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The Impact of Paid Family Leave on Families with Health Shocks

Courtney Coile, Maya Rossin-Slater, and Amanda Su

NBER Working Paper 30739, December 2022

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Research Question

Question: How does access to paid family leave (PFL) affect the labor supply and mental health of an individual following their spouse's or child's health shock?

Answer: Women with access to PFL are less likely to leave their jobs following their spouses' health shocks, especially women with fewer years of education. Men's labor supply following a spousal shock responds on the intensive margin.

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Why this paper?

Contributions

- Fills a gap in the literature on family leave, which has mostly studied new parents
- Uses rich and precise health data to identify health shocks
- Studies the effect of recent changes in a rapidly evolving policy area

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Family leave

- 1 in 4 workers have access to **paid** family leave (including parental leave), compared to 9 in 10 for **unpaid** family leave (US Bureau of Labor Statistics, 2022)
- Unsurprisingly, the US is in the minority of OECD countries that do not provide paid leave to workers who need to care for a sick family member
 - 29 of 38 provide leave to care for an ill child, 22 for other family members (Bipartisan Policy Center, 2022)
- Since 1993, the Family and Medical Leave Act (FMLA) has entitled eligible workers to unpaid, job-protected leave
 - About 56% of workers are FMLA eligible (Brown et al., 2020)
 - 15% of workers use FMLA in a 12 month period

Labor supply responses to access to unpaid family leave in the US are small/mixed (e.g., Baum (2003); Han et al. (2009))

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Reasons for FMLA use

The share of workers using FMLA for family caregiving is comparable to those for births.



Source: Figure 4-4 from Brown et al. (2020)

Caregiving and caregivers

- Informal caregiving is common
 - 5% of US adults report providing unpaid care in the previous month (Maestas et al., 2023)
 - \sim 24% of middle-aged Americans report caring for an elder in the previous 3-4 months (Aughinbaugh and Woods, 2021)
- Caregiving reduces labor supply among both intensive and extensive margins in the US but responses seem small, evidence from other countries also shows muted response
 - (e.g., Van Houtven et al. (2013); Skira (2015); Maestas et al. (2023); Fadlon and Nielsen (2021); Giaquinto et al. (2022))
- Caregiving has negative impacts on caregivers' mental health (see Bauer and Sousa-Poza (2015) for a review)



Paid family leave policies

PFL: policies that provide partially paid leave for individuals taking care of new children or ill family members with minimal eligibility requirements

- 9 states and Washington, D.C. have active PFL legislation, with 4 more going into effect in 2026 Map
- Funded by payroll taxes
- Lots of variation in what percentage of wages are replaced, maximum benefit amounts, maximum benefit duration, definition of family member
- Related to state Temporary Disability Insurance (TDI), parental leave laws, and pre-existing unpaid family leave laws

Paid family leave policies

Existing studies are largely about paid parental leave and find that CA PFL:

- increases use of maternity leave, wages and hours worked for mothers of young children (Rossin-Slater et al., 2013)
- increases paternity leave use, labor force attachment for women following a birth (Baum and Ruhm, 2016)
- shifts the within-family composition of parental leave towards men with interesting heterogeneities (Bartel et al., 2018)

There are also some results on other kinds of caregiving that find that PFL:

- increases employment of 45-64yo women with disabled spouses (Anand et al., 2022; Bartel et al., 2023) or other family members (Kang et al., 2019)
- increases employment and reduces depression among women caring for spouses or nearby parents in poor health (Braga et al., 2022)



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What can we learn?

- How are the labor supply implications of spousal and child health shocks different from those of births/adoption, and how does PFL shape those effects?
- Does PFL have different impacts across genders?
- Are labor supply patterns and the effect of PFL different for caregivers responding to health events vs. health status (e.g., Maestas et al. (2023))? Figure
- How does PFL impact the mental health of caregivers?

