

Childcare in the Era of Remote Work: Evidence from Child Care Tax Credit Filing

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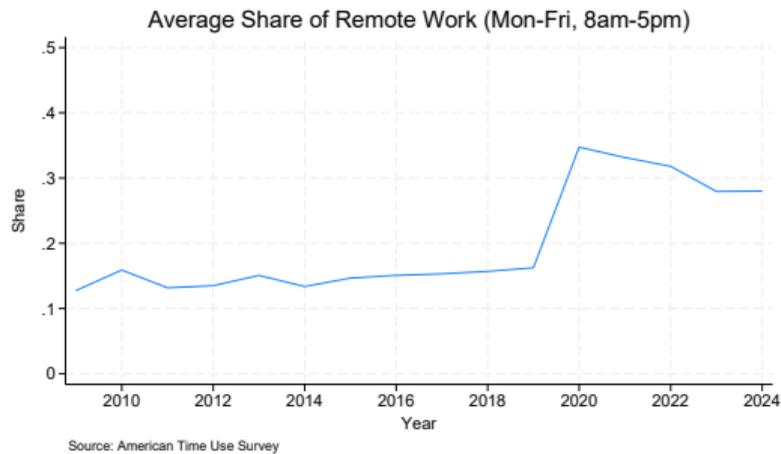
Dmitri Koustas
University of Chicago

Ithai Lurie
The US Department of the Treasury
Office of Tax Analysis

This research was conducted while Gallen, Karol, Koustas and Lurie were employees at the U.S. Department of the Treasury or the Internal Revenue Service (IRS). The findings, interpretations, and conclusions expressed in this paper are entirely those of the authors and do not necessarily reflect the views or the official positions of the U.S. Department of the Treasury or the IRS. Any taxpayer data used in this research was kept in a secured IRS data repository, and all results have been reviewed to ensure that no confidential information is disclosed.

Childcare and Work over Time

Today, we are physically less tied to workplaces than in the past



Research Questions:

1. Has there been a shift in the arrangements parents make to care for children while at work?
2. What does this mean for their careers?

Preview of Findings

- Remote work \Rightarrow change in childcare arrangements
 - Large enough that it shows up in an aggregate decline in use of paid childcare post-Covid
 - For both school age and younger children
 - Esp. large decline in use of paid childcare for highest earnings households
- No impact on earnings of mothers vs. non-mothers
 - Identified using variation in firm-level policy
 - Firms assigned pre-Covid
- Working while child-caring reduces earnings
 - RD around public school-entry eligibility
 - Focus on working mothers
 - Removing children from homes increases earnings

1. IRS tax data

- Form 2441 Child and Dependent Care Expenses
- Other tax forms: 1040 (incl. self-reported occupation), W2 (incl. firm id), Schedule SE
- SSA links to construct child-mother-grandmother

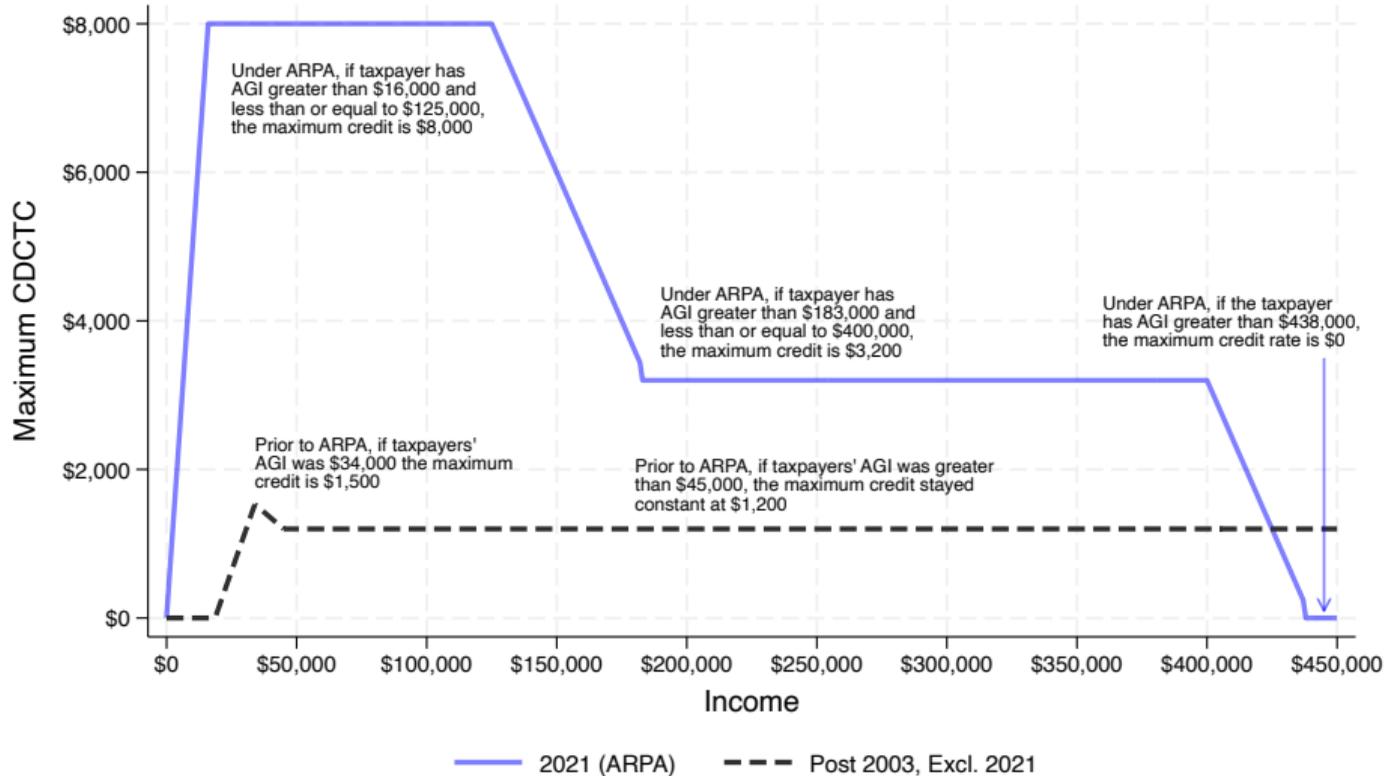
2. Linked to remote work policies for Fortune 500 Companies

- Return to office policies as of 2024
- Focus on occupations which can be done from home
 - Dingel and Neiman (2020) measure

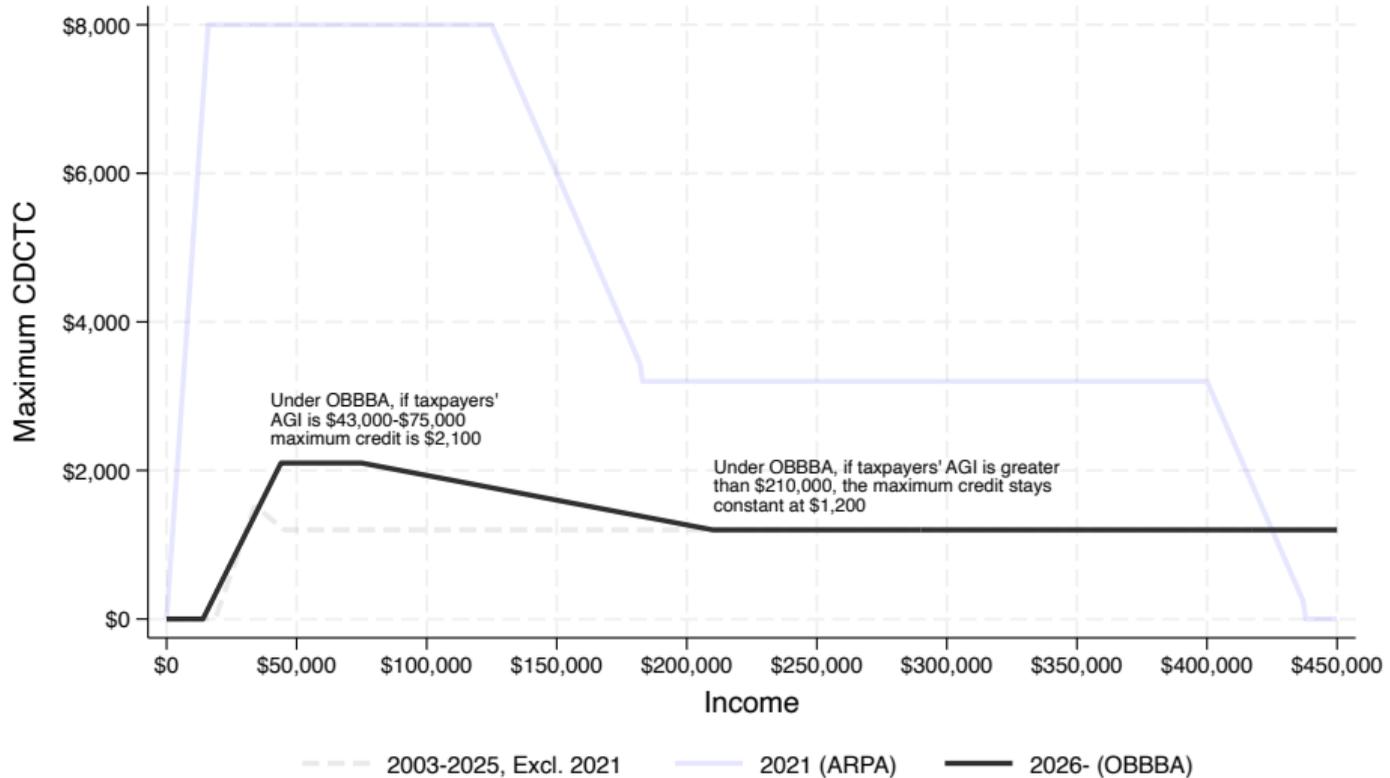
Background: Child and Dependent Care Credit

- Measure of paid childcare in tax data comes from federal CDCC and DCFSA claiming
- Federal CDCC available since 1976
- Qualifying expenses: any childcare or dependent care expenses to work, look for work, or go to school. Filer (and spouse if present) must be engaging in these activities
- Qualifying children must be <13 years old; qualifying dependents can be any age if they cannot provide care for themselves
- CDCC related to Dependent Care FSA (DCFSA):
 - Filers can contribute up to \$5,000 into DCFsAs pre-tax (\$7,500 next year under OBBBA); amount is deducted from cap on qualifying expenses
- U.S. citizens and resident aliens eligible (including ITINs)

Recent Changes to Federal CDCC Schedule



Recent Changes to Federal CDCC Schedule



Form 2441 Child and Dependent Care Expenses

Part I Persons or Organizations Who Provided the Care—You must complete this part.

If you have more than three care providers, see the instructions and check this box

1	(a) Care provider's name	(b) Address (number, street, apt. no., city, state, and ZIP code)	(c) Identifying number (SSN or EIN)	(d) Check here if the care provider is your household employee (see instructions)	(e) Amount paid (see instructions)
				<input type="checkbox"/>	
				<input type="checkbox"/>	
				<input type="checkbox"/>	

Did you receive
dependent care benefits?

No

Yes

Complete only Part II below.

Complete Part III on page 2 next.

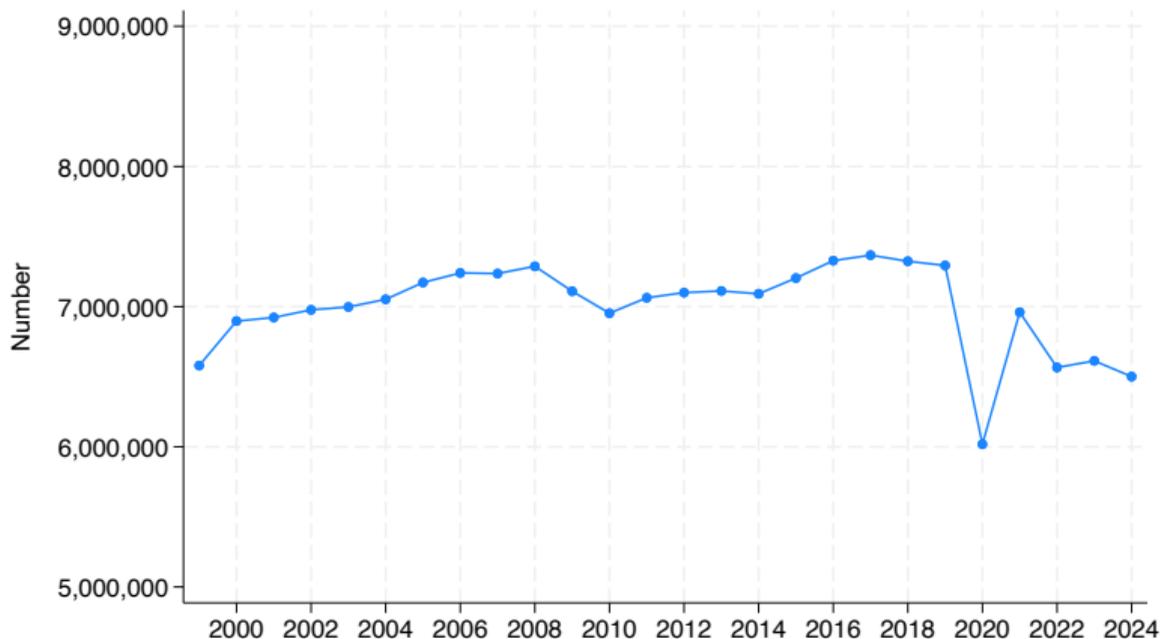
Caution: If the care was provided in your home, you may owe employment taxes. For details, see the instructions for Schedule H (Form 1040). If you incurred care expenses in 2021 but didn't pay them until 2022, or if you prepaid in 2021 for care to be provided in 2022, don't include these expenses in column (c) of line 2 for 2021. See the instructions.

