Chizuko, & Donato 2005), but findings differ by caregivers' and care recipients' characteristics. For example, research suggests that middle-aged caregivers, women, and those providing intensive care (1,000 hours or more per year) are at greatest risk of leaving the workforce due to caregiving (Butrica & Karamcheva 2014; Lee & Tang 2015; Wakabayashi, Chizuko, & Donato 2005).

Results are less conclusive regarding work hours, with some studies finding that caregiving is associated with reduced work hours (e.g., Fahle & McGarry 2018; Johnson & Lo Sasso 2006; Van Houtven et al. 2013) and others finding no such effect (e.g., Butrica & Karamcheva 2014; Wolf & Soldo 1994). The impact on productivity is even less studied, although limited available evidence suggests that

balancing caregiving activities with work, especially when care recipients need intensive support, may reduce work productivity (Mazanec et al. 2011; NAC/AARP 2015).

Family caregivers, especially those with intensive caregiving responsibilities, report high levels of financial strain (NAC/AARP 2015). When caregivers reduce their work hours or leave the labor force altogether, there is a substantial opportunity cost as time spent on caregiving comes at the expense of career investments, wage growth, and retirement benefits (Fahle & McGarry 2018). Previous studies have found that taking leave to care for grandchildren, sick parents, or sick spouses significantly affects the long-run labor supply, earnings, and retirement timing of older Americans (Bolin et al. 2008; Crespo & Mira 2010; Ettner 1995; Pavalko & Artis 1997; Skira 2015; Van Houtven, Coe, & Skira 2013). Family caregivers are more vulnerable to poverty, less likely to own a home, and experience slower growth in their assets (Butrica & Karamcheva 2014; Lee & Zurlo 2014; Wakabayashi & Donato 2006).

Caregiving responsibilities may also have adverse impacts on caregivers' physical and mental health. Results of a nationally representative survey of caregivers of older adults suggest that a quarter of them suffer from emotional difficulties and 14 percent have substantial problems with physical health (Spillman et al. 2014). Even after accounting for compositional differences between caregivers and non-caregivers, research consistently shows elevated levels of physical and mental health problems for caregivers (Marks 1977; Pinquart & Sorensen 2003; Wolff et al. 2016). Health-related caregiver strain has an adverse economic impact not only for caregivers, but also for care recipients who may be forced to utilize more formal care services (Spillman 2014).

Family caregiving responsibilities fall disproportionately on women, who are more likely than men to provide informal care; to engage in more intensive, complex, and hands-on care; to provide care to in-laws as well as their own parents; and to experience high caregiving stress (Morefield et al. 2016; NAC/AAPR 2015; Navaie-Waliser et al. 2002). Inadequate public policies for combining work and caregiving may help explain why female labor force participation rates are declining more in the US than in other developed countries (Black, Schanzenbach, & Breitweiser 2017). Labor force participation rates for women age 55 and older – who face the most family caregiving demands – increased between 1997-2009, but the rates for this group have stagnated since then (Hipple 2016).

Congress enacted the Family and Medical Leave Act (FMLA) in 1993 to help employed family caregivers, alongside new parents and workers who need to attend to their own health needs. Under this legislation, eligible workers can take unpaid, job-protected leave of up to 12 weeks (and 26 weeks if caring for an injured family member in the military). However, many potential caregivers are not covered by the FMLA because of various eligibility restrictions such as employer size and job tenure.

Brown et al. (2020) report that in 2018 only 56 percent of workers were covered. Moreover, FMLA only covers unpaid leave, so unless employers voluntarily provide paid leave[2], workers in jobs covered by the FMLA do not receive earnings during their leave.

Lack of pay creates hardships for many families, and for some workers it is a barrier to taking leave at all. To address the shortcomings of the FMLA, states are increasingly enacting legislation to establish paid family leave programs. As of now, nine states and the District of Columbia have enacted PFL laws, six of which (California, Massachusetts, New Jersey, New York, Rhode Island, Washington, and the District of Columbia) have already implemented them; three other states (Colorado, Connecticut, and Oregon) will implement their laws in the next few years (Bipartisan Policy Center 2021).

Research on the effectiveness of PFL laws has focused primarily on new parents, although a small literature on PFL effects for caregivers of frail parents or spouses is just beginning to emerge. The results for new parents show that providing paid leave increases leave-taking for both mothers and fathers (e.g., Bartel et al. 2015, 2018; Baum & Ruhm 2016; Rossin-Slater, Ruhm, & Waldfogel 2013). In addition, studies show that labor market outcomes after leave-taking are generally positive. Byker (2016) found increased labor force participation around birth in both California and New Jersey, especially for less-educated women. Rossin-Slater, Ruhm, & Waldfogel (2013) found evidence that California's PFL increased the hours and wages of employed mothers with young children. Stancyzk (2016) found that PFL significantly improved the financial security of California mothers—decreasing their risk of poverty by 10.8 percent and increasing their household income by 4.1 percent.

One study of take-up rates for California's PFL used administrative data and found that take-up for both caring for a newborn and caring for a family member with a major illness or disability increased dramatically between 2005 and 2014, particularly among men (Bana, Bedard, & Rossin-Slater 2018). The authors also found that take-up is significantly lower among workers in small firms, those with low earnings, and those in construction and accommodation and food industries. In addition, administrative data from California and New Jersey show that receiving PFL is much more likely for new parents than for other family caregivers (Morefield et al. 2016), despite findings showing that overall work leaves (paid and unpaid) for new parents are similar to the reported number of work leaves related to care for other family members (Klerman, Daley, and Pozniak 2014). Surveys have also found a widespread lack

[2] According to the Bureau of Labor Statistics' National Compensation Survey, only 20 percent of private industry workers in 2020 had access to paid family leave benefits through their employers (US Department of Labor 2020, p. 299).

of program awareness, especially among the groups most likely to benefit from it (e.g., DiCamillo, Mark, & Mervin Field 2015). However, it remains unclear whether the higher take-up for new parents can be attributed to specific PFL features, lack of awareness of eligibility for other types of family caregivers, or some other reasons (Morefield et al. 2016).

The needs of family caregivers are diverse, and they often differ from the needs of new parents in important ways. For example, elder care is more likely to be long-term, and, depending on the needs of the care recipient, caregiving demands can be intermittent, unpredictable, and complex (Morefield et al.). The limited research on the impact of PFL policies on family caregivers of older adults finds mixed results. Two studies of the impact of PFL on workers with a spouse in need of care due to disability or a major illness found that those living in a PFL state had better employment outcomes relative to those not living in a PFL state (Bartel et al. 2021 and Anand et al. 2021). However, the results from two studies that focused on outcomes for adult children with parents who are disabled or in poor health were mixed. Morefield et al. (2016) found PFL in California and New Jersey did not have a significant effect on leaving-taking, employment, or labor force participation. In contrast, Abramowitz & Dillender (2021) found that relative to those not living in PFL states, PFL in California increased the time adult children spent helping parents with ADLSs and increased their likelihood of working, leading to higher earnings. Two other studies focused on employment effects for family caregivers, in general, and found mixed evidence of the impact of PFL (Saad-Lessler 2020 and Kang et al. 2018). One important difference between caregivers of aging parents and caregivers of spouses is that the latter group almost always co-reside with the potential care recipient, but caregivers of parents can live both near (or with) and far from their parents. In our paper we explore the role of distance as a potential explanation for differences in results for caregivers of parents versus caregivers of spouses.

Beyond the impact on labor market outcomes, research shows that PFL contributed to a decline in nursing home use in California (Arora & Wolf 2018), but it had no impact on the physical or mental health of family caregivers (Gimm & Yang 2016). Few other papers on PFL and family caregivers address the impact of PFL on the caregiver's health. Our paper also contributes to the literature by examining impacts on both labor market outcomes and health.

As more states adopt PFL and momentum grows around federal policy solutions, it is important to understand how PFL impacts the labor supply, economic resources, and health outcomes of family caregivers and the barriers to taking up these benefits. This is ever more relevant as the workforce continues to age. This paper fills key gaps in the evaluation literature, while also expanding and deepening our knowledge of factors that facilitate older adults' employment and caregiving.

## Conceptual Framework

PFL policies may influence economic and health outcomes of older workers at risk of caregiving (i.e., those with a parent or spouse in poor health) through a variety of mechanisms. The theory of household production (Becker 1965) provides a useful conceptual framework for understanding the ways in which PFL may influence the economic outcomes examined in this study. It recognizes that time spent out of the labor force can be used for productive activities, such as caregiving and other types of household production, and highlights the tradeoffs between working in the labor market and earning income versus participating in home production, including caregiving. Factors affecting decisions about work include wages, spouse's wage and labor market status, and the value of home production; additional factors affecting caregiving decisions include the nature and intensity of required care, and the availability, cost, and quality of alternative care. When a family member gets sick and needs care, the value of home production relative to employment rises, providing an incentive for that potential caregiver to either leave the labor market or reduce hours of work. Alternatively, financial costs associated with care needs may increase incentives for family members to participate in the labor force and increase their work effort. The provision of paid leave makes it more feasible for an individual to combine work and caregiving, and alongside the job protections provided by the FMLA, it facilitates long-run labor market attachment.

Additionally, the expectation that PFL can buffer negative effects of caregiving responsibilities on workers' economic and health outcomes finds support in theoretical literature from the work and family field that stresses the importance of inter-role conflict and proposes that multiple roles often lead to conflict and stress (Gareis & Barnett 2008). Work-family conflict is a form of role conflict in which competing demands of work and family generate tensions. Research has shown that high levels of work-family conflict are associated with negative health outcomes such as strain, stress, depression, burnout, and sleep problems (Allen et al. 2000). The work-family conflict perspective suggests that interventions that facilitate more effective management of work and caregiving roles—such as paid leave—could moderate such negative impacts and improve both economic well-being and health.

The relationship between PFL availability and caregivers' economic and health outcomes may differ by caregiver gender, the nature of caregiving responsibilities, and caregiver earnings and income (Peters et al. 2021). Parent caregiving often requires less intensive care, partly because parent caregivers often share care burdens with other caregivers (e.g., the other parent or other siblings), but spouse caregivers are most often the primary caregiver (Spillman et al. 2014). Thus, parent caregivers may be better able to work while providing care and could benefit more from PFL laws than spouse caregivers who are providing more intense care. In addition, spouse caregivers tend to be older and less

attached to the labor force. A contrasting hypothesis is that PFL may have less impact on adults with parents with caregiving needs, because many adult children with aging parents do not live near their parents;[3] those who do not live nearby are much less likely to be caregivers when parents need it (Compton and Pollak 2015; Schoeni et al. 2022), thus diluting the potential benefit of PFL for those adult children.