Medical Expenditure Panel Survey

• Representative sample of US households

Data

- New panel each year, pooled data from 1996-2019
- 5 rounds of interviews over 2-year period, approximately 12.5K households (31K individuals) interviewed annually Design

Household component

- Demographics + socioeconomic characteristics
- Medical conditions
- Labor market outcomes

Medical event files

• Hospital inpatient stays, ER visits, outpatient visits

Prescribed medications files

• USDA National Drug Codes

Sample

- All states except RI
- Respondents ages 25-64, employed in first round
- Individuals who moved are assigned to first observed state

Potential caregiver pool

- Exclude individuals with own health shocks
- **Spousal caregivers**—Individuals with spouse who (1) experiences health shock during panel and (2) has ≥ 1 medical condition/limitation (N=2,739) Conditions + limitations
- Parental caregivers—Parents with child under 18 in the household who experiences health shock during panel (N=2,828)

Who is excluded from this pool?

Definitions and encodings

Health shocks—indicator for experiencing an inpatient visit or surgery (including ER and outpatient settings) Most common shocks Which kinds of shocks does this definition pick up? Employment

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- Employment indicator (includes having a job to return to)
- Leaving job to care for "home or family" vs. other reasons (including own health)

Wages

- Usual hours worked per week
- Hourly wage

Mental health indicators

- Self-reported poor or very poor mental health
- Prescription drug use

Difference-in-differences design

Observations across interview rounds collapsed to individual-level, with outcomes averaged over pre- and post-shock periods.

Diff-in-diff model:

$$Y_{ist} = \alpha_0 + \alpha_1 PFL_{st} + \gamma' X_i + \delta' S_i + \theta_t + \rho_s + \epsilon_{ist}$$

- Y_{ist} = outcome for individual *i* in state *s* in year *t*
- *PFL_{st}* = indicator for state-years with PFL

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- X_i = individual/family controls
- S_i = type of health shock, medical condition



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Event study design

Event study model:

$$Y_{ist} = \beta_0 + \sum_{k=-4, k\neq -1}^{k=4} \pi_k \mathbf{1}[t - PFL_{st}^* = k] + \psi' X_i + \xi' S_i + \eta_t + \gamma_s + \epsilon_{ist}$$

- Y_{ist} = outcome for individual *i* in state *s* in year *t*
- $\mathbf{1}[t PFL_{st}^* = k] = \text{indicators for years relative to PFL}$ adoption
- X_i = individual/family controls
- S_i = type of health shock, medical condition

Employment estimates Mental health estimates

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Causal interpretation

Key assumption: outcomes in treatment and control states would have evolved similarly in the absence of PFL implementation



Fig 2(a): Event-study estimates of PFL on likelihood of leaving job to care for home or family following spousal health shock



Spousal health shocks

Data

- PFL is associated with a 5.4pp increase in likelihood that potential spousal caregiver is employed in post-shock rounds, 4pp decrease in likelihood of having left job to care for home/family
- Impact is driven by women and caregivers with ≤ 12 years of education
- Mental health results are mixed

Spousal labor supply



Fig A3: DD estimates of PFL effect on labor outcomes following spousal health shock



Conclusion



Fig 1: Event-study estimates of PFL effect on employment likelihood following spousal health shock



Fig 2: Event-study estimates of PFL effect on likelihood of leaving job to care for home/family following spousal health shock





Spousal labor supply: leaving job to care for home/family



Fig 2: Event-study estimates of PFL effect on likelihood of leaving job to care for home/family following spousal health shock



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Spousal labor supply: intensive margin

	Condi	tional on empl	oyment	Not con	ditional on em	ployment
	(1)	(2)	(3)	(4)	(5)	(6)
	Hours worked	Hourly wage	Weekly income	Hours worked	Hourly wage	Weekly income
Panel A: All Individuals						
PFL	-0.906	-1.304^{*}	-44.40	1.286	-0.456	-20.96
	[1.259]	[0.770]	[33.64]	[0.961]	[1.287]	[37.06]
Dep. Var. mean	40.47	23.66	988.8	36.90	19.18	796.8
N	2563	2281	2266	2739	2739	2739
Panel B: Women Caregivers						
PFL	2.074^{*}	-0.759	27.31	4.451^{***}	0.537	55.35
	[1.181]	[0.834]	[65.29]	[1.511]	[0.926]	[35.22]
Dep. Var. mean	36.91	21.25	825.0	32.95	17.13	661.6
N	1199	1081	1074	1302	1302	1302
Panel C: Men Caregivers						
PFL	-3.511**	-1.406	-90.32**	-2.246^{***}	-1.805	-101.4
	[1.581]	[1.166]	[43.65]	[0.783]	[2.017]	[73.37]
Dep. Var. mean	43.60	25.83	1136.4	40.49	21.03	919.3
N	1364	1200	1192	1437	1437	1437
Panel D: Caregivers with 0-12 Years of Education						
PFL	-1.788**	-1.420	-38.11	3.074^{**}	1.391	50.92
	[0.846]	[2.367]	[106.5]	[1.363]	[0.930]	[30.86]
Dep. Var. mean	40.41	17.47	728.2	36.08	14.04	580.4
N	1288	1163	1150	1396	1396	1396
Panel E: Caregivers with 13+ Years of Education						
PFL	1.107	-1.253	-41.82	1.459	-2.108	-60.10
	[1.419]	[2.505]	[72.26]	[2.452]	[3.140]	[84.97]
Dep. Var. mean	40.53	30.10	1257.3	37.75	24.51	1021.7
N	1275	1118	1116	1343	1343	1343