Part II Credit for Child and Dependent Care Expenses

2 Information about your **qualifying person(s)**. If you have more than three qualifying persons, see the instructions and check this box

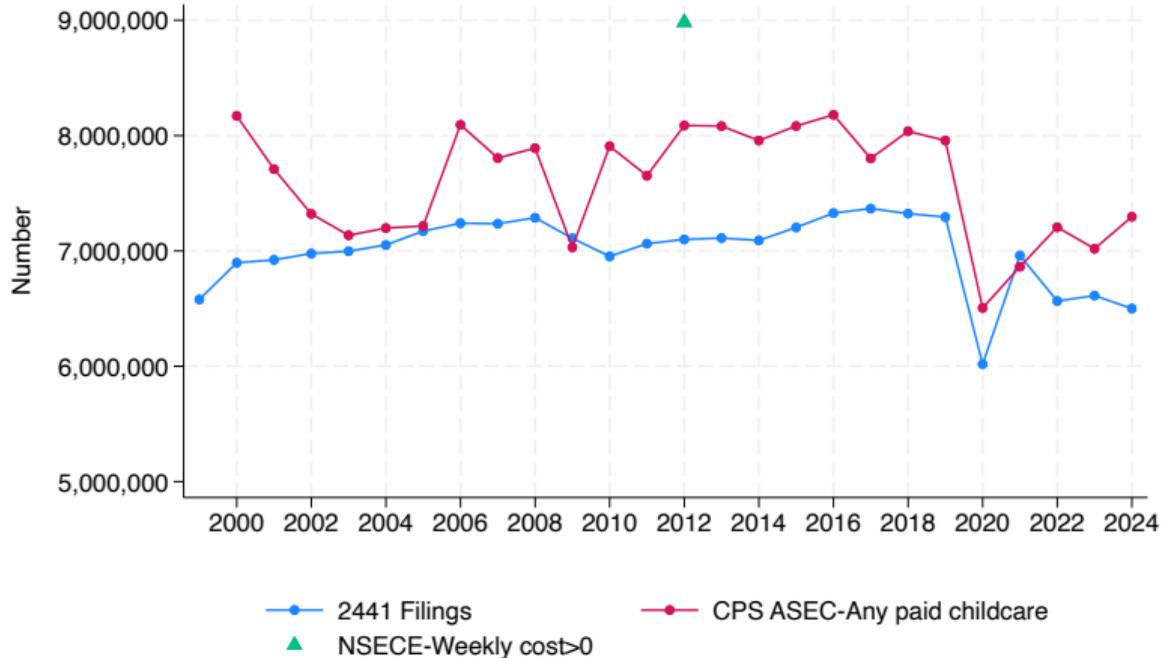
(a) Qualifying person's name		(b) Qualifying person's social security number	(c) Qualified expenses you incurred and paid in 2021 for the person listed in column (a)
First	Last		

Households Claiming Use of Paid Childcare (Number of 2441s)



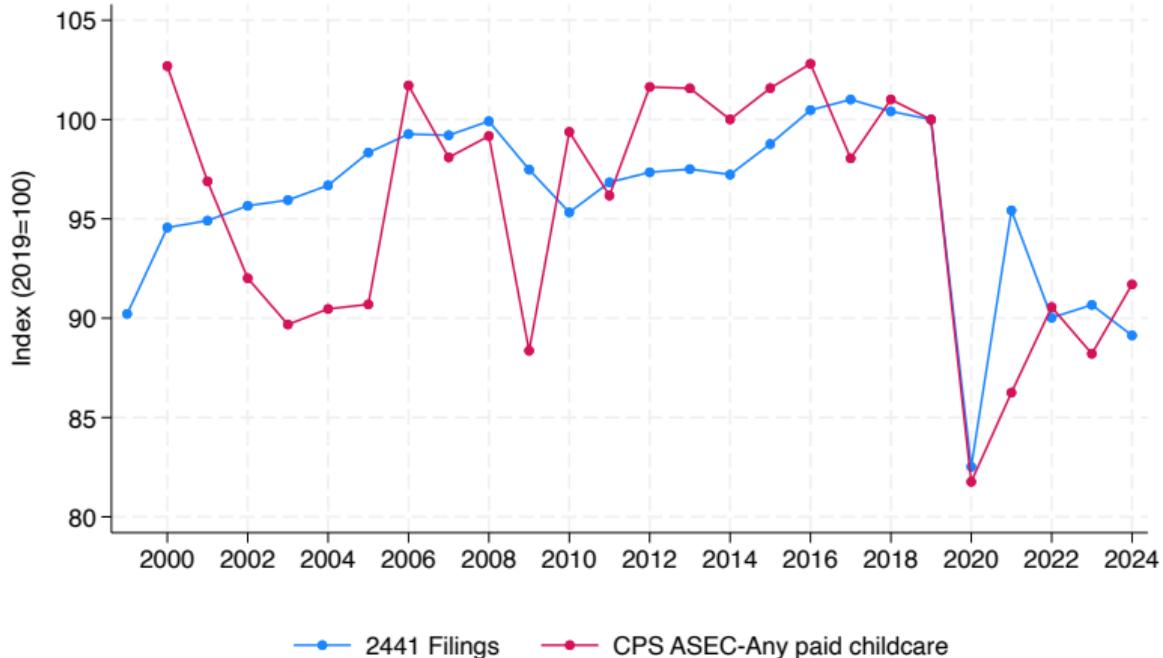
Note: Counts of tax units filing 2441. $\approx 90\%$ with DCFSA also file 2441. DCFSA Counts

Households Claiming Use of Paid Childcare (Number of 2441s)



2441 coverage \approx 88% of paid childcare in CPS, 79% of NSECE. CPS Question

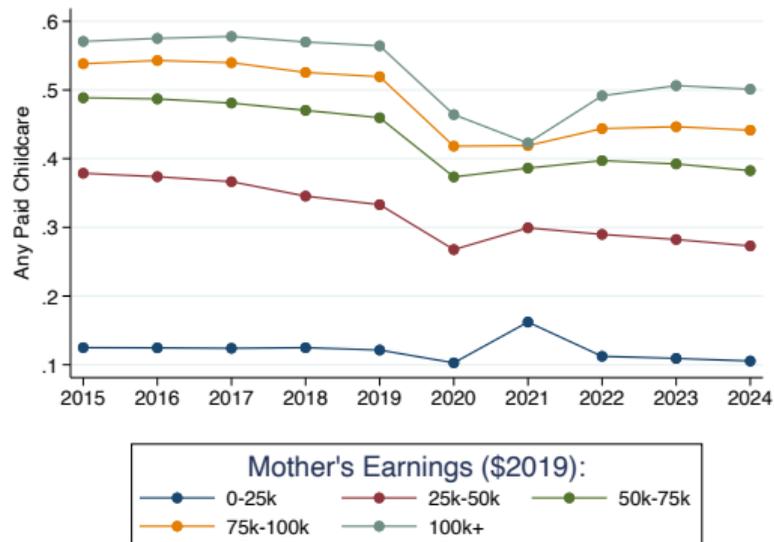
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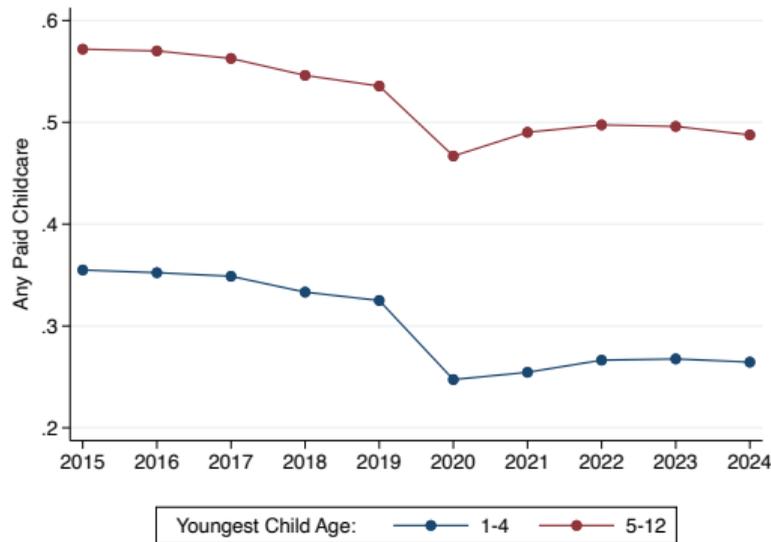
Similar decline since 2019 in percentage terms

By Mother's Earnings and Child Age

By Mothers' Earnings

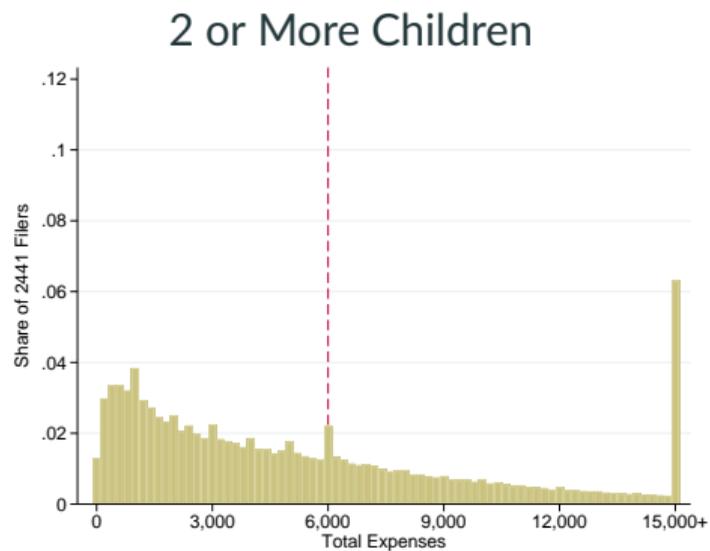
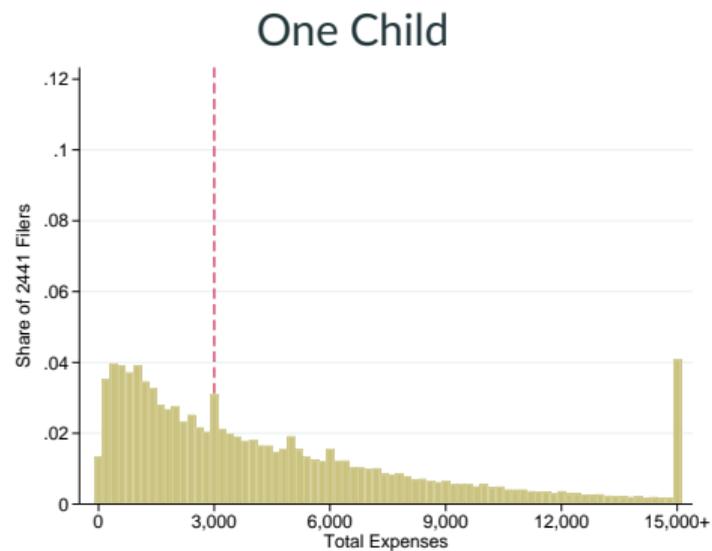


By Age of Youngest Child



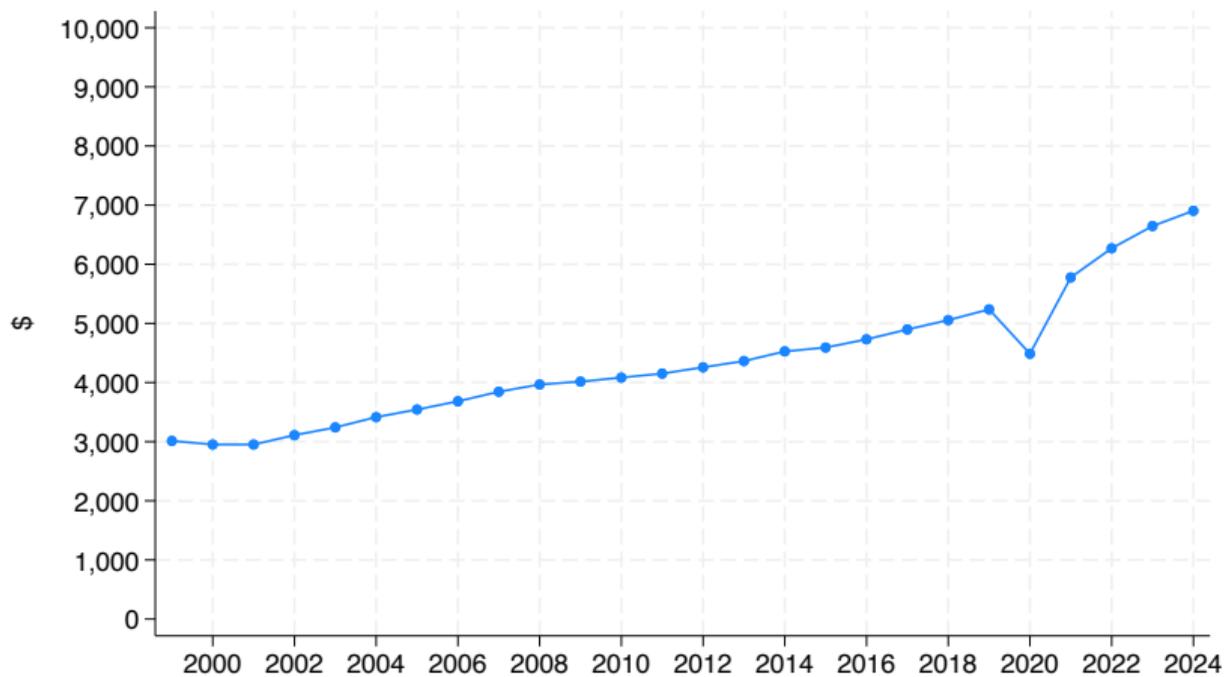
Note: Mothers with children <13. Right Panel: Mothers Earnings > \$25,000. Employment Rates