## Data

The data for this analysis come from the Health and Retirement Study (HRS), a large nationally representative longitudinal survey of older Americans conducted by the University of Michigan. The HRS began in 1992 with interviews from a sample of non-institutionalized Americans born between 1931 and 1941 (when they were ages 51 to 61) and their spouses. Respondents are interviewed every two years. The survey interviewed additional cohorts in subsequent years so that it now represents the US population ages 51 and older.[4] The 2016 HRS includes respondents born through 1964, with some respondents having been followed for 25 years.

The HRS provides detailed longitudinal information on caregiving and labor supply. In addition, the HRS collects rich information on health status and economic resources, which makes it ideal for assessing the impact of caregiving on a range of outcomes besides labor supply, such as mental health and physical health. Finally, information about the respondent's state of residence in the HRS restricted access geocode file enables identification of the relevant PFL policy regime.

Our analysis pools data from the 1996 through 2016 HRS waves. We focus on respondents ages 51 to 70 who have the potential to serve as caregivers for either a parent or spouse. We construct two samples. One sample consists of respondents who have at least one surviving parent, which we label the parent sample. The other sample consists of respondents who are married or partnered, which we label

[3] The HRS includes an indicator of whether a respondent lives within 10 miles of a parent or co-resides with a parent, and we use that information to create an indicator of living nearby. With that definition, our data show that about 40% of adult children (age 51 and older) live near (or with) that parent (Table 2). Similarly, Compton and Pollak (2015) report that the median distance between an adult child age 25 and older and their parent ranges from 5 miles (for unmarried males) to 25 miles (for married females).

[4] In 1993, the survey added adults born before 1924 (when they were age 70 or older) and their spouses. In 1998, it added adults born between 1924 and 1930 (when they were ages 68 to 74) and their spouses. Beginning in 1998, the HRS added a new sample of Americans ages 51 to 56 every six years.

the spouse sample. As we describe below, many of our analyses will condition those two samples on having a parent or spouse in poor health.

We exclude respondents who have never worked or who are disabled. We also exclude those with missing interviews, zero sampling weights, missing geocodes, and other missing predictors of interest.[5] Finally, we drop respondents who moved between states during the observation period. These restrictions leave 34,417 person-years in the parent sample (Table A1, row 5) and 63,974 person-years in the spouse sample (Table A1, row 6).[6]

Our outcomes of interest are work, caregiving, and health. Work indicates whether respondents report working for pay at the time of the survey. Caregiving is captured differently for parent care and spouse care. For the parent sample, parent care is reported by respondents who are asked whether they provided parents with personal care—personal activities such as dressing, feeding, and bathing—of at least 100 hours over the past two years. For the spouse sample, spouse care is reported by the care recipient. Respondents are asked whether they received help with activities of daily living (ADLs) and instrumental activities of daily livings (IADLs), who the people who provided care were, and the number of days and hours of care provided in the last month. From the list of care providers, we identify spouses and compute the number of hours of assistance over the past year. Those who provided at least 50 hours of assistance to their spouses over the past year are considered caregivers. We also measure two health outcomes. The first measure captures a respondent's mental well-being. Respondents are asked to think about the feelings they experienced over the past week and whether they felt depressed much of the time. The second measure captures a respondent's physical well-being. Respondents are asked whether their overall physical health is excellent, very good, good, fair, or poor.

Our main policy variable is an indicator of whether respondents lived in California on or after July 1, 2004 or in New Jersey on or after July 1, 2009, when PFL was implemented in these states. Our models also control for standard sociodemographic characteristics commonly included in regressions of labor

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[5] We follow respondents in consecutive waves starting with the first wave they are interviewed. Instead of requiring them to be in every wave from that point on, we keep the longest consecutive number of waves in which we observe them. For example, if a respondent is interviewed in 2000 and 2002 and then again in 2010 through 2016, our analysis only includes their observations from 2010 through 2016—four consecutive waves instead of only two waves. Although longitudinal data is not required for DD analyses, it is needed for the individual fixed-effects model we estimate as a robustness check. The number of person-year observations are reported in Table A1. We drop 2,120 person-years from the parent sample and 5,363 from the spouse sample.

[6] Rhode Island is the only other state that implemented a PFL policy during our period of analysis and our final sample did not include any respondents from Rhode Island.

supply and caregiving. These include age, race and ethnicity (non-Hispanic white, non-Hispanic black, Hispanic, other race/ethnicity), educational attainment (no high school diploma, high school diploma, some college, college degree), marital status (married, unmarried), and whether the respondent has any children under age 18. The literature shows that respondents are more likely to provide care if their parents are not married and if they live close to their parents (Schor 2003; Ryan, Taggart et al. 2014; Spillman et al. 2014), so the parent sample models also control for whether the parent is unmarried and whether the parent lives with the respondent or within 10 miles. Finally, both the parent and spouse sample models control for the state unemployment rate to account for contemporaneous economic shocks.

The health status of the potential care recipient is a condition for eligibility for PFL. We classify a spouse as being in poor health if they need help with bathing, eating, dressing, walking across a room, getting in and out of bed, or using the toilet, or if they have a cognitive impairment reported by the spouse directly. We classify a parent as being in poor health if the respondent reports that the parent needs help with basic personal needs such as dressing, eating, or bathing, has a cognitive impairment such as Alzheimer's or dementia, or cannot be left alone for an hour or more. Our analyses capture spells of parent and spouse poor health and the duration of those spells.

## Research Methods

The goal of the study is to produce causal estimates of the effects of PFL policy on caregiving, labor supply, and health outcomes of older adults with a spouse or parent in need of care. The major challenge is that many other factors—including changing economic, demographic, and policy contexts—influence these outcomes. To isolate the effects of PFL policies, we use a difference-in-differences (DD) approach comparing the outcomes of residents in treatment states before and after PFL implementation (2004 in California and 2009 in New Jersey) with residents in control states.[7] We use two samples in our main analysis: i) individuals with a parent in poor health (parent sample); ii) individuals with a spouse in poor health (spouse sample). We also estimate each model separately for men and women. Equation (1) gives the general form of the DD model:

[7] Recent literature has shown the potential issue with staggered DD estimates when the policy has heterogeneous effects overtime (e.g., Callaway and Sant'Anna 2020 and Goodman-Bacon 2021). To address this issue, we also show estimations of difference-In-differences estimates looking exclusively at the implementation of PFL in California and dropping New Jersey respondents from the sample.

(1) $Y_{ist} = \beta_1 PFL_{st} + \beta_2 \text{Live\_Close}_{ist} + \beta_3 \mathbf{X}_{ist} + \gamma_s + \lambda_t + \varepsilon_{ist}$

where $Y_{ist}$ is the outcome for individual *i* living in state *s* in year *t*. $PFL_{st}$ is an indicator for residence in California or New Jersey after implementation of the PFL programs in that state. *Live-Close*$_{ist}$ is an indicator for whether the individual co-resides or lives within 10 miles of a sick parent. This indicator is only included in the parent sample regression, because almost all spouses co-reside.[8] The model also includes a vector of controls ($\boldsymbol{X}_{ist}$), which contains indicators for age (dummies), race and ethnicity, educational attainment, marital status, presence of own children younger than 18 in the household, whether the parents are unmarried (parent sample only), and the duration of poor health status of parent or spouse (dummies), as well as the state unemployment rate. Finally, the model includes state and year fixed effects ($\gamma_s$ and $\lambda_t$).

The coefficient of interest is $\beta_1$, which provides an estimate of the effect of PFL among those with a spouse or parent in poor health. It compares, for those with a parent or spouse in poor health, the difference in outcomes before and after the adoption of PFL for those in a PFL state with the difference in outcomes over a similar time period for those in a state that never adopted PFL (in the timeframe of our study). Because not everyone in the sample takes leave, $\beta_1$ should be interpreted as an intent-to-treat (ITT) effect. We cluster the standard errors at the state level.

To further explore the effect of PFL among those more likely to be affected by the policy, we estimate the following model for the parent sample:

(2) $Y_{ist} = \alpha_1 PFL_{st} + \alpha_2 \text{Live\_Close}_{ist} + \alpha_3 (PFL_{st} \times \text{Live\_Close}_{ist}) + \alpha_4 \mathbf{X}_{ist} + \gamma_s + \lambda_t + u_{ist}$

where all the variables are defined as in model (1). Model (2) allows the implementation of PFL to have a different impact on those who live near a parent in poor health compared to those living further away. The effect of PFL on those who live near a parent in poor health is given by the sum of coefficients $\alpha_1$ and $\alpha_3$. Our hypothesis is that those living near a sick parent (43 percent of women and 40 percent of men in the parent sample) will be more likely to become caregivers and need leave and thus more likely to be affected by the policy.

To interpret the estimates of a DD model as causal, we assume that the treatment and control groups would be on similar trajectories of the study outcomes in the absence of the introduction of the policy (parallel trends assumption). We test this hypothesis by comparing the outcomes in the

[8] In our spouse sample, 92 percent of respondents are married, and 7 percent are partnered. Only 1 percent are married with an absent spouse.

treatment and control states for years before the policy was implemented in an event study framework omitting the one to two years before the policy started. In these models we use the same set of controls presented in model (1) (See Appendix Tables A3A and A3B).[9] We only present results for a balanced set of paired event years, but all event years are included in the regression. We also cluster the standard errors at the state level.

**Synthetic Control Method**

To address the few instances where the event-study model presents divergent trends between the treatment and control groups before the PFL policies were implemented, we also estimate models using a synthetic control method (Abadie 2020). The core idea of the synthetic control method is that a weighted combination of control units can provide a more appropriate comparison to the states which implemented the policy. This methodology uses a data-driven procedure to formalize the selection of the comparison units. A synthetic control is defined as a weighted average of the units in the donor pool. The choice of weights is such that the resulting synthetic control best resembles the pre-intervention values for the treated unit of predictors of the outcome variable. Because the policies were implemented in different years and the treatment states are different from one another, we define separate synthetic controls for California and New Jersey.

To better match pre-intervention outcomes between the treatment and synthetic control groups, we first use the values of the pre-treatment outcome measured in 1996 and 2000 in California and 1996, 2000 and 2004 in New Jersey to construct appropriate weights.[10] In addition, we include other pre-treatment characteristics: share non-Hispanic Black, share Hispanic, share other non-white race/ethnicity, share without a high school diploma, share with a high school diploma or equivalent, share with some college education, and median household income. The optimal weights are those that minimize the synthetic's mean squared prediction error. Next, we assess the goodness of fit of the synthetic control by evaluating how closely the outcome path of synthetic control follows that of the treated states during the pre-treatment period (Figure 1). Finally, we estimate treatment effects for California and New Jersey separately and combine them using a meta-analysis approach with fixed effects (Borenstein et al. 2010).

[9] Because HRS was fielded once every two years we construct paired event years.