Table A4: DD estimates of PFL effect on wages/hours worked following spousal health shock



Spousal mental health

	Mental Health Outcomes				
	(4)	(5)	(6)	(7)	
	Reports poor	Reports poor	Has MH	Has anx./dep.	
	MH or any MH Rx	MH	Rx	Rx	
Panel A: All Individuals					
PFL	-0.0461*	-0.00384	-0.0214	-0.0367**	
	[0.0234]	[0.00767]	[0.0224]	[0.0151]	
Dep. Var. mean	0.127	0.0514	0.129	0.0849	
N	2739	2735	2739	2739	
Panel B: Women Caregivers					
PFL	-0.0695**	-0.0285**	-0.00410	-0.0328	
	[0.0346]	[0.0141]	[0.0537]	[0.0318]	
Dep. Var. mean	0.158	0.0545	0.168	0.116	
N	1302	1301	1302	1302	
Panel C: Men Caregivers					
PFL	-0.0264	0.0268**	-0.0548**	-0.0543***	
	[0.0181]	[0.0132]	[0.0265]	[0.0152]	
Dep. Var. mean	0.0984	0.0485	0.0936	0.0570	
N	1437	1434	1437	1437	
Panel D: Caregivers with 0-12 Years of Education					
PFL	-0.0671**	-0.00481	-0.0372	-0.0484**	
	[0.0260]	[0.0125]	[0.0376]	[0.0206]	
Dep. Var. mean	0.125	0.0615	0.117	0.0725	
N	1396	1394	1396	1396	
Panel E: Caregivers with 13+ Years of Education					
PFL	-0.0220	-0.0121	0.00878	-0.0157	
	[0.0306]	[0.0106]	[0.0275]	[0.0239]	
Dep. Var. mean	0.129	0.0408	0.141	0.0979	
N	1343	1341	1343	1343	

Table 3: DD estimates of PFL effect on mental health outcomes following spousal health shock





Fig 3: Event-study estimates of PFL effect on pooled poor mental health indicator following spousal health shock

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Child health shocks

- No evidence of PFL effects on employment or mental health outcomes of parents following a child's health shock
- Possible reasons:
 - Child shocks are different, less severe Child shocks
 - When extended leave is required, parents may be less responsive to available options than spouses are
 - Information and logistical frictions seem strong, especially for unpredictable medical (Chung et al., 2012)

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Parental employment

		Employment Outcome	S
	(1)	(2)	(3)
	Is employed	Left job	Left job
		(care for home/family)	(other reasons)
PFL	0.000803	0.00284	-0.00860
	[0.0156]	[0.00829]	[0.00708]
Dep. Var. mean	0.931	0.0202	0.0217
Ν	2828	2828	2828

Table 4: DD estimates of PFL effect on employment outcomes following child health shock

DD model

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Parental mental health

	Mental Health Outcomes						
	(4)	(5)	(6)	(7)			
	Reports poor	Reports poor	Has MH	Has anx./dep.			
	MH or any MH Rx	MH	$\mathbf{R}\mathbf{x}$	Rx			
PFL	-0.0225	-0.0146	-0.00766	-0.00881			
	[0.0149]	[0.0117]	[0.0104]	[0.00758]			
Dep. Var. mean	0.0789	0.0346	0.0743	0.0497			
Ν	2828	2828	2828	2828			