Expenses reported on 2441



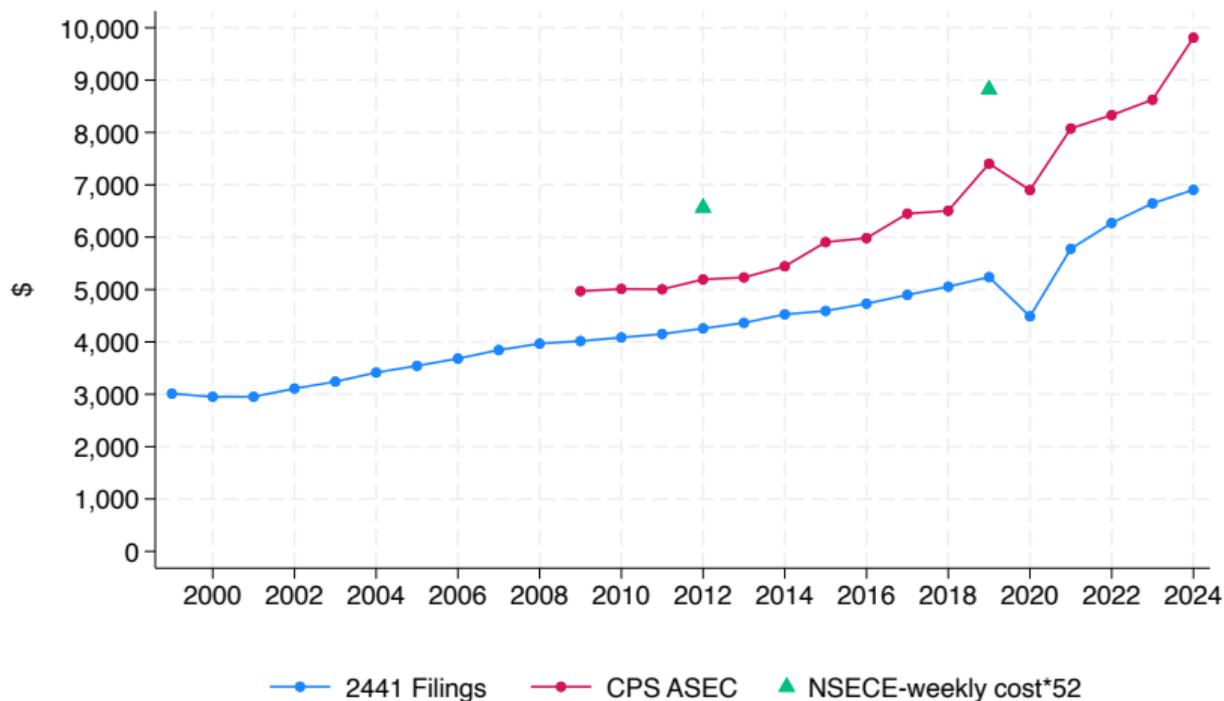
Note: 2019. Share at or above threshold: 43.2%

Expenses Over Time (Nominal)



2441 coverage \approx 77% of CPS, 62% of NSECE.

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Potential Explanations:

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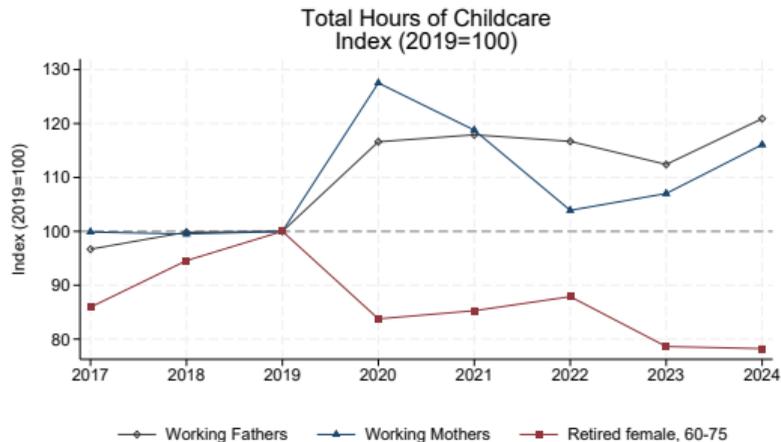
Potential Explanations:

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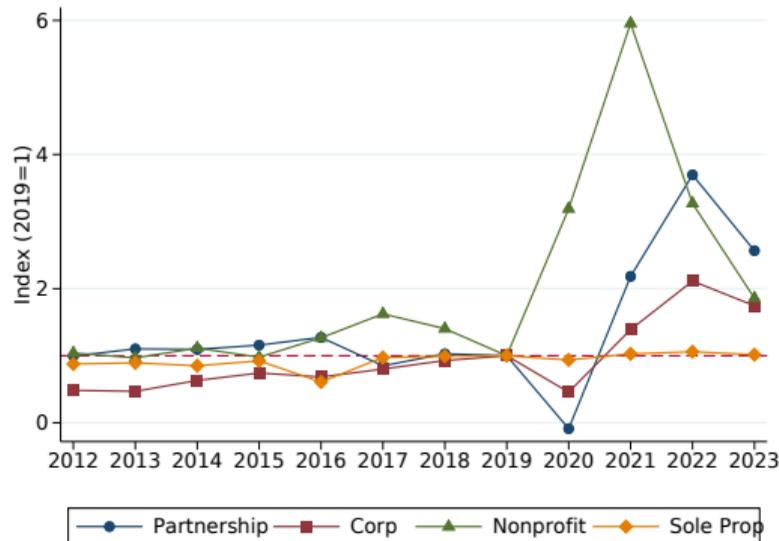
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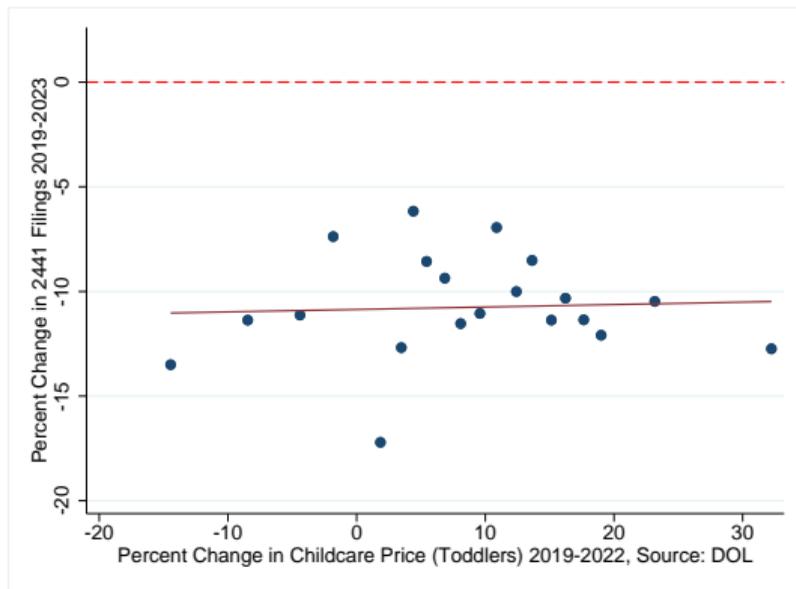
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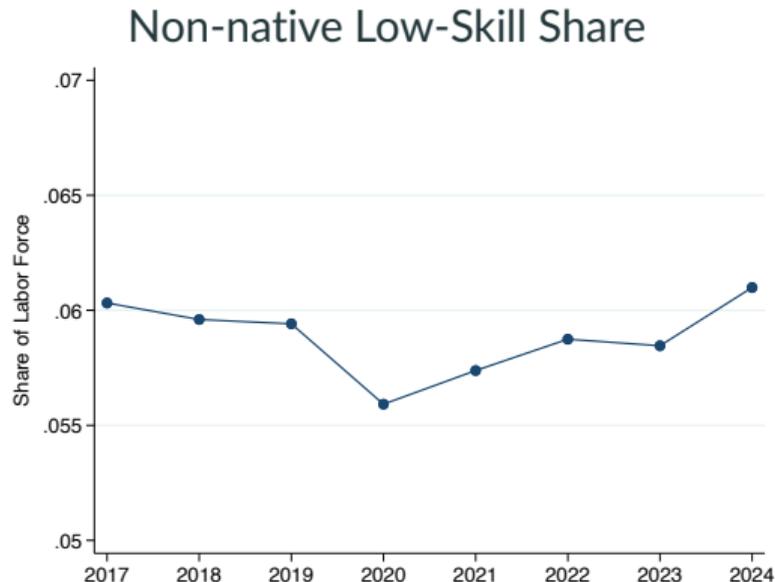
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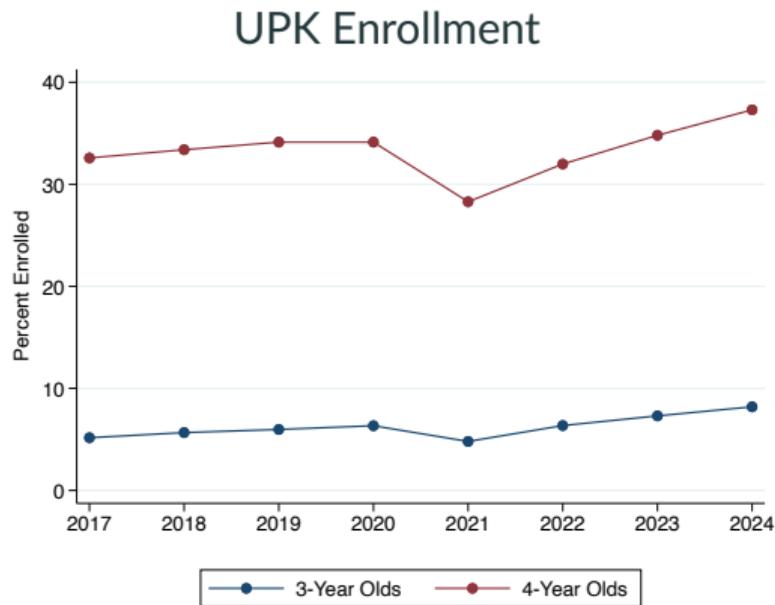
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Potential Explanations:

- Mothers aren't working
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- Supply side changes
- Covid accelerated changes in the labor market
 - Early retirements
 - Increased flexibility from more gig work
 - Increased flexibility from more remote work

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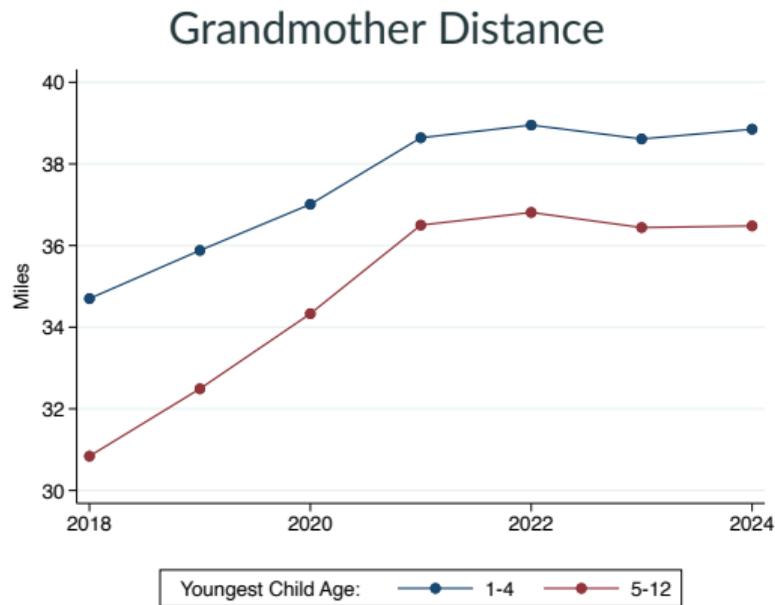
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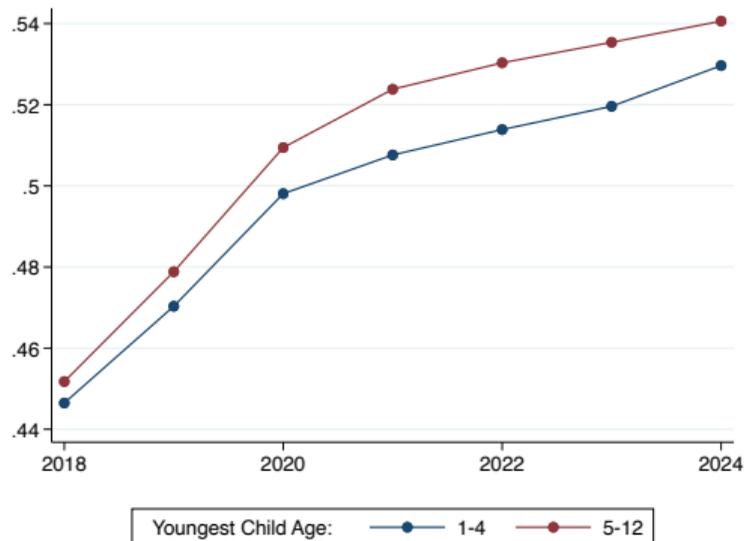


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Grandmother Alive and retired



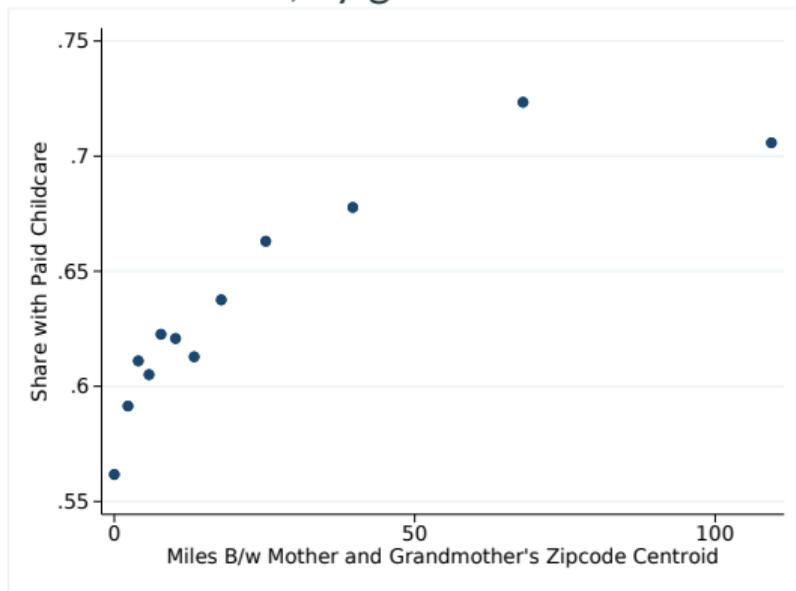
Note: Mothers of mothers aged 18-38 with children under 13.