[10] We chose these years to better capture longer-term trends in the outcomes before the policy was implemented.

**Robustness Checks**

***Triple Difference***

To provide further evidence of the robustness of our findings, we estimate treatment effects of the PFL policy using two additional methods. First, we implement a triple difference (DDD) approach that has also been used in the research on the impact of PFL on leave-taking and labor supply of new parents (Bartel et al. 2018). With this method we explore the fact that outcomes for older adults without a parent or spouse in poor health should not be affected by the introduction of PFL, because they are not eligible for the benefit. The first two differences are as described earlier for the DD model, but the third difference in the DDD model controls for broader trends in outcomes over time among older workers in PFL states. Using a sample including both those with and without a parent or spouse in poor health, we use model (3) to estimate the relationship between the PFL policies and outcomes:

$$(3)\ Y_{ist} = \gamma_1 PFL_{st} + \gamma_2 FRAIL_{ist} + \gamma_3 (PFL_{st} \times FRAIL_{ist}) + \gamma_4 \mathbf{X}_{ist} + \gamma_s + \lambda_t + \epsilon_{ist}$$

where $FRAIL_{ist}$ indicates whether the respondent's parent or spouse is in poor health and all the other variables are defined as in model (1). In this equation, the coefficient of interest is that on the interaction between residence in PFL states, post-implementation years, and parent's or spouse's health, $\gamma_3$, which gives the DDD estimate of the effect of PFL on the given outcome. We also cluster the standard errors at the state level. Finally, in all models in the parent sample we also control for $Live\_Close_{ist}$ and show results interacting the triple difference term ($PFL_{st} \times FRAIL_{ist}$) with the $Live\_Close_{ist}$ indicator.

***Individual Fixed Effects***

Finally, we take advantage of the panel structure of the HRS to implement an individual fixed-effects approach. This method has also been used in the research on the impact of PFL on new mothers' labor-force attachment (Byker 2016). In this research design, we compare individuals' outcomes before and after their parent or spouse experiences the onset of poor health in PFL versus non-PFL states. We estimate the following equation:

$$(4)\ Y_{ist} = \sum_{j=-4}^{4} \delta_j O_{ist}^{j} + \sum_{j=-4}^{4} \rho_j (O_{ist}^{j} \times PFL_{st}) + \gamma \mathbf{X}_{ist} + \mu_i + \lambda_t + \epsilon_{ist}$$

where $O_{ist}^{j}$ are a set of dummies indicating each observation's year relative to the onset of poor health for the parent or spouse, $\mu_i$ is the individual fixed effects, and all the other variables are defined as in model (1). In the model, *j* represents paired years before and after the onset of poor health (omitting the 1 to 2 years before the onset). The parameter of interest $\rho_j$ provides estimates of the impact of the PFL

laws for year *j* after onset compared to the year immediately before a parent or spouse experienced poor health. While we only present results for the first and second (paired) years just after the onset, all event years are included in the regression. We also cluster the standard errors at the state level. Finally, in all models in the parent sample we control for $\text{Live\_Close}_{ist}$ and show results interacting the term $(O_{ist}^{j} \times PFL_{st})$ to the $\text{Live\_Close}_{ist}$ indicator.

## Empirical Results

### Sample Description

Table 1 reports the distribution of work and care outcomes by health status of the spouse or parent in 2016. As expected, respondents with healthy spouses or parents are more likely to work and are very unlikely to provide care compared to those with spouses or parents in poor health. Only 1.4 to 2.5 percent of men and women with a healthy parent report providing any care. Nearly three-quarters (74 percent) of women with healthy parents work, compared to only 68.3 percent of women with parents in poor health. Just about half (50.5 percent) of women with parents in poor health work and do not provide care, and 17.8 percent work and care for their parents. Another 11.3 percent of these women provide care to their parents, but do not work. The pattern is similar for women in the spouse sample; however, given their older average age (see Table 2), they are less likely to work than those in the parent sample. Interestingly, 17.1 percent of women with spouses in poor health both work and take care of their spouses, which is similar to that of women with parents in poor health. While men are half as likely as women to be caregivers for their parents in poor health (10.7 versus 29 percent), the proportion who provide care for a spouse is more similar for men and women (39.6 and 33.9 percent, respectively).

Given the strong relationship between the health of parents and spouses and the respondent's work and caregiving and the fact that eligibility for PFL is restricted to those with a parent or spouse in poor health, our primary analysis using a DD model restricts the spouse sample to those with a spouse in poor health and the parent sample to those with a parent in poor health. The spouse sample includes 7,407 person-years (3,858 for women and 3,549 for men), and the parent sample includes 11,913 person-years (6,764 for women and 5,149 for men). (See row 7 in Table A1.) Table 2 describes the characteristics of both samples.

We begin with the outcomes of key interest. Respondents in the parent sample are more likely to work and less likely to provide care than those in the spouse sample. Notably, men in the parent sample are a third less likely than those in the spouse sample to be caregivers. In the parent sample, women are

more than twice as likely to be working caregivers than are men (16.1 and 7.5 percent, respectively). In the spouse sample, similar proportions of women and men are working caregivers (18.6 and 21.2 percent, respectively). Women in both samples report higher rates of depression than their male counterparts—compare 15.1 and 16.3 percent of women in the parent and spouse samples, respectively, with 10.5 and 13.3 percent of men in these samples. While women and men in the parent sample are equally likely to report fair or poor health (around 1 in 5), women in the spouse sample are less likely than men in the spouse sample to report fair or poor health (compare 28.4 versus 33.3 percent). Overall, consistent with being older and having higher rates of caregiving responsibilities, both women and men in the spouse sample are more likely to report being in poor health than those in the parent sample.

Turning to the covariates, we observe that the average age of women and men is around 59 in the parent sample and 61 in the spouse sample. Being younger, respondents in the parent sample are also more likely than those in the spouse sample to have children under age 18. The racial and ethnic composition of women and men within and across the samples is fairly similar; however, men in the spouse sample are somewhat less likely to be non-Hispanic white than women in the spouse sample or women and men in the parent sample.

In the parent sample, 74 percent of women and 70 percent of men have one or more parents who are unmarried, potentially increasing the care burden on the respondent since there is no spouse to provide care. Almost 43 percent of women and 40 percent of men have one or more parents who live with or within 10 miles of the respondent.

The average duration of a parent's or spouse's spell of poor health is just under 2 waves (about 3 years). Men in the spouse sample are slightly less likely to live in a state with PFL than women in the spouse sample and women and men in the parent sample (compare 8.2 percent with just under 10 percent). Finally, the state unemployment rate averages around 6 percent across the board.

**PFL Effects**

Table 3A presents results for the samples of women and men with spouses in poor health.[11] For women, the PFL coefficient is significant for four out of five outcomes. Women living in a PFL state after the policy has been implemented are more likely to work (by 24.5 percentage points) and be a working

[11] The results in this table focus only on the coefficients of main interest relating to the impact of PFL. Regression results that include the full set of covariates are included in Appendix Table 2 for the sample of women with parents in poor health. Other full regression tables are available from the authors on request.

caregiver (by 7.4 percentage points) than other women and are less likely to be depressed (by 7.9 percentage points) or report fair/poor health (by 9.4 percentage points). For men, the results are either insignificant or inconsistent with expectations. Surprisingly, men with a spouse in poor health living in a PFL state are less likely to work and more likely to report fair/poor health.

Table 3B reports our primary results from the DD model for the five outcomes for women (Panel A) and men (Panel B) with parents in poor health. Columns 1a-5a report results that do not interact PFL with whether the parent lives close to the adult child. The coefficient on PFL is significant in only one out of five outcomes for women (PFL reduces the likelihood of being in poor health) and in only 2 out of five outcomes for men (PFL increases care and reduces the likelihood of depression).

In columns 1b-5b, we interact PFL with an indicator for parents living nearby. As discussed earlier, this is the group that is most likely to take up PFL because adult children who live close are more likely to be caregivers. The effect of PFL for those with parents living close is measured by the sum of the coefficients on PFL and parent lives close*PFL. For ease of discussion, we show this sum and its statistical significance in the second to last row in each panel. For women, the sum of the coefficients is significant and consistent with expectations in three out of the five outcomes—women whose parents live nearby are more likely to provide care and be a working caregiver and less likely to be depressed if they live in states with PFL. To give a sense of the magnitude of the effects, our results show that women living within 10 miles of a parent in poor health are 5.6 (-1.9 + 7.5) percentage points more likely to work while providing care and have an 8.2 (-3.6 - 4.6) percentage point decline in the likelihood of depression after the implementation of PFL.

Similar to the results for women, for men with a parent in poor health who lives close, PFL significantly increases the likelihood of care and combining care and work. Men who live in a PFL state are also less likely to be depressed, and while the main effect is significant, the interaction term suggests that the effect is not statistically different for those with parents who do and do not live close, and the sum of the coefficients does not reach conventional levels of significance. There is one unexpected result—men who live in a PFL state with parents who live close are less likely to work. In addition, these men are more likely to be in fair/poor health, but while the interaction between PFL and having a parent who lives close is significant, the total effect of PFL on reporting poor/fair health for those with a parent who lives close is not significantly different from zero.

Tables 4A and 4B present results where the treatment group includes only those living in California.[12] Not surprisingly because of its population size, the California results are very similar to results for the full sample. For women whose spouses are in poor health (Table 4A, Panel A), living in California after PFL significantly increases work and being a working caregiver and reduces depression and reporting fair poor health (four out of five outcomes). Surprisingly, the impact on caregiving overall is negative. Again, the results for men (Panel B) are less consistent with expectations—living in California after PFL significantly reduces work and increases fair/poor health.

For women with parents in poor health (Table 4B, Panel A, columns 1a-5a), living in California after that state passed PFL increases the likelihood of providing care and reduces the likelihood of being in fair/poor health. When our specification focuses on those who are most likely to be caregivers, those living near their parents (columns 1b-5b), living in California after PFL significantly increases caregiving and being a working caregiver, and reduces depression.

As before, the results for men are less consistent with expectations. When not accounting for living near parents (columns 1a-5a), living in California after PFL increases caregiving and reduces depression—results that are consistent with expectations—but also reduces work and increases reports of fair/poor health—results that are inconsistent with expectations. When focusing on the population most likely to be affected by PFL—those with parents who live nearby (columns 1b-5b)—results are still less consistent with expectations than the results for women. Living in California after PFL increases caregiving and being a working caregiver but decreases work. It also reduces depression, but surprisingly increases the likelihood of reporting being in fair/poor health.

In sum, our results show that for women with a spouse in poor health or with parents in poor health (especially for those who live near those parents), PFL consistently increases the likelihood of being a working caregiver and reduces depression. The results for other outcomes and for men are less consistent.