Table 4: DD estimates of PFL effect on mental health outcomes following child health shock

DD model





- PFL is an important and rapidly evolving policy area
- Women and less educated workers seem to be particularly responsive to PFL availability in terms of increased labor force attachment (for spousal shocks)
- Child and spousal health shocks seem to be fundamentally different in terms of labor responses

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Final thoughts

- $\checkmark\,$ rich health data to study shocks rather than status
- ✓ adds to evidence on effects of PFL on labor supply and mental health of caregivers
- ✓ builds understanding of different types of caregiving relationships and how they are affected by policy in different ways
- ? synchronizing definition of shocks with definition of employment leave
- ? heterogeneity by types of shock
- ? data sources that would let us speak to long run effects



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Is there a paid family leave law in the jurisdiction?



Source: WORLD Policy Analysis Center US Paid Family and Medical Leave Policy Database, 2022



Employment results from Maestas et al. (2023)





Maestas et al. (2023) find that women decrease employment by 3-4% following onset of a caregiving episode, while men have a more notable pre-trend.

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Panel 23	Q1	Q2	-	_											20	
Panel 23	· · · ·		Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Round 5 Round 6 Round 7 Round 8 Round 9																
Panel 24 Round 3 Round 4 Round 5 Round 6 Round 6 Round 7 Round 8 Round 9								_	-			_				
Panel 25 Round 1 Round 2 Round 3 Round 4 Round 5								_								
Panel 26 Round 1 Round 2 Round 3 Round 4 Round 5					•				-							
Panel 27 Round 1 Round 2 Round 3 Round 4 Round 5									-			-				
Panel 28 Round 1 Round 2 Round 3		N = 2	0 0 4 7			N = 2	7 2 2 2			N = 2	1 747			N =	TRD	

MEPS Panel Design: Data Reference Periods

N is equal to the number of people with a positive person weight on the file.

Table 1: Summary Statistics for Individuals with Spouses Who Have Any Condition or Limitation and Experience a Health Shock, MEPS 1996–2019

	(1)	(2)	(3)
	All	Individuals	Individuals
	individuals	with PFL	without PFL
Average age	48.4	48.2	48.5
Average number of children under 18	0.7	0.9	0.7
Percent male	52.4%	52.3%	52.4%
Percent Hispanic	16.7%	41.8%	14.4%
Percent non-Hispanic Asian	4.6%	15.2%	3.6%
Percent non-Hispanic Black	12.2%	4.6%	12.9%
Percent non-Hispanic White	65.1%	37.1%	67.8%
Percent 0-12 years of education	51.0%	47.3%	51.3%
Percent 13+ years of education	49.0%	52.7%	48.7%
Percent has spouse with diabetes, cholesterol, or high blood pressure	67.0%	75.1%	66.3%
Percent has spouse with heart/lung conditions	34.3%	29.1%	34.7%
Percent spouse with arthritis	40.4%	40.5%	40.4%
Percent spouse with asthma	16.4%	15.6%	16.5%
Percent has spouse with cancer	9.6%	13.9%	9.2%
Percent has spouse with physical limitation	45.7%	43.0%	45.9%
Percent has spouse with cognitive limitation	15.4%	17.7%	15.2%
Observations	2,735	237	2,498

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Table 2: Top 20 ICD-9 Codes Associated with Health Shocks Among Spouses Who Have Any Condition or Limitation, MEPS 1996–2012

ICD-9	ICD-9 Code Description	Percent of	Cumulative Percent of
Code		All Health Shocks	All Health Shocks
486	Pneumonia, organism unspecified	3.25%	3.25%
786	Symptoms involving respiratory system and other chest symptoms	2.36%	5.61%
780	General symptoms	2.25%	7.86%
436	Acute, but ill-defined, cerebrovascular disease	2.18%	10.04%
410	Acute myocardial infarction	2.16%	12.20%
428	Heart failure	2.13%	14.33%
575	Other disorders of gallbladder	2.08%	16.41%
250	Diabetes mellitus	2.04%	18.45%
429	Ill-defined descriptions and complications of heart disease	1.81%	20.26%
414	Other forms of chronic ischemic heart disease	1.79%	22.05%
719	Other and unspecified disorders of joint	1.74%	23.80%
722	Intervertebral disc disorders	1.58%	25.37%
401	Essential hypertension	1.54%	26.91%
427	Cardiac dysrhythmias	1.42%	28.34%
553	Hernia of abdominal cavity	1.36%	29.70%
959	Injury other and unspecified	1.32%	31.02%
366	Cataract	1.27%	32.29%
239	Neoplasms of unspecified nature	1.24%	33.53%
592	Calculus of kidney and ureter	1.19%	34.72%
724	Other and unspecified disorders of back	1.12%	35.85%