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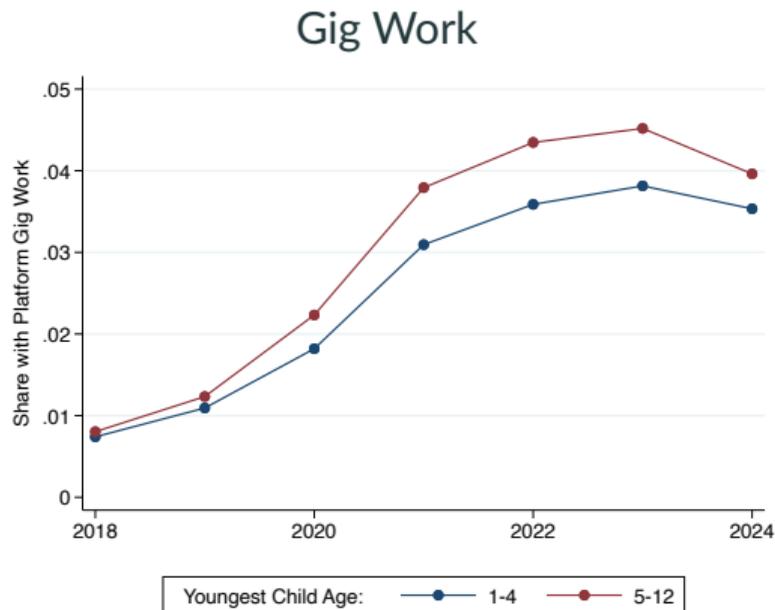
Paid childcare, by grandmother distance



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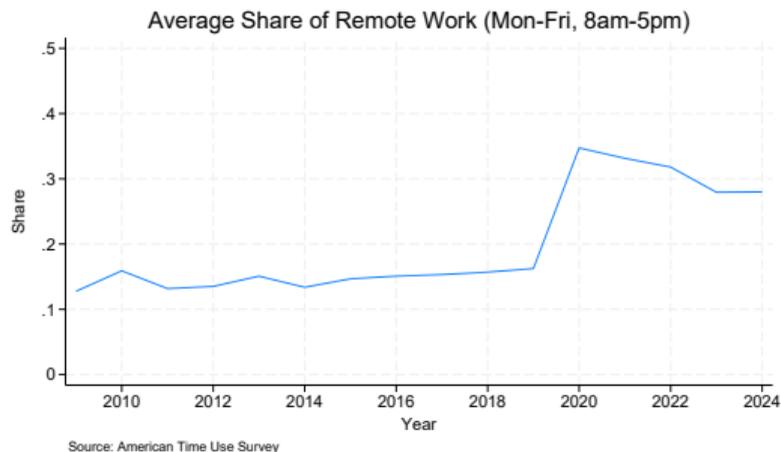
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Find that remote work drives reduction in paid childcare

Statistical Decomposition of Decline in Paid Childcare

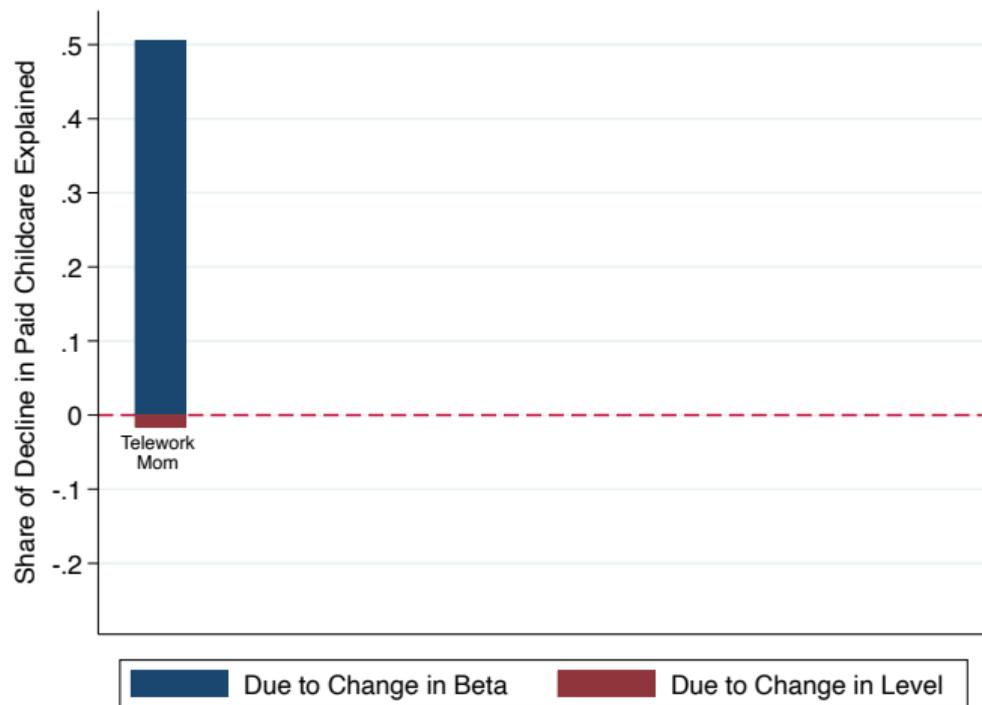
- Compare 2018-2019 (pre) vs 2023-2024 (post)
- What is association between paid childcare usage and each factor z below:
 - Teleworkable occupation (for mother and father); Self-employed in platform gig work; Grandmother retired; Grandmother distance; UPK availability
- Regress 1 {*PaidChildcare*} on these factors + controls (mother age, youngest child age, N kids, mother earnings, grandmother age):

$$PaidChildcare_{it} = \sum_{z \in Z} \beta_z^{pre} z_{it} + \sum_{z \in Z} \beta_z^{post} z_{it} \times post_t + Controls + \epsilon_{it}$$

- Oaxaca decomposition of changes in levels versus changes in β :

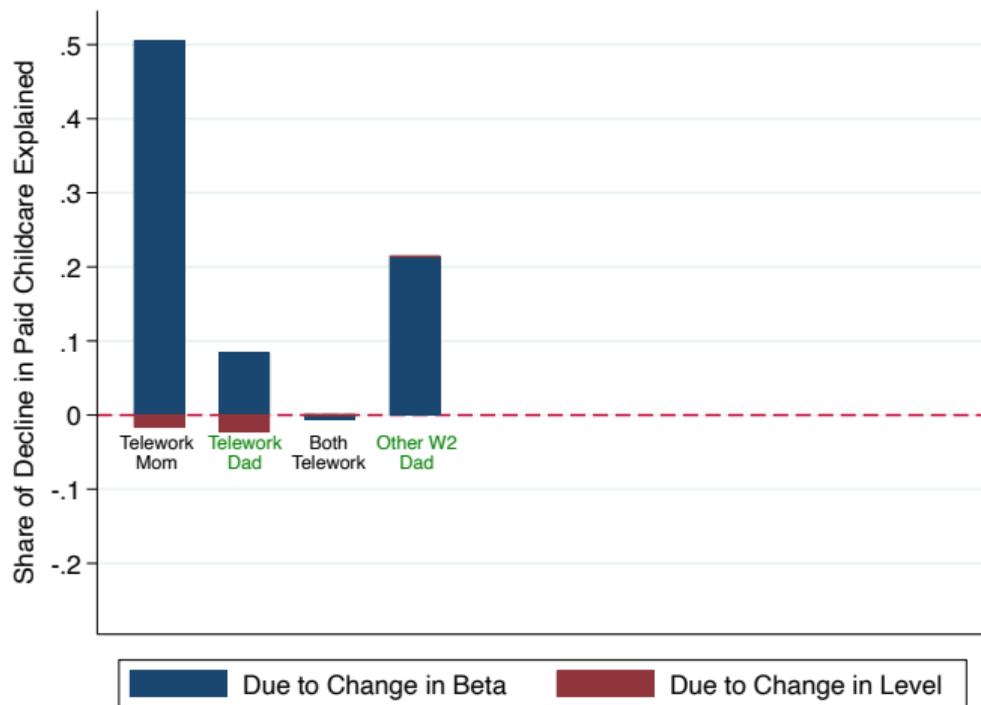
$$zShare = \frac{\Delta \bar{z} \cdot \beta_{z,Pre}}{\Delta PaidChildcare} + \frac{\bar{z}_{pre} \cdot \beta_{z,Post}}{\Delta PaidChildcare}$$

Decomposition »



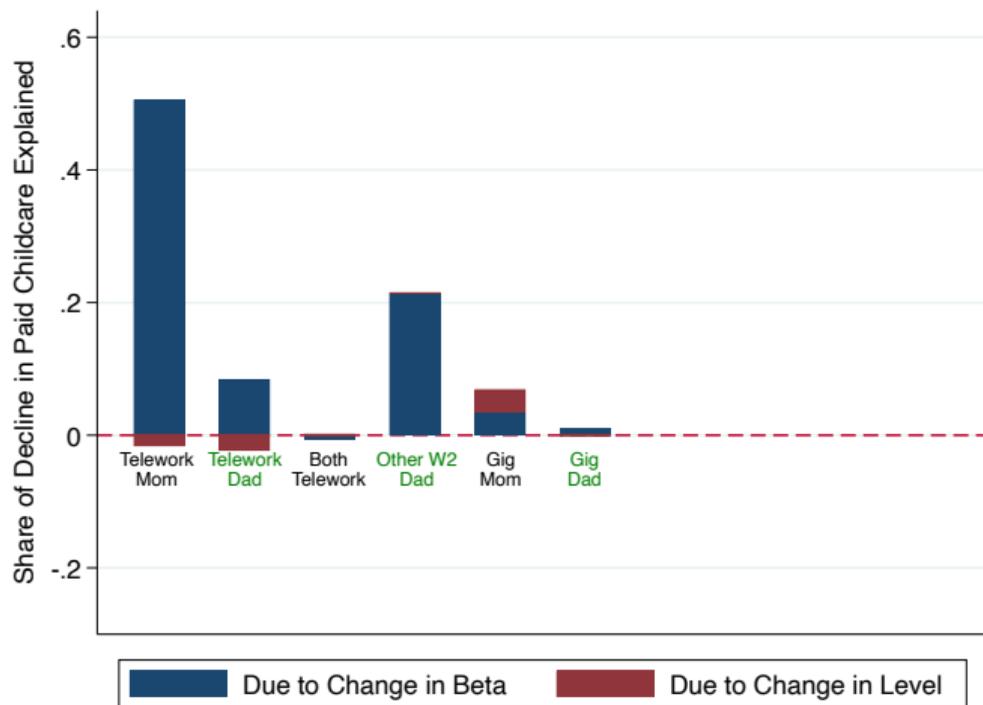
- Mother teleworkable explains $\approx 51\%$

Decomposition »



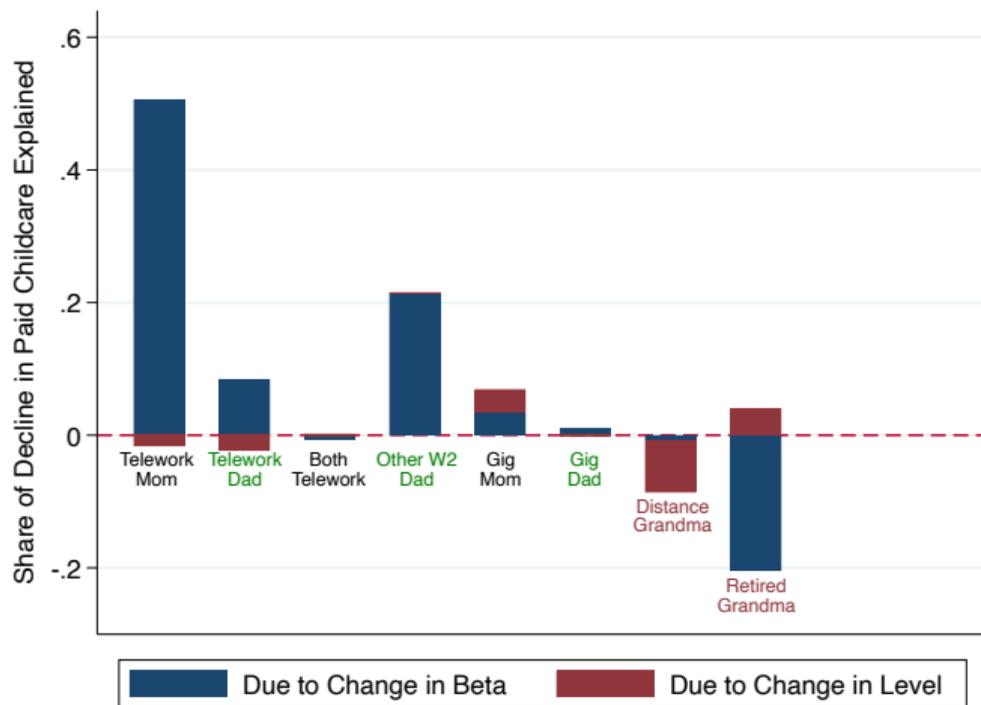
- Mother teleworkable explains $\approx 51\%$
- Fathers explain 30%, more from non-teleworkable occs

Decomposition »