***Threats to Validity***

As discussed earlier in the methods section, the primary threat to the validity of any causal estimate is the appropriateness of the comparison group. How well does the comparison group mimic the

[12] These estimates address the potential bias from using a staggered difference-In-differences estimation (Callaway and Sant'Anna 2020 and Goodman-Bacon 2021). Sample sizes for New Jersey are too small to present separate results.

conditions of random assignment, where the treatment and comparison groups have the same distribution of observable and unobservable characteristics except for the treatment itself? The DD approach assumes that can be achieved because it differences out time-invariant within-state unobservables before and after the implementation of a specific treatment such as PFL. However, time-varying unobservables that differ across treatment and comparison samples could invalidate the random assignment assumption. One indicator of differences in time-varying unobservables is whether the trend in the dependent variable prior to the date the treatment was implemented is different for treatment states and comparison states.

To test whether trends in our outcomes of interest are similar before and after implementation of the PFL policies, we regress each dependent variable on time indicators. The results reported in Appendix Tables A3a and A3b show evidence of divergent pre-trends for a few of the outcomes of our analysis. To address this issue, we create synthetic controls for both California and New Jersey using the procedure described earlier. To assess the quality of the synthetic control group, we report male and female labor force participation rates over the time period of our analysis for both California and New Jersey and their respective synthetic controls in Figure 1. The figure shows labor force participation rates in the synthetic control groups mimic those in the treatment states before the implementation of PFL policy, validating our synthetic control approach.

In Table 5A, we report the results for women with spouses in poor health using the synthetic control approach and find that PFL significantly increases work and decreases depression and fair/poor health. Surprisingly, however, the results show that PFL reduces the likelihood of care for women. For men with a spouse in poor health, PFL reduces depression, a result that is consistent with expectations. However, PFL also reduces work for these men, which is contrary to expectations.

Table 5B shows the effect of PFL policy for women (Panel A) and men (Panel B) with a parent in poor health. Focusing on the effects for women whose parents lived nearby (columns 1b-5b), living in a PFL state increases the likelihood of working and being a working caregiver. Living in a PFL state also significantly reduces the likelihood of being depressed, but surprisingly, the results show that PFL increases the likelihood of reporting fair or poor health. The results for men with parents in poor health who lived nearby show that PFL increases care, but other results are inconsistent with expectations, finding that PFL significantly decreased work and being a working caregiver and significantly increased fair/poor health.

***Robustness Checks***

To assess the robustness of our findings, Table 6A reports results using two different estimation methods that have been used in the literature on the impact of PFL. The first set of estimates are from a triple difference model (DDD). As detailed in the methods section, this model adds a third difference that controls for broader changes in outcomes over time for a population that is not eligible for PFL—those whose spouse is not in poor health. In this model, the impact of PFL is measured by the interaction term between the PFL indicator and an indicator for having a spouse in poor health. For women (Table 6A, Panel A), this term is significant for the same four outcomes as in the DD model: women with spouses in poor health are more likely to work and to be a working caregiver and less likely to be depressed and to be in fair/poor health after PFL is implemented. For men (Panel B), the coefficient on the interaction term in the DDD model indicates that PFL significantly reduces the likelihood of working (the same unexpected result as in the DD model) and of being a working caregiver.

Our second robustness test uses an individual fixed-effects model that measures changes in the outcome before and after a spouse experiences poor health and compares those changes for respondents in PFL and non-PFL states. We are interested in whether the coefficient on spouse poor health t0*PFL (i.e., the change in the outcome before and after a spouse transitions into poor health in a PFL state compared to a non-PFL state) is statistically different from zero. For women, this model shows that PFL increases the likelihood of being a working caregiver (similar to the DD and DDD models) after a spouse's onset of poor health. For men, the individual fixed-effects model shows that PFL reduces work after a spouse's onset of poor health, which is similar to the DD and DDD models. The significant negative (and surprising) effect on being a working caregiver is similar to the DDD model, but different from the DD model.

In Table 6B, we assess the robustness of our findings for men and women with a living parent. In this table we only report estimates for the model that includes the interaction with living close to parents to account for differences between those with parents who do and do not live close. For the DDD model, we focus on the sum of the coefficients on parent poor health*PFL and parent poor health*parent lives close*PFL. Consistent with the DD results from Table 3A, the DDD model in panel A shows that women with parents in poor health who live nearby are significantly more likely to provide care, more likely to be a working caregiver, and less likely to be depressed after the implementation of PFL. For men (Panel B), the sum of the coefficients for the DDD model is statistically significant for the same two outcomes as in the DD model—a negative effect on work and a positive effect on care. The results also show that PFL has a statistically significant positive effect on combining work and care. Finally, the PFL effect is statistically significant in the fair/poor health regression, but with the opposite sign than expected—

suggesting that men with unhealthy parents who live nearby are more likely to be in fair/poor health in PFL states than in states without PFL.

For the individual fixed-effects models in Table 6B we focus on the sum of parent poor health t0*PFL (the change in the outcome before and after the onset of parent poor health for those in PFL states) and that same coefficient interacted with parent lives close. For women we see that PFL significantly increases any care and combining work and care and reduces depression and fair/poor health, results that are consistent with the DD model. Surprisingly, PFL also significantly reduces work. For men we see a significant increase in work, care, and combining work and care.

## Conclusions

In this paper, we use data from the HRS to estimate the impact of PFL in California and New Jersey on five outcomes—work, care provision, combining work and care, depression, and fair/poor health. The intent of the law and our theoretical expectations are that the availability of PFL benefits would increase work, caregiving, and being both a worker and caregiver, and would decrease the likelihood of depression and fair/poor health. We test these hypotheses for four samples: women with a parent in poor health, men with a parent in poor health, women with a spouse in poor health, and men with a spouse in poor health. For those with a parent in poor health, we focus on those whose parent lives nearby because this is the group most likely to provide care, and thus most likely to benefit from PFL. We also assess the robustness of our results using four different methods: difference-in-differences (DD), synthetic cohort DD, triple difference (DDD), and individual fixed effects.

Across estimation methods our results are the most consistent for two women's outcomes: combining work and caregiving and depression. Using our primary estimation method (DD), we find that women with a spouse in poor health are 7.4 percentage points more likely to work while providing care after the implementation of PFL, and women living within 10 miles of a parent in poor health are 5.6 percentage points more likely to work while providing care after PFL. The impact of PFL on combining work and care is significant and positive in seven of the eight estimates.[13] Estimates from the DD model also show that women with a spouse in poor health are 7.9 percentage points less likely to report being depressed after the implementation of PFL, and women living within 10 miles of a parent in poor health

[13] The four models are DD, synthetic cohort, DDD, and individual fixed effects. For each model we focus on the estimates for those with a spouse in poor health and those with a parent in poor health who lives close.

are 8.2 percentage points less likely to report being depressed. The impact of PFL on this outcome is significant in seven of the eight estimates. There is also some consistent evidence, especially for women with a spouse in poor health, that PFL significantly reduces the likelihood that they will also report fair/poor health.

The results for men are often inconsistent across the different models, the coefficients are less likely to be significant, and when they are significant, they are more likely to be in a direction that is inconsistent with theoretical expectations. For example, there are a number of cases where the results indicate that living in a PFL state reduces work for men with a spouse in poor health or living near a parent in poor health. Many of our models, especially for men living near parents in poor health, also show that PFL increases the likelihood that the respondent reports fair/poor health. It is not surprising that the results for men are less statistically significant than for women because the literature shows that women are more likely to be caregivers than men. Men are more likely to provide care for a spouse in poor health than for a parent in poor health, but it is likely that there is a greater stigma for men taking caregiving leave than for women, and that possibility could reduce the benefits of PFL for men with either a parent or a spouse in poor health.

Our findings of a positive effect of PFL on employment outcomes for those with a spouse in poor health are consistent with the two other recent studies that looked at the effect of PFL on this group. However, the literature that assesses the impact of PFL on those with parents in poor health is less conclusive. When we focused on potential caregivers with parents in poor health and did not distinguish between those with parents who lived near or far, our results were similarly inconclusive. One innovation of this paper, however, was the realization that it was those with parents living nearby who would be most likely to benefit from PFL. When we included interaction terms that allowed us to make that distinction, the results for women became clearer, more consistent across models and with our expectations, and similar to results for those with a spouse in poor health, where distance was not a factor. Overall, our results provide evidence about the importance of paid family leave policies in supporting potential caregivers and mitigating the negative consequences of caregiving that have been found in other literature.

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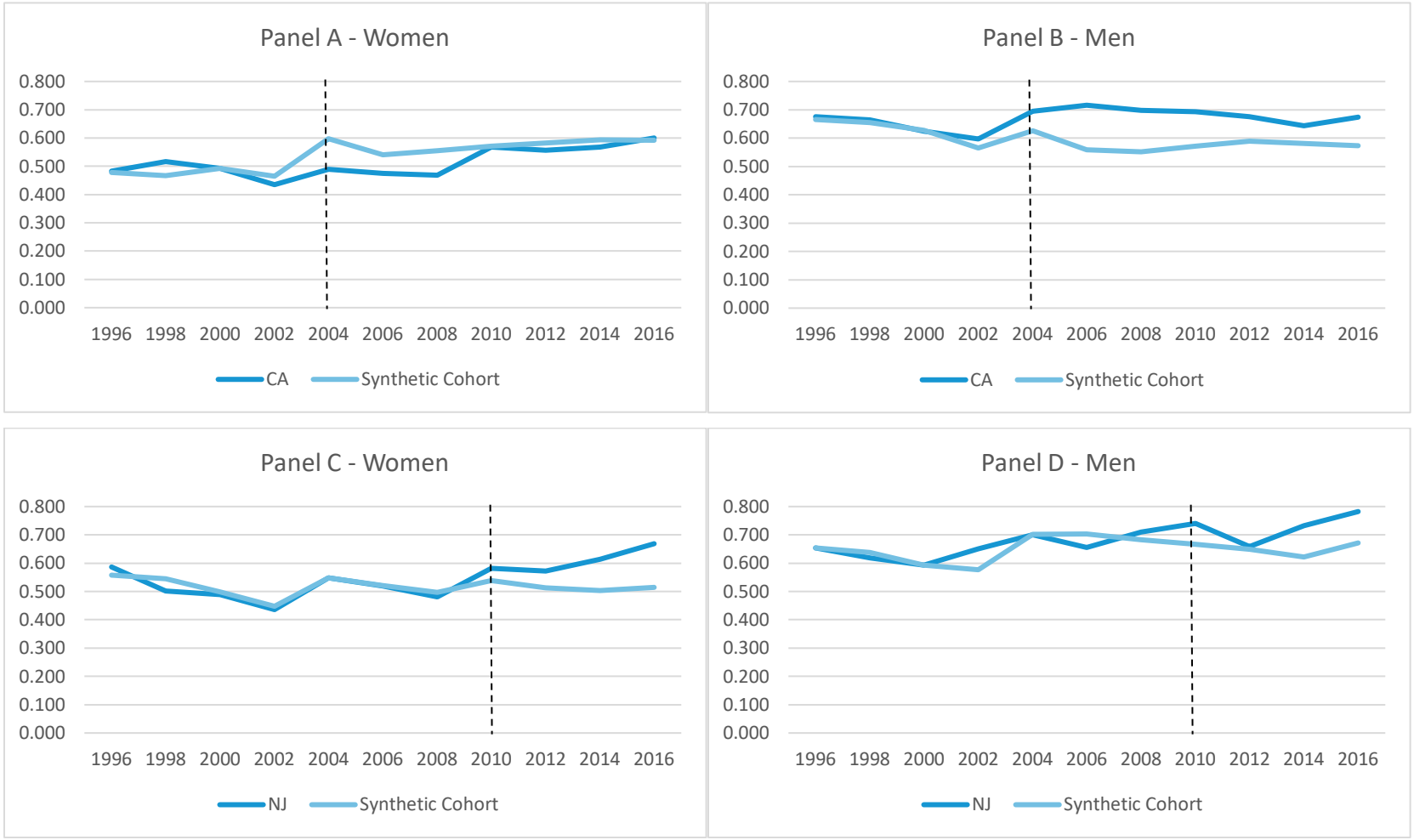
# TABLES AND FIGURES