Notes: This table presents the 20 most frequently occurring three-digit ICD-9 codes associated with focal individuals' spouses' health shocks (defined as either an inpatient stay or a surgery in any setting), using MEPS data covering years 1996–2012. See notes under Table 1 for additional information about the analysis sample.

Source: Coile et al. (2022)

ICD-9	ICD-9 Code Description	Percent of	Cumulative Percent of
Code		All Health Shocks	All Health Shocks
873	Other open wound of head	8.72%	8.72%
959	Injury other and unspecified	3.05%	11.77%
780	General symptoms	2.93%	14.70%
486	Pneumonia, organism unspecified	2.77%	17.47%
541	Appendicitis, unqualified	2.58%	20.06%
493	Asthma	2.43%	22.49%
079	Viral and chlamydial infection in conditions classified elsewhere and of unspecific site	2.27%	24.76%
891	Open wound of knee, leg (except thigh), and ankle	2.18%	26.94%
883	Open wound of finger(s)	2.06%	28.99%
311	Depressive disorder, not elsewhere classified	1.74%	30.74%
882	Open wound of hand except finger(s) alone	1.49%	32.23%
818	Ill-defined fractures of upper limb	1.40%	33.63%
208	Leukemia of unspecified cell type	1.31%	34.94%
276	Disorders of fluid electrolyte and acid-base balance	1.31%	36.25%
382	Suppurative and unspecified of this media	1.28%	37.53%
008	Intestinal infections due to other organisms	1.21%	38.74%
250	Diabetes mellitus	1.15%	39.89%
786	Symptoms involving respiratory system and other chest symptoms	1.00%	40.89%
490	Bronchitis, not specified as acute or chronic	0.97%	41.86%
892	Open wound of foot except toe(s) alone	0.93%	42.79%

Table A2: Top 20 ICD-9 Codes Associated with Health Shocks Among Children, MEPS 1996–2012

Source: Coile et al. (2022)

Variables Child shocks summary

Spousal labor supply

	Employment Outcomes			
	(1)	(2)	(3)	
	Is employed	Left job	Left job	
		(care for home/family)	(other reasons)	
Panel A: All Individuals				
PFL	0.0538^{***}	-0.0404***	-0.0183**	
	[0.0106]	[0.00764]	[0.00896]	
Dep. Var. mean	0.917	0.0113	0.0389	
N	2738	2738	2738	
Panel B: Women Caregivers				
PFL	0.0872^{***}	-0.0704***	-0.0158	
	[0.0182]	[0.0171]	[0.0154]	
Dep. Var. mean	0.897	0.0216	0.0449	
N	1302	1302	1302	
Panel C: Men Caregivers				
PFL	-0.00246	-0.00340	-0.0133	
	[0.0117]	[0.00236]	[0.0183]	
Dep. Var. mean	0.935	0.00203	0.0335	
N	1436	1436	1436	
Panel D: Caregivers with 0-12 Years of Education				
PFL	0.112^{***}	-0.0716***	-0.0361**	
	[0.0129]	[0.0116]	[0.0145]	
Dep. Var. mean	0.902	0.0115	0.0455	
N	1395	1395	1395	
Panel E: Caregivers with 13+ Years of Education				
PFL	0.00512	-0.00181	-0.00790	
	[0.0166]	[0.00994]	[0.00854]	
Dep. Var. mean	0.933	0.0111	0.0320	
N	1343	1343	1343	

Table 3: DD estimates of PFL effect on labor outcomes following spousal health shock

Spousal labor supply: employment



Fig 1: Event-study estimates of PFL effect on employment likelihood following spousal health shock

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Spousal mental health



Fig 3: Event-study estimates of PFL effect on pooled mental health indicator following spousal health shock

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