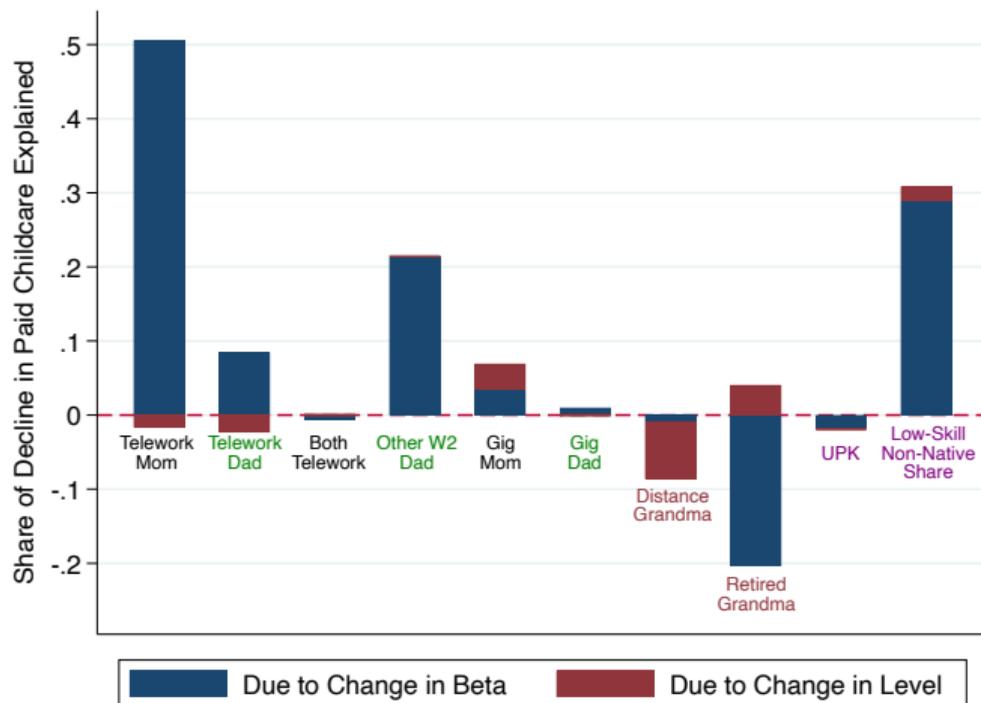
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- Gig work small

Decomposition »



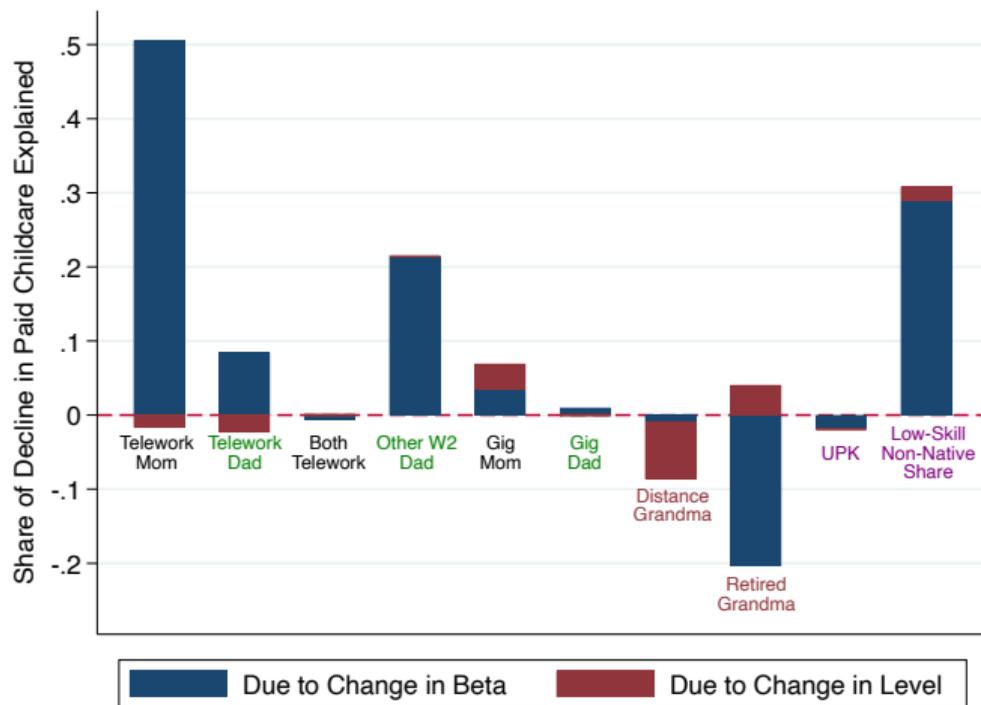
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Decomposition »



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- UPK small. Low- skill non-natives explain 29%.

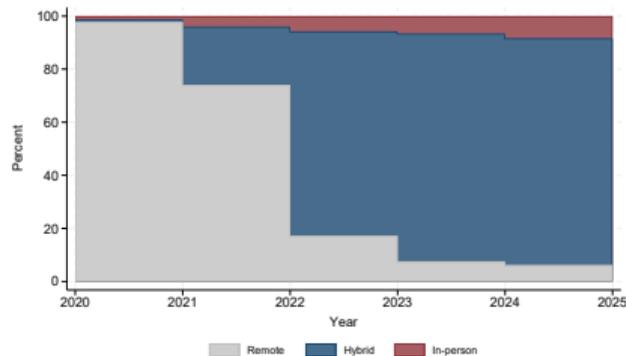
Decomposition »



- Mother teleworkable explains $\approx 51\%$
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- UPK small. Low- skill non-natives explain 29%.
- **Total explained: 90%**

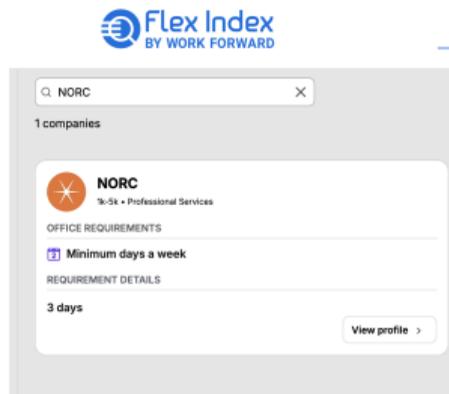
Firm-Specific Policies

- Some firms require in-person, others allow remote
- Get info on RTO from Factiva searches of news articles and transcripts of corporate earnings calls
- Classify firms into three groups based on their policy as of 2024:
 1. Remote First (14)
 2. Hybrid (194)
 3. Office First (19)X No info available (273)



Firm-Specific Policies

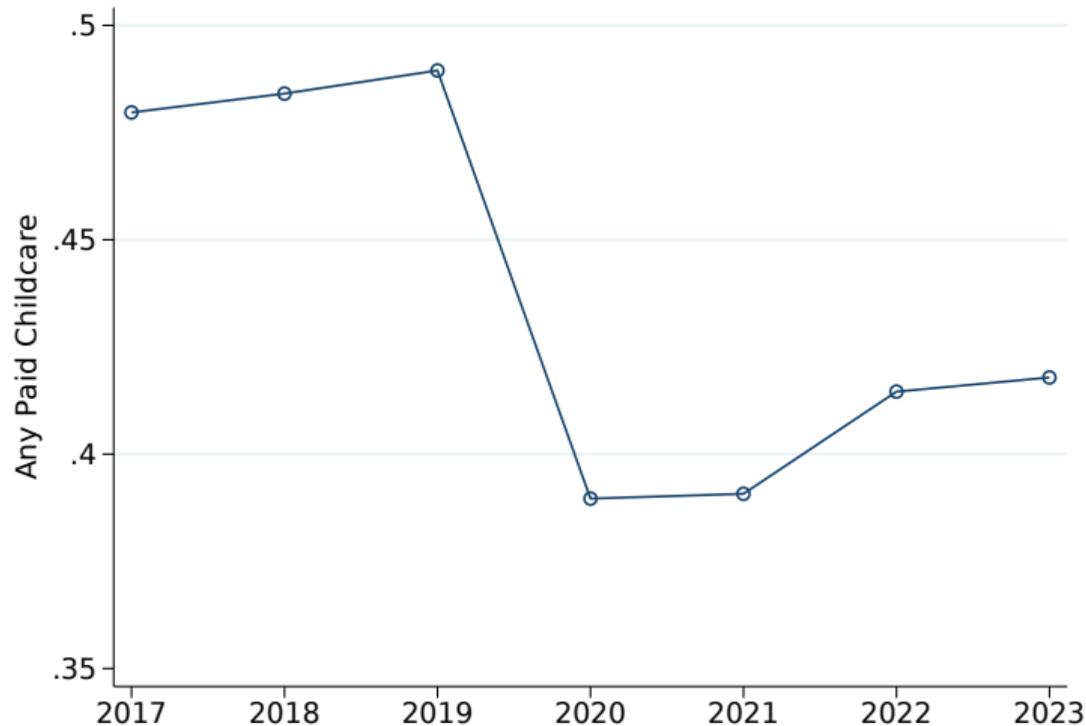
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- We also collect data on the possibility of remote work from flexindex.com



Flexindex data

- Combination of publicly posted information
- Calls with HR departments to fill in policy for firms
- We only observe 2024 policy
 - Much policy variation: "x days week," "Employee choice," "50%," "In office T-Th," "Full time in office"
 - We compare "Full time in office" to all other categories

Any Paid Childcare, Fortune 500 Sample



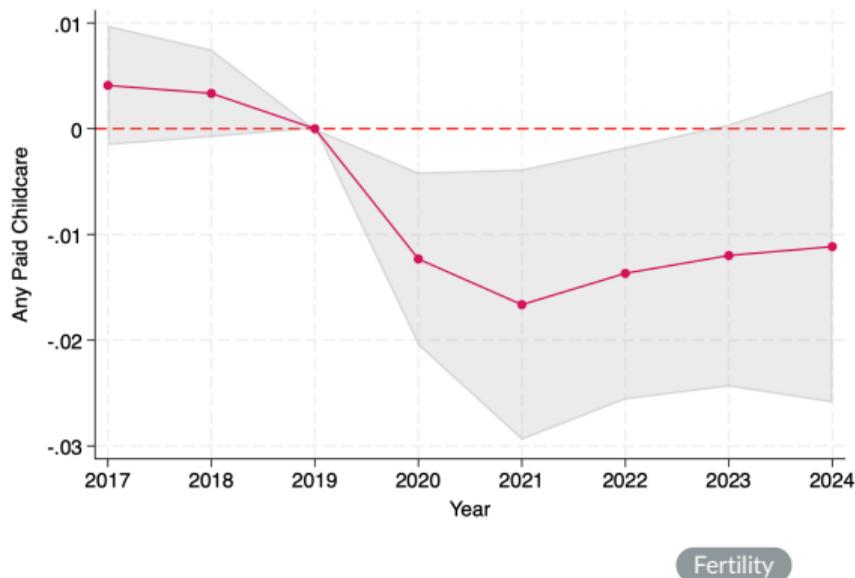
Notes: Mothers in teleworkable occupations in 2019 at firms with RTO policy

Study 2019 “Assignment” to an in-office₂₀₂₄ vs. remote/hybrid₂₀₂₄ firm

$$y_{it} = \sum_{k=1 \in T \setminus 2019} \beta_k \mathbf{1}\{\text{Remote}(j)\} \mathbf{1}\{t = k\} + \gamma_i + \gamma_{\text{NAICS}(j) \times t \times \text{State}(i)} + \epsilon_{it}$$

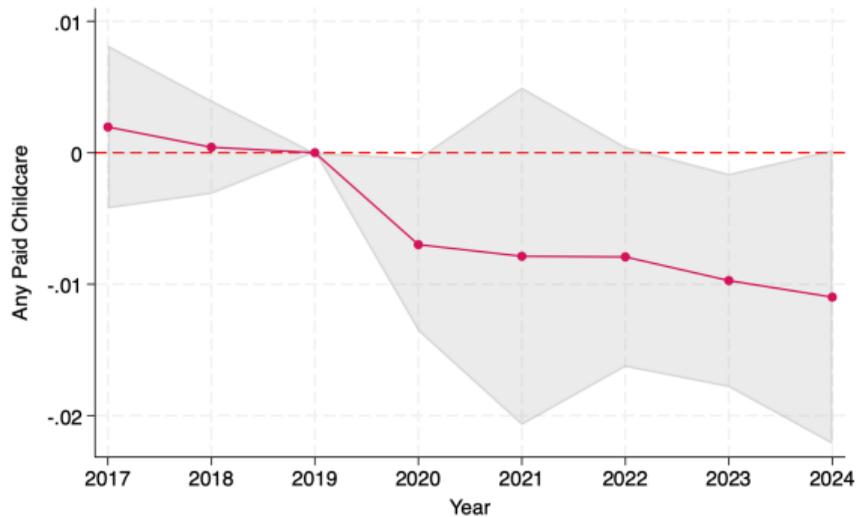
- i -individual, j - i 's firm in 2019, t -year
- $\gamma_{\text{NAICS}(j) \times t \times \text{State}(i)}$ -2019 firm NAICS by year by state of residence fixed effects.
- β_k trace out effect of working at a firm *in 2019* which allows some remote work, relative to a firm which is in-person in 2024
- Cluster S.E.s at Company level

Event Study Estimates of Firm Policies: Any Paid Childcare, Mothers (0-13)



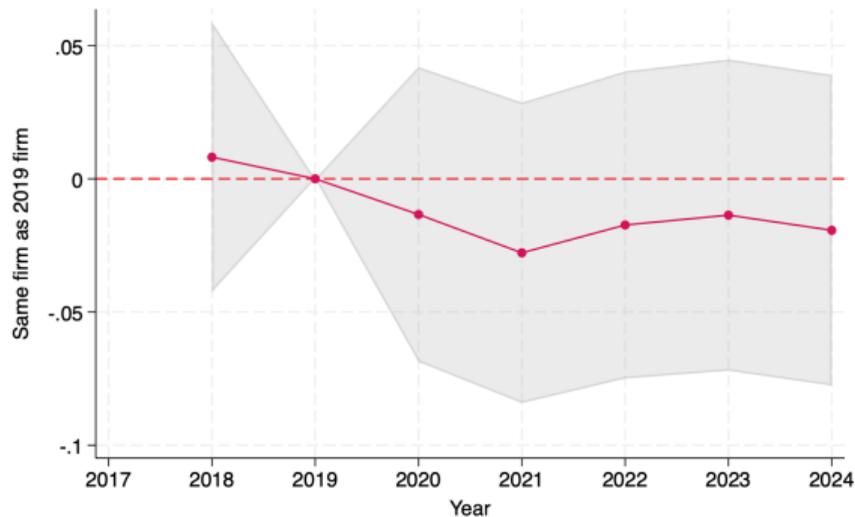
- Decline in use of paid childcare larger for remote firms