FIGURE 1

**State-Level Labor Force Participation Rates of Adults Ages 51 to 70 in California, New Jersey, and Synthetic Cohorts, 1996-2016**




**Source:** Authors' analysis of the Health and Retirement Study, 1996-2016.

**Note:** Dashed lines identify the pre- and post-PFL years in California and New Jersey. In the construction of weights for the synthetic control groups, we use the values of the pre-treatment outcome measured in 1996 and 2000 in California and 1996, 2000, and 2004 in New Jersey as well as other pre-treatment characteristics: share non-Hispanic black, share Hispanic, share other non-white race and ethnicity, share without a high school diploma, share with high school diploma or equivalent, share with some college education, and median household income. The optimal weights are those that minimize the synthetic's mean squared prediction error.

TABLE 1

**Work and Care Among Adults Ages 51 to 70 with Living Parents or Spouses in 2016 by Spouse or Parent Health Status**

| | Spouse Sample | | | | Parent Sample | | | |
|---|---|---|---|---|---|---|---|---|
| | Women | | Men | | Women | | Men | |
| | Healthy | Poor Health | Healthy | Poor Health | Healthy | Poor Health | Healthy | Poor Health |
| Any work* | 63.4% | 56.4% | 75.0% | 59.7% | 74.0% | 68.3% | 80.2% | 76.1% |
| Any care** | 1.7% | 33.9% | 1.4% | 39.6% | 2.5% | 29.0% | 1.4% | 10.7% |
| Work & care | 0.8% | 17.1% | 0.9% | 22.3% | 1.6% | 17.8% | 1.2% | 6.4% |
| Care only | 0.9% | 16.9% | 0.5% | 17.3% | 0.8% | 11.3% | 0.2% | 4.3% |
| Work only | 62.6% | 39.3% | 74.1% | 37.5% | 72.4% | 50.5% | 79.0% | 69.7% |
| Neither | 35.7% | 26.8% | 24.5% | 23.0% | 25.1% | 20.4% | 19.6% | 19.6% |
| Observations | 3,091 | 426 | 3,146 | 407 | 1,582 | 815 | 1,326 | 638 |

**Source:** Authors' analysis of the Health and Retirement Study, 2016.

*Any work can be slightly different than the sum of Work & care and Work only due to rounding.

** Any care can be slightly different than the sum of Work & care and Care only due to rounding.

TABLE 2

**Means of Regression Variables for Adults Ages 51 to 70 with Spouses or Parents in Poor Health**

| | Spouse Sample | | | | Parent Sample | | | |
|---|---|---|---|---|---|---|---|---|
| | Women | | Men | | Women | | Men | |
| | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. |
| **Dependent Variables** | | | | | | | | |
| Work (%) | 50.6 | | 56.2 | | 64.3 | | 73.7 | |
| Care (%) | 38.8 | | 40.8 | | 27.2 | | 11.8 | |
| Work & care (%) | 18.6 | | 21.2 | | 16.1 | | 7.5 | |
| Depressed (%) | 16.3 | | 13.3 | | 15.1 | | 10.5 | |
| Fair or poor health (%) | 28.4 | | 33.3 | | 20.2 | | 20.8 | |
| **Independent Variables** | | | | | | | | |
| Age | 60.9 | 5.4 | 61.2 | 5.2 | 58.5 | 4.7 | 58.7 | 4.7 |
| Non-Hispanic white (%) | 77.7 | | 71.4 | | 77.2 | | 77.8 | |
| Non-Hispanic black (%) | 9.6 | | 11.8 | | 9.3 | | 8.5 | |
| Hispanic (%) | 9.9 | | 12.2 | | 9.8 | | 10.0 | |
| Other race and ethnicity (%) | 2.9 | | 4.6 | | 3.7 | | 3.6 | |
| No high school diploma (%) | 17.9 | | 23.3 | | 9.6 | | 11.0 | |
| High school diploma (%) | 39.5 | | 33.7 | | 31.3 | | 27.5 | |
| Some college (%) | 25.2 | | 24.1 | | 28.4 | | 27.8 | |
| College degree (%) | 17.3 | | 18.9 | | 30.6 | | 33.7 | |
| Married/Partnered (%) | - | | - | | 70.6 | | 78.3 | |
| Children < 18% (%) | 7.0 | | 9.6 | | 8.6 | | 14.8 | |
| Parent unmarried (%) | - | | - | | 74.0 | | 70.3 | |
| State unemployment rate | 6.1 | 2.0 | 6.0 | 2.0 | 6.0 | 2.1 | 6.0 | 2.0 |
| Duration of poor health spell | 1.9 | 1.3 | 1.9 | 1.3 | 1.8 | 1.1 | 1.7 | 1.0 |
| Parent lives close (%) | - | | - | | 42.7 | | 40.4 | |
| PFL (%) | 9.7 | | 8.2 | | 9.9 | | 9.7 | |
| PFL*Parent lives close | | | | | 3.9 | | 2.9 | |
| Observations | 3,858 | | 3,549 | | 6,764 | | 5,149 | |

**Source:** Authors' analysis of the Health and Retirement Study, 1996-2016.

TABLE 3A

**Difference-in-Difference Regression Coefficients of PFL on Outcomes for Adults Ages 51 to 70 with Spouses in Poor Health**

| | Work | Care | Work & Care | Depressed | Fair/Poor Health |
|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) |
| **Panel A – Women** | | | | | |
| PFL | 0.245*** | -0.008 | 0.074** | -0.079*** | -0.094*** |
| | (0.074) | (0.062) | (0.032) | (0.024) | (0.030) |
| R-squared | 0.224 | 0.100 | 0.098 | 0.072 | 0.140 |
| **Panel B – Men** | | | | | |
| PFL | -0.090** | 0.010 | -0.025 | -0.011 | 0.060** |
| | (0.034) | (0.027) | (0.018) | (0.019) | (0.023) |
| R-squared | 0.212 | 0.076 | 0.101 | 0.060 | 0.111 |

**Source:** Authors' analysis of the Health and Retirement Study, 1996-2016.

**Notes:** Panel A includes 3,858 person-year observations and Panel B includes 3,549 person-year observations. Regressions also control for race and ethnicity, educational attainment, presence of children under age 18, duration of spouse poor health spell, and state-level unemployment rates, as well as age, year, and state effects and are estimated with robust standard errors (shown in parentheses) clustered by state. *p < .10; **p < .05; ***p < .01

TABLE 3B

**Difference-in-Difference Regression Coefficients of PFL on Outcomes for Adults Ages 51 to 70 with Parents in Poor Health**

| | Work | | Care | | Work & Care | | Depressed | | Fair/Poor Health | |
|---|---|---|---|---|---|---|---|---|---|---|
| | (1a) | (1b) | (2a) | (2b) | (3a) | (3b) | (4a) | (4b) | (5a) | (5b) |
| **Panel A – Women** | | | | | | | | | | |
| PFL | 0.042 | 0.047* | 0.027 | -0.018 | 0.011 | -0.019 | -0.054 | -0.036 | -0.058** | -0.061*** |
| | (0.038) | (0.026) | (0.019) | (0.017) | (0.011) | (0.014) | (0.037) | (0.030) | (0.026) | (0.020) |
| Parent lives close*PFL | | -0.012 | | 0.116*** | | 0.075*** | | -0.046** | | 0.009 |
| | | (0.049) | | (0.015) | | (0.020) | | (0.020) | | (0.028) |
| PFL + Parent lives close*PFL | | 0.035 | | 0.098*** | | 0.056*** | | -0.082* | | -0.052 |
| R-squared | 0.145 | 0.145 | 0.086 | 0.088 | 0.065 | 0.066 | 0.073 | 0.074 | 0.140 | 0.140 |
| **Panel B – Men** | | | | | | | | | | |
| PFL | -0.023 | 0.023 | 0.054*** | 0.038** | 0.024 | 0.012 | -0.028* | -0.027** | -0.008 | -0.047 |
| | (0.019) | (0.026) | (0.015) | (0.016) | (0.019) | (0.025) | (0.015) | (0.013) | (0.056) | (0.063) |
| Parent lives close*PFL | | -0.148*** | | 0.052*** | | 0.039 | | -0.004 | | 0.124*** |
| | | (0.024) | | (0.014) | | (0.026) | | (0.035) | | (0.020) |
| PFL + Parent lives close*PFL | | -0.125*** | | 0.090*** | | 0.051*** | | -0.031 | | 0.077 |
| R-squared | 0.174 | 0.176 | 0.067 | 0.068 | 0.058 | 0.059 | 0.074 | 0.074 | 0.126 | 0.128 |

**Source:** Authors' analysis of the Health and Retirement Study, 1996-2016.

**Notes:** Panel A includes 6,764 person-year observations and Panel B includes 5,149 person-year observations. Regressions also control for race and ethnicity, educational attainment, marital status, presence of children under age 18, whether parent is unmarried, duration of parent poor health spell, and state-level unemployment rates, as well as age, year, and state effects and are estimated with robust standard errors (shown in parentheses) clustered by state. *p < .10; **p < .05; ***p < .01

TABLE 4A

**Difference-in-Difference Regression Coefficients of California PFL on Outcomes for Adults Ages 51 to 70 with Spouses in Poor Health**

| | Work | Care | Work & Care | Depressed | Fair/Poor Health |
|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) |
| **Panel A – Women** | | | | | |
| PFL | 0.179*** | -0.065** | 0.054** | -0.068*** | -0.076** |
| | (0.031) | (0.025) | (0.022) | (0.022) | (0.029) |
| R-squared | 0.225 | 0.103 | 0.102 | 0.074 | 0.14 |
| **Panel B – Men** | | | | | |
| PFL | -0.069*** | -0.006 | -0.018 | 0.002 | 0.061** |
| | (0.025) | (0.023) | (0.021) | (0.016) | (0.028) |
| R-squared | 0.208 | 0.08 | 0.103 | 0.059 | 0.109 |

**Source:** Authors' analysis of the Health and Retirement Study, 1996-2016.

**Notes:** Panel A includes 3,752 person-year observations and Panel B includes 3,457 person-year observations. Regressions also control for race and ethnicity, educational attainment, presence of children under age 18, duration of spouse poor health spell, and state-level unemployment rates, as well as age, year, and state effects and are estimated with robust standard errors (shown in parentheses) clustered by state. *p < .10; **p < .05; ***p < .01

TABLE 4B

**Difference-in-Difference Regression Coefficients of California PFL on Outcomes for Adults Ages 51 to 70 with Parents in Poor Health**

| | Work | | Care | | Work & Care | | Depressed | | Fair/Poor Health | |
|---|---|---|---|---|---|---|---|---|---|---|
| | (1a) | (1b) | (2a) | (2b) | (3a) | (3b) | (4a) | (4b) | (5a) | (5b) |
| **Panel A – Women** | | | | | | | | | | |
| PFL | 0.013 | 0.033 | 0.043*** | -0.006 | 0.014 | -0.01 | -0.021 | -0.009 | -0.039** | -0.050*** |
| | (0.020) | (0.022) | (0.016) | (0.013) | (0.011) | (0.011) | (0.014) | (0.013) | (0.016) | (0.016) |
| Parent lives close*PFL | | -0.054** | | 0.129*** | | 0.066*** | | -0.032** | | 0.030** |
| | | (0.023) | | (0.015) | | (0.015) | | (0.014) | | (0.014) |
| PFL + Parent lives close*PFL | | -0.021 | | 0.123*** | | 0.056*** | | -0.041** | | -0.020 |
| R-squared | 0.148 | 0.148 | 0.085 | 0.086 | 0.065 | 0.065 | 0.073 | 0.073 | 0.139 | 0.139 |
| **Panel B – Men** | | | | | | | | | | |
| PFL | -0.035* | 0.002 | 0.053*** | 0.036** | 0.008 | -0.009 | -0.036*** | -0.027** | 0.042*** | 0.008 |
| | (0.017) | (0.019) | (0.015) | (0.017) | (0.011) | (0.012) | (0.012) | (0.012) | (0.015) | (0.015) |
| Parent lives close*PFL | | -0.133*** | | 0.063*** | | 0.062*** | | -0.035** | | 0.121*** |
| | | (0.020) | | (0.013) | | (0.012) | | (0.013) | | (0.020) |
| PFL + Parent lives close*PFL | | -0.131*** | | 0.099*** | | 0.053*** | | -0.062*** | | 0.129*** |
| R-squared | 0.173 | 0.175 | 0.070 | 0.07 | 0.061 | 0.062 | 0.073 | 0.073 | 0.125 | 0.126 |

**Source:** Authors' analysis of the Health and Retirement Study, 1996-2016.

**Notes:** Panel A includes 6,572 person-year observations and Panel B includes 5,023 person-year observations. Regressions also control for race and ethnicity, educational attainment, marital status, presence of children under age 18, whether parent is unmarried, duration of parent poor health spell, and state-level unemployment rates, as well as age, year, and state effects and are estimated with robust standard errors (shown in parentheses) clustered by state. *p < .10; **p < .05; ***p < .01

TABLE 5A

**Synthetic Cohort Analysis of Difference-in-Difference Regression Coefficients of PFL on Outcomes for Adults Ages 51 to 70 with Spouses in Poor Health**

| | Work | Care | Work & Care | Depressed | Fair/Poor Health |
|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) |
| **Panel A – Women** | | | | | |
| PFL | 0.224*** | -0.131*** | 0.047 | -0.093*** | -0.085*** |
| | (0.059) | (0.019) | (0.053) | (0.033) | (0.012) |
| **Panel B – Men** | | | | | |
| PFL | -0.066** | 0.035 | -0.014 | -0.033** | 0.058 |
| | (0.030) | (0.035) | (0.045) | (0.013) | (0.052) |

**Source:** Authors' analysis of the Health and Retirement Study, 1996-2016.

**Notes:** Coefficients are from a fixed-effects meta-analysis that combines synthetic control estimates from California and New Jersey regressions. Regressions also control for race and ethnicity, educational attainment, presence of children under age 18, duration of spouse poor health spell, and state-level unemployment rates, as well as age, year, and state effects and are estimated with robust standard errors (shown in parentheses) clustered by state. *p < .10; **p < .05; ***p < .01

TABLE 5B

**Synthetic Cohort Analysis of Difference-in-Difference Regression Coefficients of PFL on Outcomes for Adults Ages 51 to 70 with Parents in Poor Health**

| | Work | | Care | | Work & Care | | Depressed | | Fair/Poor Health | |
|---|---|---|---|---|---|---|---|---|---|---|
| | (1a) | (1b) | (2a) | (2b) | (3a) | (3b) | (4a) | (4b) | (5a) | (5b) |
| **Panel A – Women** | | | | | | | | | | |
| PFL | 0.144*** | | -0.027 | | 0.004 | | -0.039*** | | 0.043*** | |
| | (0.022) | | (0.020) | | (0.017) | | (0.011) | | (0.011) | |
| PFL + Parent lives close*PFL | | 0.170*** | | 0.029 | | 0.108*** | | -0.028*** | | 0.056*** |
| **Panel B – Men** | | | | | | | | | | |
| PFL | 0.030 | | 0.028 | | -0.014 | | -0.059*** | | -0.020 | |
| | (0.022) | | (0.026) | | (0.013) | | (0.022) | | (0.020) | |
| PFL + Parent lives close*PFL | | -0.136*** | | 0.029** | | -0.032*** | | -0.010 | | 0.174*** |

**Source:** Authors' analysis of the Health and Retirement Study, 1996-2016.

**Notes:** Coefficients are from a fixed-effects meta-analysis that combines synthetic control estimates from California and New Jersey regressions. Regressions also control for race and ethnicity, educational attainment, marital status, presence of children under age 18, whether parent is unmarried, duration of parent poor health spell, and state-level unemployment rates, as well as age, year, and state effects and are estimated with robust standard errors (shown in parentheses) clustered by state. *p < .10; **p < .05; ***p < .01

TABLE 6A

**Regression Coefficients of PFL on Outcomes for Married Adults Ages 51 to 70 – Robustness Checks**

| | Work | Care | Work & Care | Depressed | Fair/Poor Health |
|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) |
| **Panel A – Women** | | | | | |
| ***DDD Model*** | | | | | |
| PFL | 0.052*** | 0.003 | 0.003 | 0.006 | -0.019* |
| | (0.019) | (0.003) | (0.004) | (0.006) | (0.010) |
| Spouse poor health*PFL | 0.115*** | -0.035 | 0.035** | -0.057*** | -0.065*** |
| | (0.023) | (0.026) | (0.013) | (0.013) | (0.024) |
| ***Individual Fixed-Effects Model*** | | | | | |
| PFL | 0.090* | 0.068 | -0.004 | -0.061*** | -0.060** |
| | (0.050) | (0.102) | (0.023) | (0.021) | (0.026) |
| Spouse poor health t0*PFL | 0.070 | 0.031 | 0.086*** | -0.034 | -0.027 |
| | (0.076) | (0.022) | (0.022) | (0.023) | (0.018) |
| **Panel B – Men** | | | | | |
| ***DDD Model*** | | | | | |
| PFL | 0.034*** | 0.003 | 0.001 | -0.014*** | 0.021 |
| | (0.012) | (0.005) | (0.003) | (0.005) | (0.016) |
| Spouse poor health*PFL | -0.061*** | -0.017 | -0.033*** | 0.013 | 0.018 |
| | (0.021) | (0.014) | (0.011) | (0.011) | (0.031) |
| ***Individual Fixed Effects-Model*** | | | | | |
| PFL | 0.076 | 0.070 | 0.143** | -0.056 | -0.033 |
| | (0.130) | (0.063) | (0.059) | (0.055) | (0.038) |
| Spouse poor health t0*PFL | -0.111*** | -0.009 | -0.075*** | 0.041 | -0.009 |
| | (0.040) | (0.042) | (0.020) | (0.013) | (0.047) |

**Source:** Authors' analysis of the Health and Retirement Study, 1996-2016.

**Notes:** Panel A DDD model includes 32,005 person-year observations and Panel B DDD model includes 31,969 person-years observations. Panel A individual fixed-effects model includes 3,871 person-year observations and Panel B individual fixed-effects model includes 3,255 person-year observations. DDD regressions also control for race and ethnicity, educational attainment, duration of spouse poor health spell, and spouse poor health. Individual fixed-effects regressions also control for time relative to onset of spouse poor health. Both DDD and individual fixed-effects regressions also control for presence of children under age 18, and state-level unemployment rates, as well as age, year, and state effects and are estimated with robust standard errors (shown in parentheses) clustered by state. *p < .10; **p < .05; ***p < .01