Event Study Estimates of Firm Policies: Any Paid Childcare, Fathers (0-13)



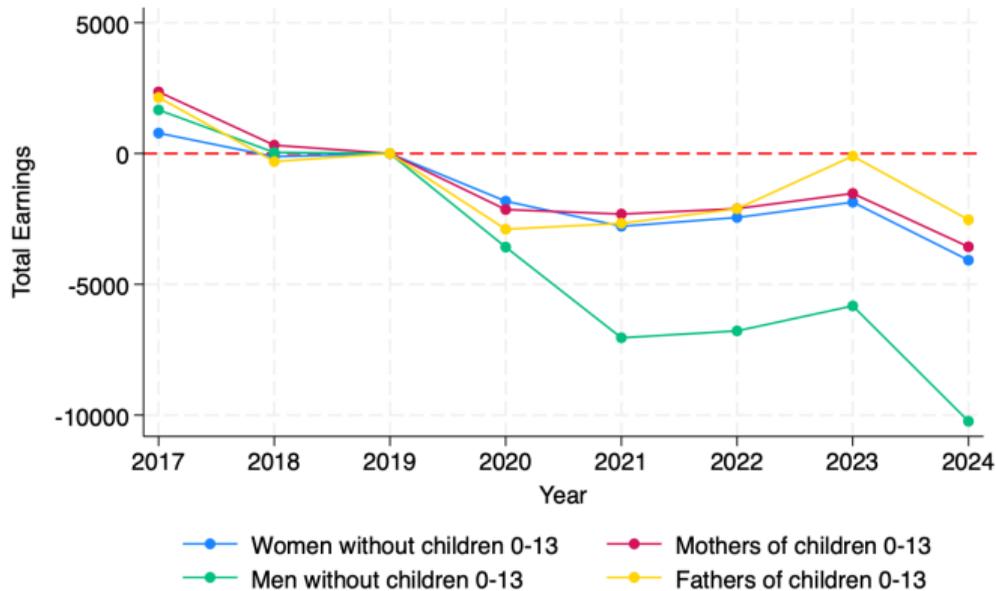
- Same for fathers

Event Study Estimates of Firm Policies: Job Switching



- Not driven by differential firm switching (rates)

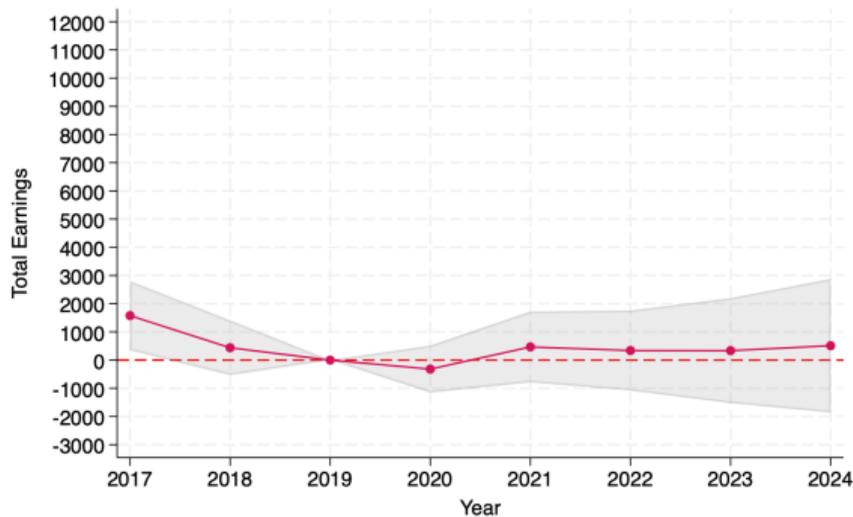
Event Study Estimates of Firm Policies: Yearly Earnings



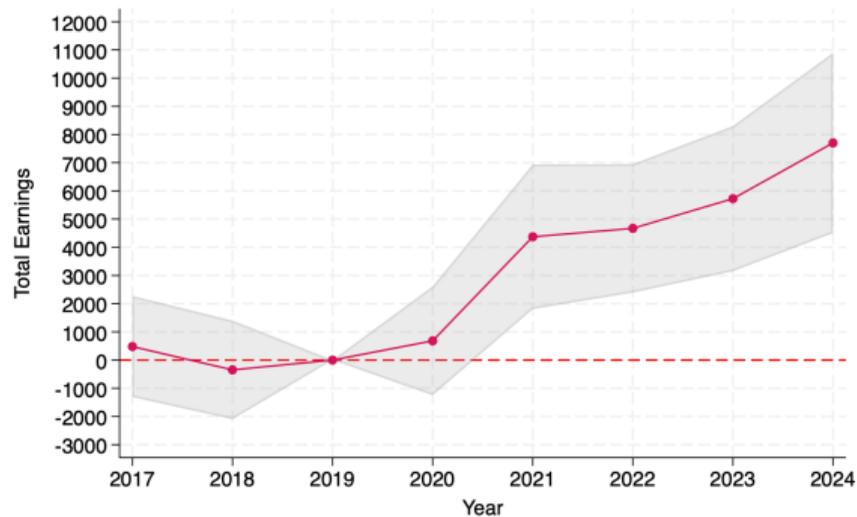
- No difference in earnings path of mothers vs. non-mothers
- Fathers may be better off in remote firms (compared to non-fathers)

Event Study Estimates of Firm Policies: Yearly Earnings

Mothers



Fathers



Remote work:

1. Makes work more flexible – parents can more easily deal with interruptions of childcare (Goldin, 2014; Goldin 2021)
2. But those interruptions may become more common (Adams, 2025)
 - Use less childcare
 - Because savings in terms of commute time, monetary cost are high
 - Costs are reduced total hours and/or productivity

Do we see this last channel in the data?

Regression Discontinuity Around Public School Entry

Estimate

$$Y_i^g = \alpha^g + \beta^g \text{Older}_i + f^g(B_i - K_{s,t}) + \gamma^g X_i + \delta_s^g + \epsilon_i \quad (1)$$

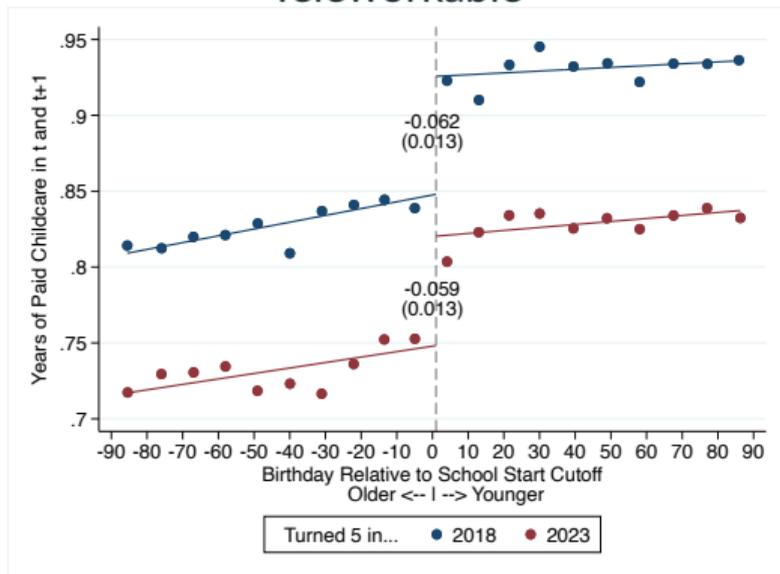
- Estimate effects separately for groups
 $g \in \{\text{teleworkable}, \text{non} - \text{teleworkable}\} \times \{2018, 2023\}$
- $\text{Older}_i = B_i < K_{st}$ indicates eligibility for kindergarten in state s and year t
- $f(B_i - K_{st})$ is a flexible function in birthdate
- X_i is a vector of controls for power (mother's age, lagged values of the outcome)

Past work

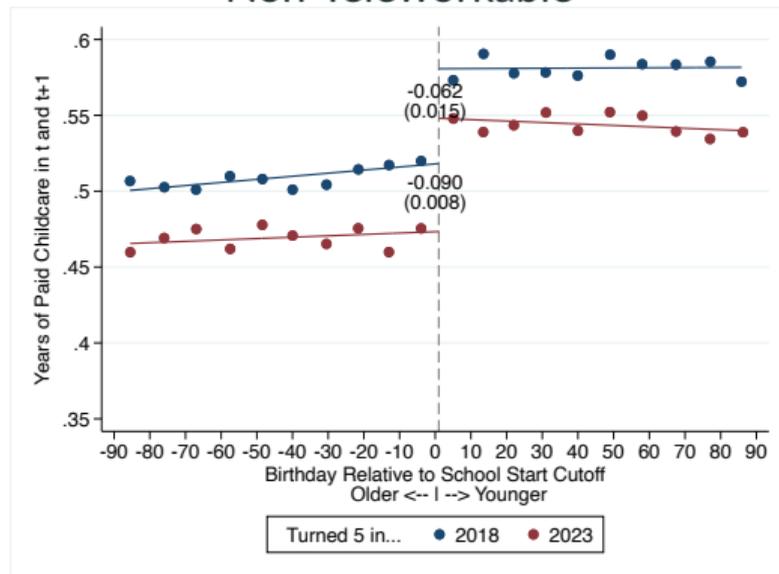
- Gelbach (2002); Cascio (2009); Fitzpatrick (2010); Wikle Wilson (2026)
- Focus has been on employment
- We focus on employed women who are not using (much) paid childcare

Use of Paid Childcare, Regression Discontinuity Around School Start Birthdate Cutoffs

Teleworkable

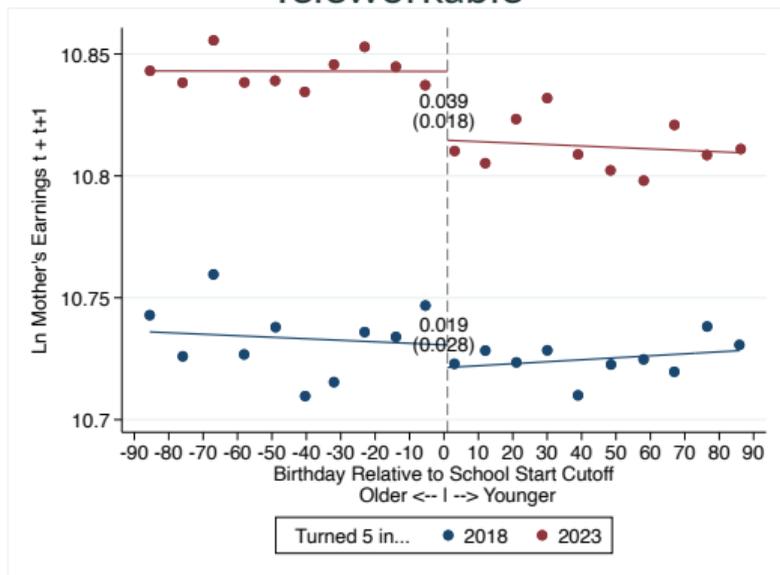


Non-Teleworkable

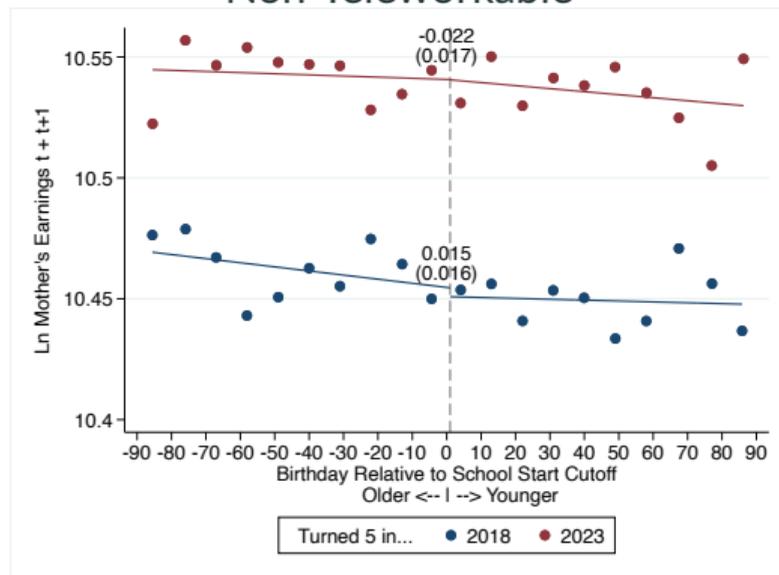


Mother's Earnings, Regression Discontinuity Around School Start Birthdate Cutoffs, Little or No Paid Childcare in t-1

Teleworkable



Non-Teleworkable



Summary:

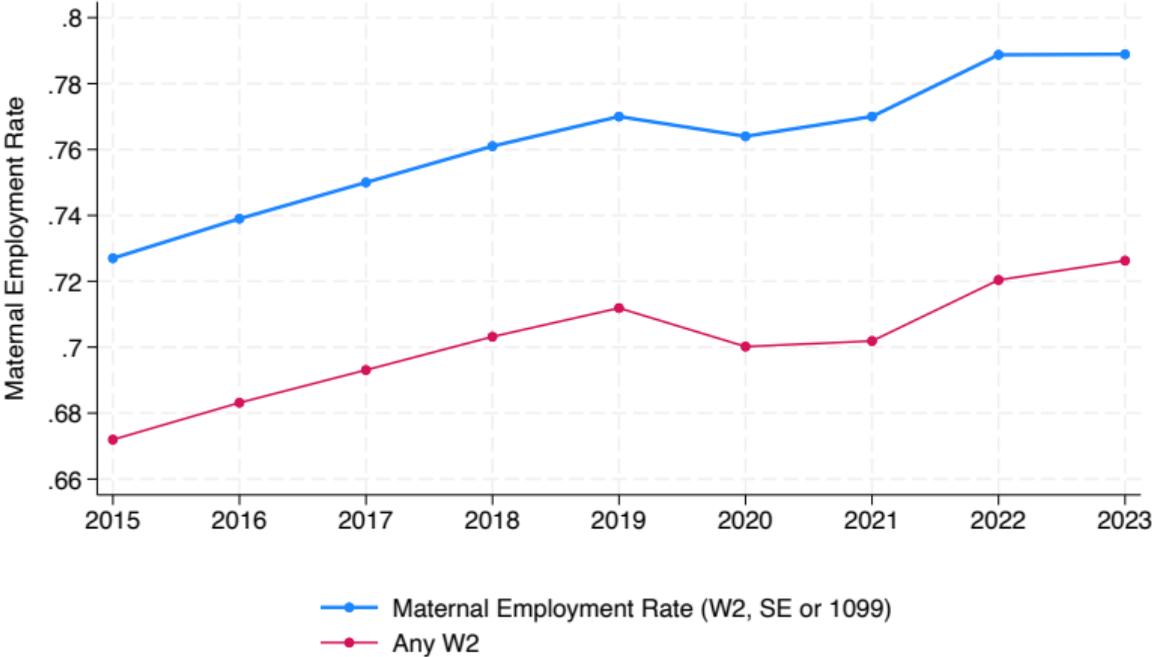
- Paid childcare has declined by 10% since 2019, persistent through 2023.
 - \approx 50% explained by teleworkable jobs among mothers
 - large role for fathers too
- Working remotely has not improved mother's earnings
- Likely because they are caring for children while working

Future work/questions:

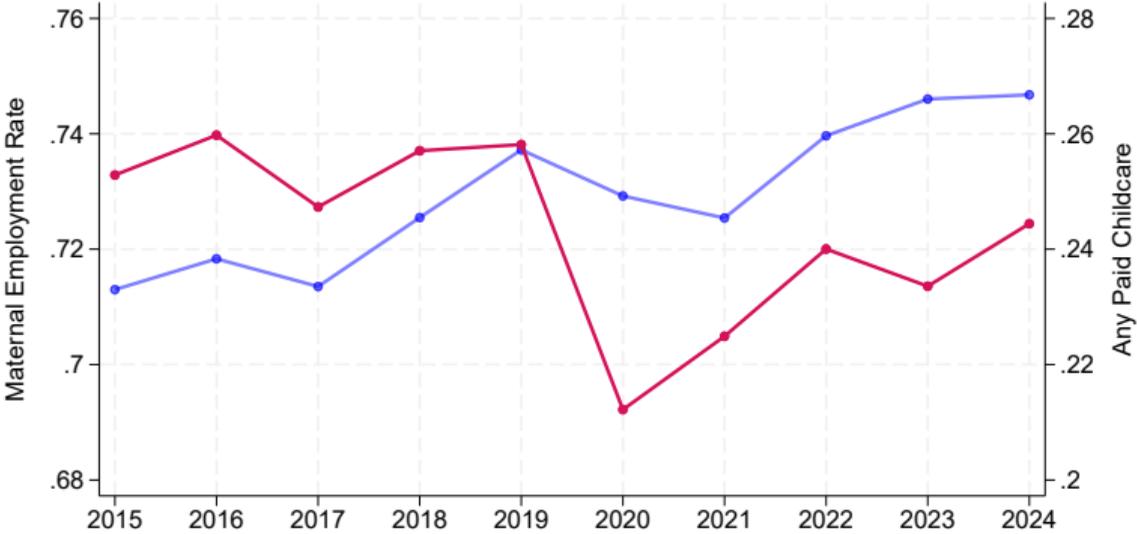
- Longer-run impact on mothers' careers different?

Appendix Slides

Maternal Employment Rates

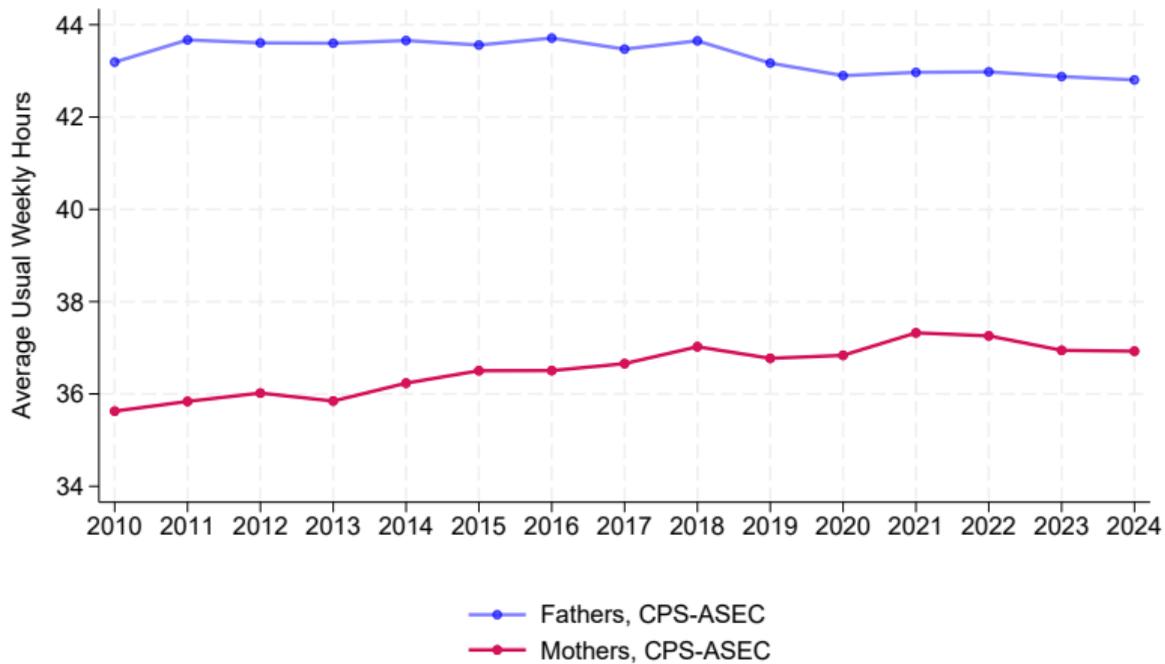


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—●— Maternal Employment Rate (CPS - ASEC)
—●— Any Paid Childcare (CPS - ASEC), Right Axis

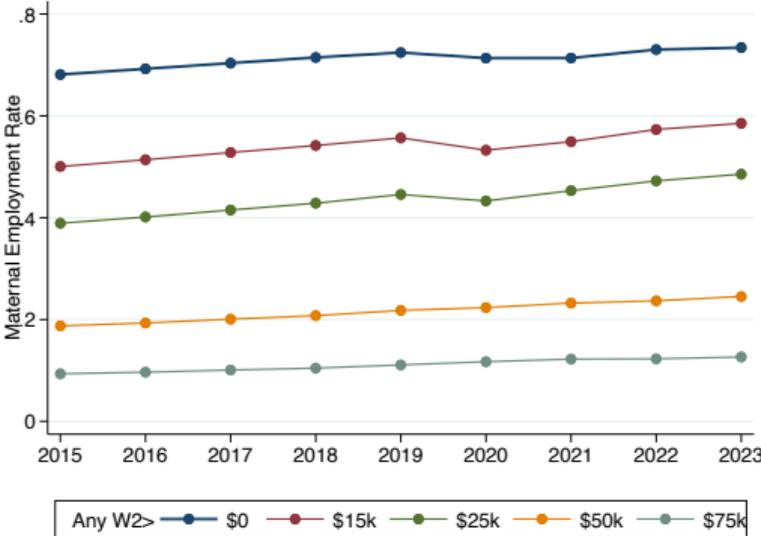
Hours



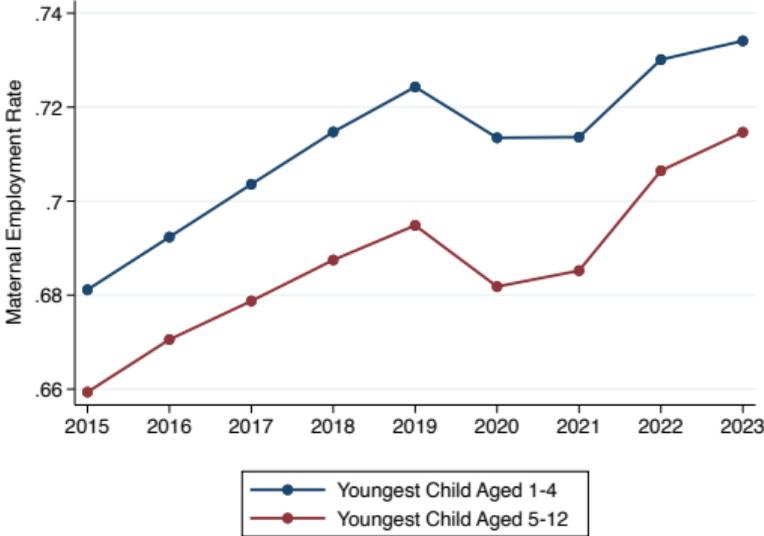
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Employment Rates

By Mothers' Earnings

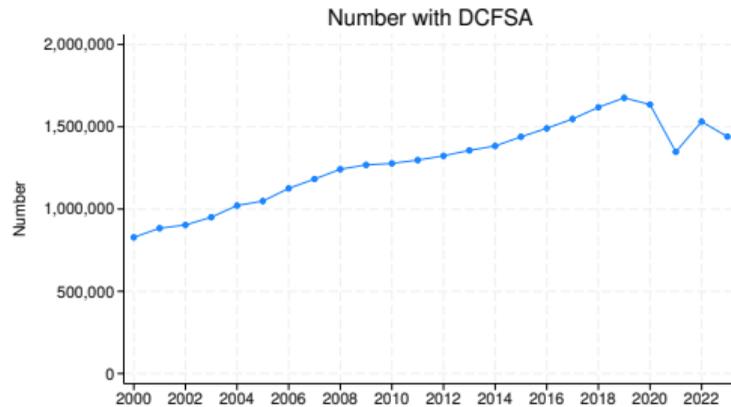
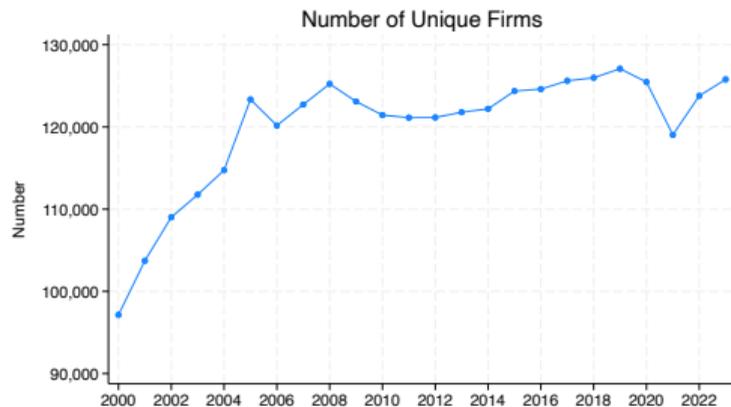


By Age of Youngest Child



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Counts of Firms/Workers with DCFSAs

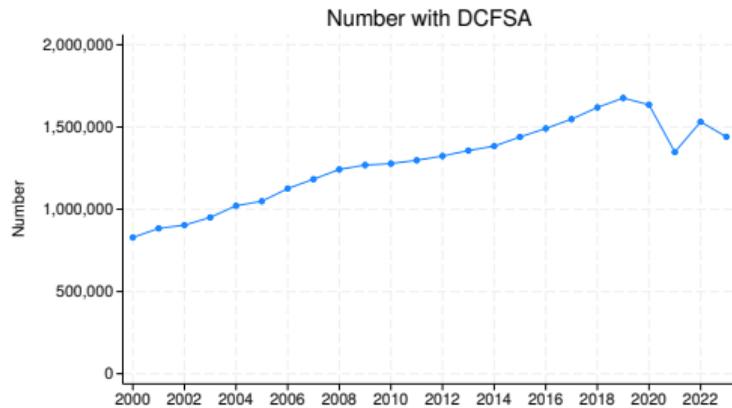
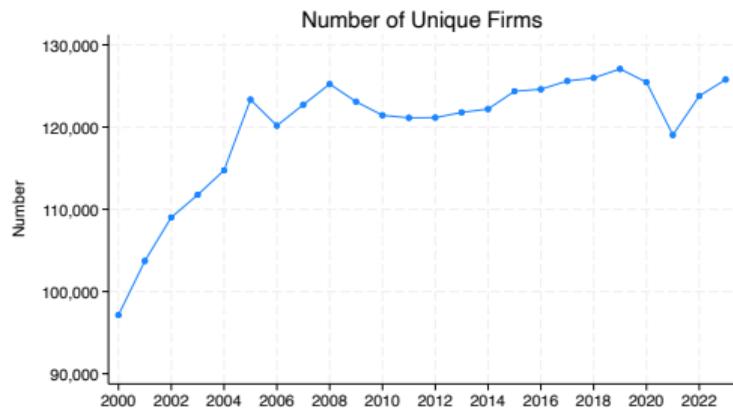


DCFSA - Dependent Care Flexible Spending Account. DCFSA participants are also required to file 2441. Compliance \approx 90%.

Increase in firm offers (2000-2008) and worker adoption (2000-2019)

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Counts of Firms/Workers with DCFSA



DCFSA - Dependent Care Flexible Spending Account. DCFSA participants are also required to file 2441. Compliance \approx 90%.

Increase in firm offers (2000-2008) and worker adoption (2000-2019)
Decline in usage of DCFSAs since 2019

Childcare Expenses, CPS

- Between 2001 and 2006, the question was:
Did (you/anyone in this household) PAY for the care of (your/their) (child/children) while they worked in [YEAR]? [INCLUDE PRESCHOOL AND NURSERY SCHOOL; DO NOT INCLUDE KINDERGARTEN OR GRADE/ELEMENTARY SCHOOL]
- From 2007 onwards, the question became:
Did (you/ anyone in this household) PAY for the care of (your/their) (child/children) while (you/they) worked in [YEAR] [INCLUDE: ALL CHILD CARE EXPENSES INCLUDING PRESCHOOL AND NURSERY SCHOOL EXPENSES, BEFORE AND AFTER SCHOOL CARE, AND SUMMER CARE. DO NOT INCLUDE: COST OF KINDERGARTEN OR GRADE/ELEMENTARY SCHOOL.]