TABLE 6B

**Regression Coefficients of PFL on Outcomes for Adults Ages 51 to 70 with Living Parents – Robustness Checks**

| | Work | Care | Work & Care | Depressed | Fair/Poor Health |
|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) |
| **Panel A – Women** | | | | | |
| ***DDD Model*** | | | | | |
| PFL | 0.058*** | 0.005 | 0.014* | 0.022 | -0.025** |
| | (0.012) | (0.008) | (0.007) | (0.014) | (0.011) |
| Parent poor health*PFL | -0.029 | -0.067*** | -0.061*** | -0.036*** | -0.017 |
| | (0.030) | (0.012) | (0.013) | (0.010) | (0.027) |
| Parent poor health*Parent lives close*PFL | -0.032 | 0.229*** | 0.132*** | -0.037** | 0.012 |
| | (0.048) | (0.008) | (0.018) | (0.014) | (0.023) |
| Parent poor health*PFL + Parent poor health*Parent lives close*PFL | -0.061 | 0.162*** | 0.071** | -0.073*** | -0.005 |
| ***Individual Fixed-Effects Model*** | | | | | |
| PFL | 0.048 | 0.107* | 0.104** | -0.069 | 0.008 |
| | (0.030) | (0.054) | (0.041) | (0.055) | (0.020) |
| Parent poor health t0*PFL | -0.038** | -0.096** | -0.139*** | 0.036 | 0.032** |
| | (0.017) | (0.037) | (0.027) | (0.024) | (0.015) |
| Parent poor health t0*Parent lives close*PFL | -0.019 | 0.304*** | 0.210*** | -0.154*** | -0.131*** |
| | (0.014) | (0.043) | (0.042) | (0.015) | (0.039) |
| Parent poor health t0*PFL + Parent poor health t0*Parent lives close*PFL | -0.057*** | 0.208*** | 0.071*** | -0.118*** | -0.099** |
| **Panel B – Men** | | | | | |
| ***DDD Model*** | | | | | |
| PFL | 0.027 | 0.018** | 0.006 | -0.032*** | 0.002 |
| | (0.043) | (0.009) | (0.006) | (0.009) | (0.034) |
| Parent poor health*PFL | 0.007 | -0.034** | -0.020 | -0.000 | -0.048*** |
| | (0.019) | (0.013) | (0.017) | (0.005) | (0.014) |
| Parent poor health*Parent lives close*PFL | -0.158*** | 0.128*** | 0.081*** | 0.018 | 0.130*** |
| | (0.025) | (0.010) | (0.027) | (0.038) | (0.016) |
| Parent poor health*PFL + Parent poor health*Parent lives close*PFL | -0.151*** | 0.094*** | 0.061*** | 0.018 | 0.082*** |
| ***Individual Fixed-Effects Model*** | | | | | |
| PFL | 0.121*** | 0.083* | 0.042** | 0.000 | 0.01 |
| | (0.030) | (0.044) | (0.020) | (0.026) | (0.031) |
| Parent poor health t0*PFL | 0.022 | -0.052** | -0.018 | 0.005 | 0.009 |
| | (0.015) | (0.017) | (0.015) | (0.013) | (0.014) |
| Parent poor health t0*Parent lives close*PFL | 0.020 | 0.125*** | 0.146*** | 0.033 | 0.041*. |
| | (0.018) | (0.008) | (0.009) | (0.048) | (0.022) |
| Parent poor health t0*PFL + Parent poor health t0*Parent lives close*PFL | 0.042* | 0.073*** | 0.128*** | 0.038 | 0.050* |

**Source:** Authors' analysis of the Health and Retirement Study, 1996-2016.
**Notes:** Panel A DDD model includes 19,190 person-year observations and Panel B DDD model includes 15,227 person-years observations. Panel A individual fixed-effects model includes 5,521 person-year observations and Panel B individual fixed-effects model includes 4,444 person-year observations.
DDD regressions also control for race and ethnicity, educational attainment, duration of parent poor health spell, parent poor health, and parent lives close. Individual fixed-effects regressions also control for time relative to onset of parent poor health and parent lives close. Both DDD and individual fixed-effects regressions also control for marital status, presence of children under age 18, whether parent is unmarried, and state-level unemployment rates, as well as age, year, and state effects and are estimated with robust standard errors (shown in parentheses) clustered by state. *p < .10; **p < .05; ***p < .01

TABLE A1

**Person-Year Observations of Adults Ages 51 to 70 in Spouse and Parent Sample**

| | | Spouse Sample | | | Parent Sample | | |
|---|---|---|---|---|---|---|---|
| | | **All** | **Women** | **Men** | **All** | **Women** | **Men** |
| 1. | Ages 51-70 w/ Living Parents | 85,205 | 43,008 | 42,197 | 41,981 | 23,686 | 18,295 |
| 2. | Keep Ever Worked and Not Disabled | 80,289 | 39,803 | 40,486 | 39,065 | 21,772 | 17,293 |
| 3. | Drop Observations with Missing Values | 79,852 | 39,613 | 40,239 | 38,797 | 21,634 | 17,163 |
| 4. | Drop Observations with Gaps in Waves | 74,489 | 37,107 | 37,382 | 36,677 | 20,485 | 16,192 |
| 5. | Drop Respondents that Moved States (DDD) | 68,861 | 34,321 | 34,540 | **34,417** | **19,190** | **15,227** |
| 6. | Drop Observations for 1996 (DDD) | **63,974** | **32,005** | **31,969** | | | |
| 7. | Keep Observations with Parent/Spouse in Poor Health (DD) | **7,407** | **3,858** | **3,549** | **11,913** | **6,764** | **5,149** |
| 8. | Keep Spells of Parent/Spouse Poor Health t-4 through t+2 (Individual Fixed-Effects) | **7,126** | **3,871** | **3,255** | **9,965** | **5,521** | **4,444** |

**Source:** Authors' analysis of the Health and Retirement Study, 1996-2016.

TABLE A2

**Regression Coefficients of PFL and Controls on Outcomes for Women Ages 51 to 70 with Parents in Poor Health**

| | Work | Care | Work & Care | Depressed | Fair/Poor Health |
|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) |
| Non-Hispanic black | -0.024 | 0.015 | 0.006 | 0.035 | 0.059** |
| | (-0.028) | (-0.027) | (-0.023) | (-0.029) | (-0.027) |
| Hispanic | 0.034 | -0.008 | 0.026 | 0.115** | 0.166*** |
| | (-0.028) | (-0.029) | (-0.022) | (-0.047) | (-0.030) |
| Other race & ethnicity | -0.018 | 0.06 | 0.034 | 0.046 | 0.076** |
| | (-0.042) | (-0.056) | (-0.037) | (-0.036) | (-0.037) |
| High school diploma | 0.149 | 0.065*** | 0.073*** | -0.109*** | -0.228*** |
| | (-0.040) | (-0.021) | (-0.019) | (-0.028) | (-0.040) |
| Some college | 0.206*** | 0.085*** | 0.082*** | -0.122*** | -0.265*** |
| | (-0.042) | (-0.021) | (-0.021) | (-0.033) | (-0.036) |
| College degree | 0.272*** | 0.056*** | 0.095*** | -0.156*** | -0.346*** |
| | (-0.038) | (-0.020) | (-0.016) | (-0.032) | (-0.033) |
| Married/Partnered | -0.088*** | -0.041** | -0.052*** | -0.096*** | -0.070*** |
| | (-0.016) | (-0.019) | (-0.015) | (-0.013) | (-0.017) |
| Children < 18 | 0.008 | -0.034 | -0.035* | 0.007 | -0.03 |
| | (-0.033) | (-0.024) | (-0.02) | (-0.03) | (-0.025) |
| Parent unmarried | -0.004 | 0.078*** | 0.061*** | 0.014 | 0.012 |
| | (-0.023) | (-0.014) | (-0.013) | (-0.014) | (-0.016) |
| Duration: 2 years | 0.002 | 0.058*** | 0.037*** | -0.020* | -0.02 |
| | (-0.015) | (-0.012) | (-0.013) | (-0.012) | (-0.014) |
| Duration: 4 years | -0.002 | 0.065*** | 0.043* | -0.011 | -0.003 |
| | (-0.026) | (-0.024) | (-0.022) | (-0.017) | (-0.017) |
| Duration: 6 years | -0.032 | 0.015 | 0.005 | -0.048* | -0.017 |
| | (-0.027) | (-0.036) | (-0.028) | (-0.025) | (-0.031) |
| Duration: 8 years | -0.09 | 0.026 | -0.011 | -0.025 | 0.094** |
| | (-0.058) | (-0.048) | (-0.035) | (-0.046) | (-0.043) |
| Duration: 10 years | -0.067 | 0.095 | 0.003 | -0.059 | 0.123 |
| | (-0.084) | (-0.091) | (-0.058) | (-0.049) | (-0.077) |
| Parent lives closes | -0.021 | 0.159*** | 0.088*** | 0.017 | -0.003 |
| | (-0.020) | (-0.013) | (-0.015) | (-0.013) | (-0.012) |
| PFL | 0.047* | -0.018 | -0.019 | -0.036 | -0.061*** |
| | (-0.026) | (-0.017) | (-0.014) | (-0.030) | (-0.020) |
| Parent lives closes*PFL | -0.012 | 0.116*** | 0.075*** | -0.046** | 0.009 |
| | (-0.049) | (-0.015) | (-0.020) | (-0.020) | (-0.028) |
| PFL + Parent lives close*PFL | 0.035 | 0.098*** | 0.056*** | -0.082* | -0.052 |
| Constant | 0.592*** | 0.058 | 0.019 | 0.177*** | 0.524*** |
| | (-0.080) | (-0.072) | (-0.050) | (-0.058) | (-0.081) |
| R-squared | 0.145 | 0.088 | 0.066 | 0.074 | 0.14 |

**Source:** Authors' analysis of the Health and Retirement Study, 1996-2016.

**Notes:** Sample includes 6,764 person-year observations. Regressions also control age, year, and state effects and are estimated with robust standard errors (shown in parentheses) clustered by state. *p < .10; **p < .05; ***p < .01

TABLE A3A

**Regression Coefficients from Event Study of PFL on Outcomes for Adults Ages 51 to 70 with Spouses in Poor Health**

| | Work | Care | Work & Care | Depressed | Fair/Poor Health |
|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) |
| **Panel A – Women** | | | | | |
| PFL t-4 | -0.177*** | 0.107* | 0.062 | -0.043 | 0.133*** |
| | (0.032) | (0.055) | (0.105) | (0.077) | (0.034) |
| PFL t0 | 0.012 | 0.021 | 0.104 | 0 | 0.163* |
| | (0.046) | (0.043) | (0.073) | (0.036) | (0.091) |
| PFL t+2 | 0.101 | 0.099 | 0.208 | -0.118 | 0.03 |
| | (0.169) | (0.124) | (0.196) | (0.079) | (0.045) |
| PFL t+4 | 0.158*** | 0.073 | 0.009 | -0.151*** | 0.002 |
| | (0.031) | (0.065) | (0.022) | (0.040) | (0.050) |
| R-squared | 0.226 | 0.101 | 0.101 | 0.073 | 0.141 |
| **Panel B – Men** | | | | | |
| PFL t-4 | -0.059 | 0.273*** | 0.15 | -0.113 | -0.105** |
| | (0.055) | (0.084) | (0.116) | (0.083) | (0.040) |
| PFL t0 | -0.094* | -0.016 | -0.008 | -0.01 | -0.174*** |
| | (0.052) | (0.071) | (0.087) | (0.117) | (0.031) |
| PFL t+2 | -0.047 | 0.177*** | 0.094*** | -0.110*** | -0.200*** |
| | (0.050) | (0.033) | (0.023) | (0.032) | (0.040) |
| PFL t+4 | -0.019 | 0.081* | 0.022 | -0.144*** | -0.129 |
| | (0.068) | (0.043) | (0.035) | (0.031) | (0.081) |
| R-squared | 0.213 | 0.08 | 0.103 | 0.063 | 0.115 |

**Source:** Authors' analysis of the Health and Retirement Study, 1996-2016.

**Notes**: Panel A includes 3,858 person-year observations and Panel B includes 3,549 person-year observations. Regressions also control for race and ethnicity, educational attainment, presence of children under age 18, duration of spouse poor health spell, PFL t-6 or more years, PFLt+6 or more years, and state-level unemployment rates, as well as age, year, and state effects and are estimated with robust standard errors (shown in parentheses) clustered by state. *p < .10; **p < .05; ***p < .01

TABLE A3B

**Regression Coefficients from Event Study of PFL on Outcomes for Adults Ages 51 to 70 with Parents in Poor Health**

| | Work | | Care | | Work & Care | | Depressed | | Fair/Poor Health | |
|---|---|---|---|---|---|---|---|---|---|---|
| | (1a) | (1b) | (2a) | (2b) | (3a) | (3b) | (4a) | (4b) | (5a) | (5b) |
| **Panel A – Women** | | | | | | | | | | |
| PFL t-4 | 0.062*** | -0.018 | -0.097** | -0.06 | -0.114** | -0.127*** | -0.084 | -0.057 | -0.105 | -0.122 |
| | (0.020) | (0.056) | (0.046) | (0.037) | (0.043) | (0.026) | (0.066) | (0.070) | (0.098) | (0.096) |
| PFL t0 | -0.110*** | -0.134** | 0.001 | -0.079*** | -0.134** | -0.167*** | -0.104 | -0.082 | -0.096 | -0.037 |
| | (0.029) | (0.058) | (0.015) | (0.016) | (0.050) | (0.024) | (0.095) | (0.100) | (0.089) | (0.090) |
| PFL t+2 | -0.005 | 0.027 | 0.026 | -0.097*** | -0.115*** | -0.159*** | -0.092 | -0.084 | -0.077 | -0.087 |
| | (0.066) | (0.069) | (0.038) | (0.034) | (0.029) | (0.025) | (0.123) | (0.104) | (0.078) | (0.108) |
| PFL t+4 | -0.016 | 0.047 | -0.04 | -0.051 | -0.122* | -0.089 | -0.073 | -0.061 | -0.083 | -0.059 |
| | (0.071) | (0.029) | (0.027) | (0.047) | (0.069) | (0.081) | (0.140) | (0.146) | (0.110) | (0.091) |
| Parent lives close*PFL t-4 | | 0.233** | | -0.109* | | 0.036 | | -0.074*** | | 0.050*** |
| | | (0.104) | | (0.060) | | (0.102) | | (0.026) | | (0.018) |
| Parent lives close*PFL t0 | | 0.064 | | 0.211*** | | 0.086 | | -0.056** | | -0.157*** |
| | | (0.180) | | (0.020) | | (0.140) | | (0.024) | | (0.014) |
| Parent lives close*PFL t+2 | | -0.075*** | | 0.301*** | | 0.107*** | | -0.02 | | 0.024 |
| | | (0.027) | | (0.021) | | (0.033) | | (0.049) | | (0.077) |
| Parent lives close*PFL t+4 | | -0.170 | | 0.027 | | -0.088** | | -0.032 | | -0.063 |
| | | (0.177) | | (0.121) | | (0.037) | | (0.023) | | (0.056) |
| PFL t-4 + Parent lives close*PFL t-4 | | 0.215*** | | -0.169** | | -0.091 | | -0.131** | | -0.072 |
| PFL t0 + Parent lives close*PFL t0 | | -0.070 | | 0.132*** | | -0.081 | | -0.138 | | -0.194** |
| PFL t+2 + Parent lives close*PFL t+2 | | -0.048 | | 0.204*** | | -0.052 | | -0.104 | | -0.063 |
| PFL t+4 + Parent lives close*PFL t+4 | | -0.123 | | -0.024 | | -0.177*** | | -0.093 | | -0.122 |
| R-squared | 0.146 | 0.147 | 0.087 | 0.089 | 0.066 | 0.067 | 0.074 | 0.074 | 0.14 | 0.141 |
| **Panel B – Men** | | | | | | | | | | |
| PFL t-4 | -0.022 | -0.036 | 0.018 | -0.024 | -0.029* | -0.061** | -0.023 | -0.034 | -0.028 | 0.001 |
| | (0.047) | (0.071) | (0.023) | (0.029) | (0.015) | (0.027) | (0.082) | (0.094) | (0.095) | (0.076) |
| PFL t0 | -0.077* | -0.043 | 0.046 | 0.06 | 0.002 | 0.032 | -0.066 | -0.054 | 0 | -0.024 |
| | (0.046) | (0.082) | (0.042) | (0.053) | (0.058) | (0.081) | (0.059) | (0.076) | (0.106) | (0.131) |
| PFL t+2 | -0.108*** | -0.081** | 0.093*** | 0.104*** | 0.002 | 0.041 | -0.055 | -0.072 | -0.048 | -0.094 |
| | (0.031) | (0.036) | (0.027) | (0.031) | (0.029) | (0.065) | (0.063) | (0.098) | (0.115) | (0.091) |
| PFL t+4 | -0.017 | -0.012 | 0.144*** | 0.072** | 0.121* | 0.035 | -0.045 | -0.006 | -0.009 | 0.008 |
| | (0.037) | (0.064) | (0.035) | (0.035) | (0.072) | (0.027) | (0.086) | (0.100) | (0.113) | (0.154) |
| Parent lives close*PFL t-4 | | 0.042 | | 0.106*** | | 0.081** | | 0.03 | | -0.081 |
| | | (0.074) | | (0.021) | | (0.039) | | (0.029) | | (0.060) |
| Parent lives close*PFL t0 | | -0.12 | | -0.057 | | -0.115* | | -0.047 | | 0.084 |
| | | (0.145) | | (0.037) | | (0.066) | | (0.073) | | (0.095) |
| Parent lives close*PFL t+2 | | -0.072 | | -0.029 | | -0.105 | | 0.046 | | 0.126 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | (0.058) | | (0.021) | | (0.075) | | (0.090) | | (0.095) |
| Parent lives close*PFL t+4 | | -0.011 | | 0.218 | | 0.260* | | -0.112** | | -0.056 |
| | | (0.095) | | (0.133) | | (0.130) | | (0.052) | | (0.134) |
| PFL t-4 + Parent lives close*PFL t-4 | | 0.006 | | 0.082*** | | 0.020 | | -0.004 | | -0.080 |
| PFL t0 + Parent lives close*PFL t0 | | -0.163** | | 0.003 | | -0.083*** | | -0.101*** | | 0.060 |
| PFL t+2 + Parent lives close*PFL t+2 | | -0.153*** | | 0.075*** | | -0.064*** | | -0.026 | | 0.032 |
| PFL t+4 + Parent lives close*PFL t+4 | | -0.023 | | 0.290** | | 0.295* | | -0.118** | | -0.048 |
| R-squared | 0.175 | 0.177 | 0.068 | 0.07 | 0.06 | 0.065 | 0.074 | 0.075 | 0.126 | 0.129 |

**Source**: Authors' analysis of the Health and Retirement Study, 1996-2016.

**Notes**: Panel A includes 6,764 person-year observations and Panel B includes 5,149 person-year observations. Regressions also control for race and ethnicity, educational attainment, marital status, presence of children under age 18, whether parent is unmarried, duration of parent poor health spell, parent lives close, PFL t-6 or more years, PFL t+6 or more years, and state-level unemployment rates, as well as age, year, and state effects and are estimated with robust standard errors (shown in parentheses) clustered by state. *p < .10; **p < .05; ***p < .01

TABLE A4

**Average of State-Level Means for CA, NJ, and Control States in Pre-PFL Years Plus Estimated Outcomes from State-Level Synthetic Cohort Analysis**

| | Women | | | | Men | | | | Women | | | | Men | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Control | Synthetic | | | Control | Synthetic | | | Control | Synthetic | | | Control | Synthetic |
| | CA | Group | Cohort | | CA | Group | Cohort | | NJ | Group | Cohort | | NJ | Group | Cohort |
| Work 1996 | 0.483 | 0.441 | 0.478 | | 0.676 | 0.645 | 0.666 | | 0.586 | 0.439 | 0.558 | | 0.653 | 0.646 | 0.654 |
| Work 2000 | 0.493 | 0.500 | 0.492 | | 0.624 | 0.611 | 0.627 | | 0.489 | 0.500 | 0.498 | | 0.593 | 0.612 | 0.594 |
| Work 2004 | | | | | | | | | 0.548 | 0.565 | 0.549 | | 0.701 | 0.663 | 0.702 |
| Age | 60.574 | 59.892 | 60.122 | | 60.444 | 59.862 | 59.917 | | 60.618 | 60.082 | 60.635 | | 60.018 | 60.092 | 60.136 |
| Non-Hispanic white | 0.688 | 0.844 | 0.760 | ** | 0.686 | 0.858 | 0.698 | | 0.836 | 0.830 | 0.834 | | 0.837 | 0.847 | 0.839 |
| Non-Hispanic black | 0.074 | 0.101 | 0.023 | *** | 0.051 | 0.080 | 0.054 | | 0.091 | 0.101 | 0.099 | | 0.079 | 0.083 | 0.079 |
| Hispanic | 0.188 | 0.036 | 0.189 | | 0.202 | 0.039 | 0.200 | | 0.044 | 0.045 | 0.046 | | 0.057 | 0.043 | 0.057 |
| Other race and ethnicity | 0.050 | 0.019 | 0.028 | *** | 0.061 | 0.023 | 0.049 | | 0.029 | 0.025 | 0.022 | | 0.027 | 0.027 | 0.027 |
| No high school diploma | 0.196 | 0.181 | 0.195 | | 0.170 | 0.182 | 0.186 | | 0.165 | 0.157 | 0.164 | | 0.130 | 0.163 | 0.131 |
| High school diploma | 0.269 | 0.388 | 0.270 | | 0.243 | 0.335 | 0.275 | ** | 0.406 | 0.379 | 0.405 | | 0.269 | 0.323 | 0.269 |
| Some college | 0.315 | 0.262 | 0.315 | | 0.286 | 0.200 | 0.219 | | 0.198 | 0.260 | 0.202 | | 0.266 | 0.217 | 0.266 |
| College degree | 0.220 | 0.168 | 0.220 | | 0.301 | 0.283 | 0.320 | | 0.231 | 0.204 | 0.230 | | 0.335 | 0.296 | 0.335 |
| Household income (median) | 6.418 | 6.066 | 6.404 | | 8.401 | 8.672 | 7.718 | | 6.388 | 6.253 | 7.121 | * | 9.625 | 8.560 | 9.634 |

**Source:** Authors' analysis of the Health and Retirement Study, 1996-2016.

**Notes:** Analysis combines parent and spouse samples. **Asterisks represent statistical significance of the differences between means for California and the synthetic cohort.** *p < .10; **p < .05; ***p < .01