IRS Panel of Parents: Match Rates and Sample Sizes

	Youngest Child Ages:		
	1-12	1-4	5-12
1. All Mothers	3,800,500	2,222,662	1,577,838
2. Employed (W2 SE 1099)	2,840,127	1,649,750	1,190,377
3. Occupation Linked	1,217,107	757,160	459,947
4. Mother Aged <39	2,733,162	1,974,392	758,770
5. Grandmother Linked	1,741,062	1,339,434	401,628
6. Occupation and Grandmother Linked	584,623	481,253	103,370

Note: 10% sample of mothers

- Decline in paid childcare similar between 1. all mothers and 6. Occupation and grandmother linked, ≈ 2 p.p.

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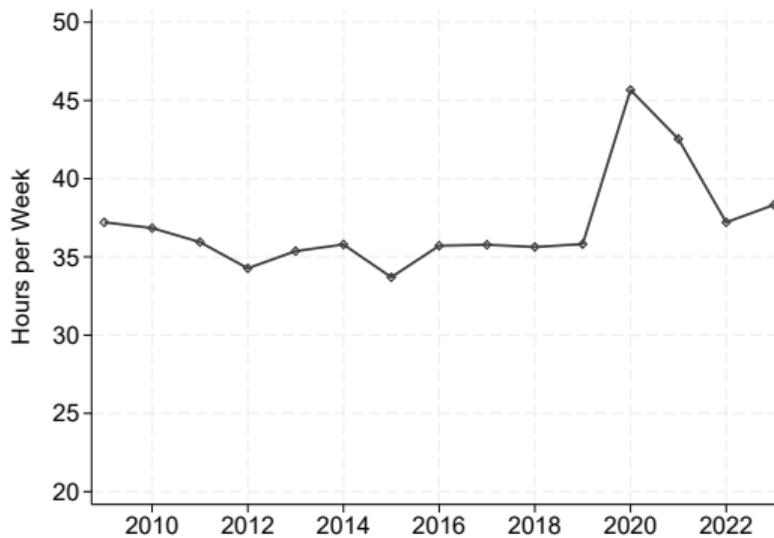
Decomposition of Decline in Any Paid Childcare Among Working Mothers, 2018-2019 v 2023-2024

	(1) Pre-Level	(2) P.p. Change	(3) Main Effect	(4) Post Effect (Change in Coefficient)	(5) Share of Decline Explained
1. Mother Teleworkable	0.424	0.005	0.079	-0.032	0.506
2. Father teleworkable	0.257	0.008	0.079	-0.011	0.085
3. Mother and Father Teleworkable	0.132	0.004	0.000	0.001	-0.006
4. Father Other W2	0.815	-0.001	0.087	-0.007	0.213
5. Mother Gig Work	0.010	0.029	-0.030	-0.002	0.035
6. Father Gig Work	0.011	0.021	0.000	-0.024	0.010
7. Grandmother Distance	3.437	0.181	0.011	-0.001	-0.008
8. Grandmother Retirement	0.455	0.031	-0.034	0.014	-0.204
9. Universal pre-K enrollment	0.033	0.003	0.014	0.013	-0.018
10. Immigrant share	0.074	0.003	-0.168	-0.095	0.289

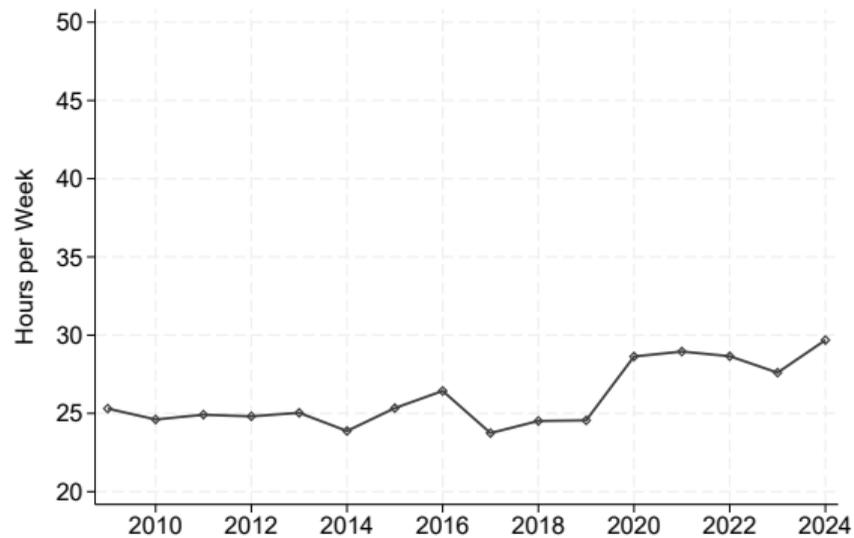
Share of decline explained = $((1)*(4)+(3)*(2)) / -0.026$ [Back](#)

Hours supervising a child under 13: Evidence from the ATUS

Mothers



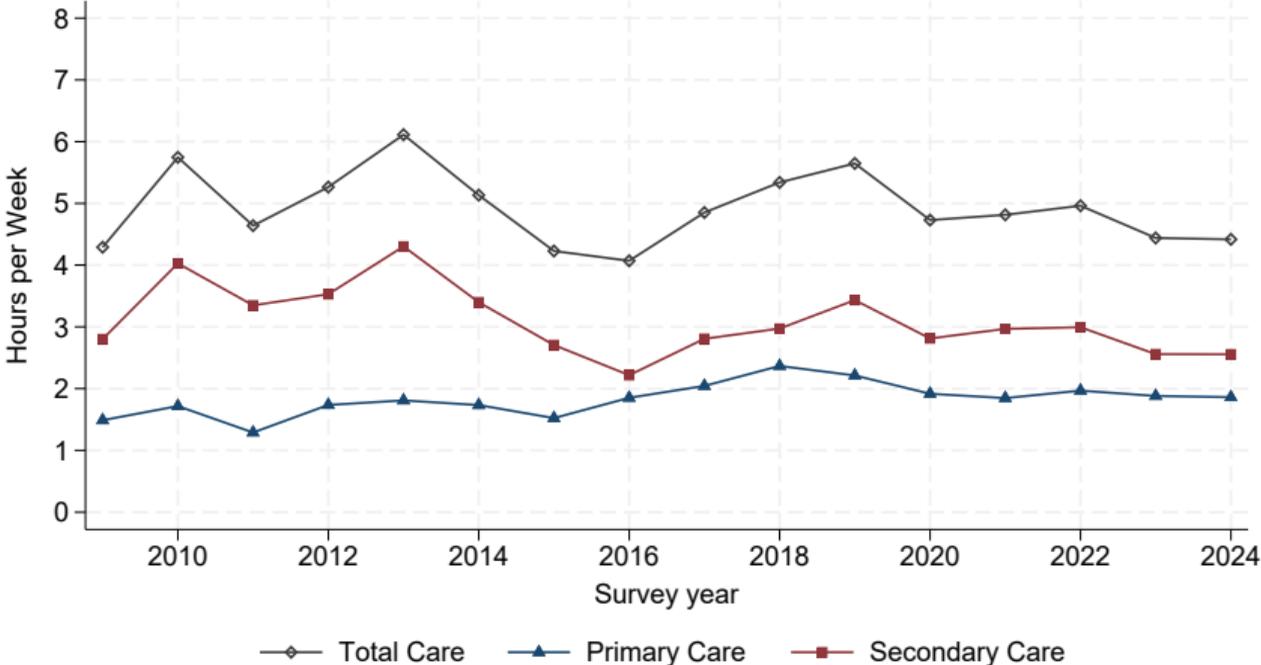
Fathers



Note: Restricted to working parents.

Evidence from the ATUS: Grandmaternal Care

Time spent in CC of any children (retired female, 60-75)



Theoretical Framework

Stylized Model

- In period 1, households can purchase childcare at price p for every hour mothers work, H_1
- In period 2, children do not need care
- Wages in period 2 are higher the more mothers worked in period 1 $\frac{\partial w_2}{\partial H_1} > 0$
- Policies/technology may make it possible to work without paying for childcare, e.g.
 - Universal Pre-Kindergarten, grandparental care
 - Remote work, R_1 (but may impact productivity), $\frac{\partial w_2}{\partial R_1} \leq 0$
- With the possibility of not purchasing childcare, the household budget in period 1 is given by

$$C_1 + A_1 \leq w_1 H_1 - p H_1 F + I_1^{father}$$

where F indicates that a household purchased paid childcare

- The household budget in period 2 is given by

$$C_2 \leq (1 + r) A_1 + w_2(R_1, H_1) H_2 + I_2^{father}$$

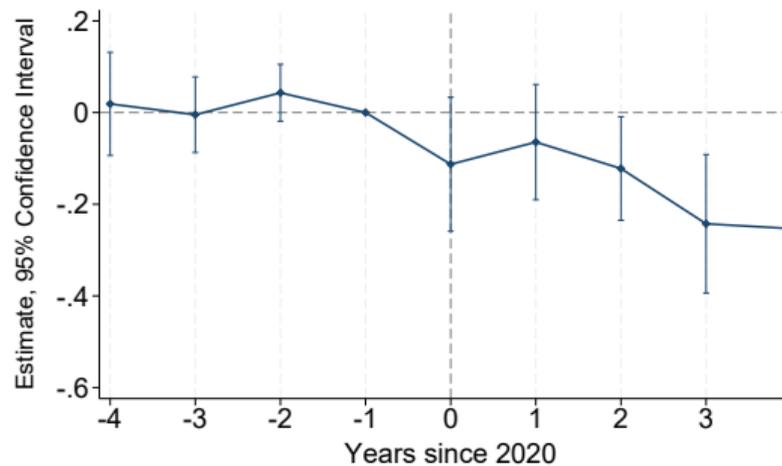
Financial Outcome Event Studies

Variable	Mean		P-value	
	Remote Work Possible (N=407)	Fully in Person (N=93)	No Controls	NAICS FE
2019 Financial Variables				
Log Current Assets	8.405	8.621	0.113	0.616
Log Total Assets	9.916	10.218	0.064	0.522
Log Total Revenue	9.735	9.629	0.361	0.242
Log Number of Employees	10.129	10.234	0.489	0.752
Log Market Value	9.532	10.059	0.001	0.022
Log Fiscal Price Close	4.102	4.310	0.087	0.372
Log Sales	9.735	9.628	0.360	0.241
Log Net Property, Plant and Equipment	8.565	8.136	0.019	0.299
2019 InHerSight Ratings				
Overall Score	2.844	3.079	0.040	0.336
Personal Development	2.617	2.871	0.078	0.347
Career Opportunities	3.111	3.185	0.588	0.897
Family Support	2.828	3.112	0.069	0.684
Telecommute Ability	2.233	2.643	0.034	0.661
Equal Opportunities	3.194	3.440	0.057	0.277
Family Growth Support	2.628	2.998	0.042	0.171
Flexible Work Hours	2.628	3.065	0.004	0.108
Management Opportunities	3.250	3.344	0.465	0.811
Maternity Leave	3.133	3.375	0.136	0.702
Paid Time Off	3.494	3.634	0.375	0.702
Salary Satisfaction	2.933	2.993	0.675	0.522
Social Environment	2.317	2.677	0.028	0.035
Mentorship	2.222	2.512	0.046	0.263
People You Work With	3.250	3.384	0.208	0.708
Wellness	2.678	3.004	0.110	0.044
Women in Leadership	3.039	3.085	0.770	0.964
2019 CEO Characteristics				
Female CEO	7.4%	2.3%	0.086	0.079
Actual CEO Age	58.66	58.31	0.678	0.545
Predicted CEO Age	58.56	58.43	0.883	0.839

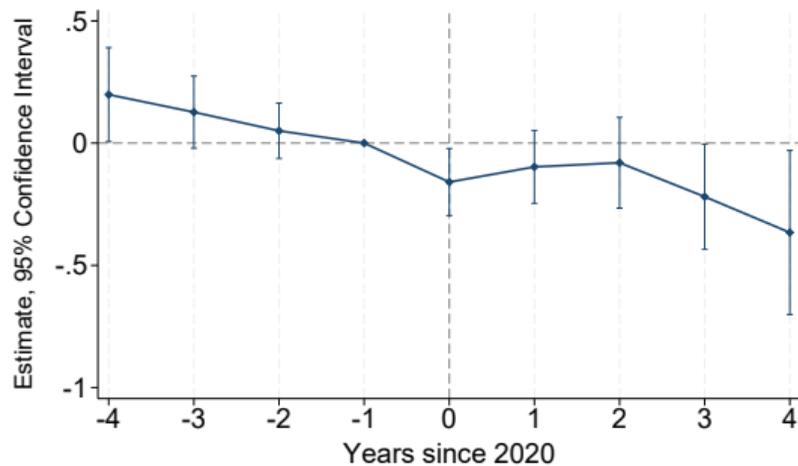
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Log of Total Market Value

NAICS-by-Year FE, Unweighted



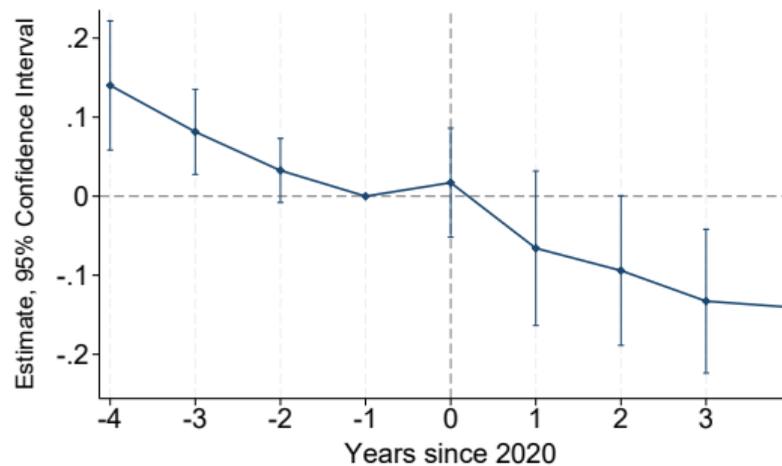
NAICS-by-Year FE, Weighted



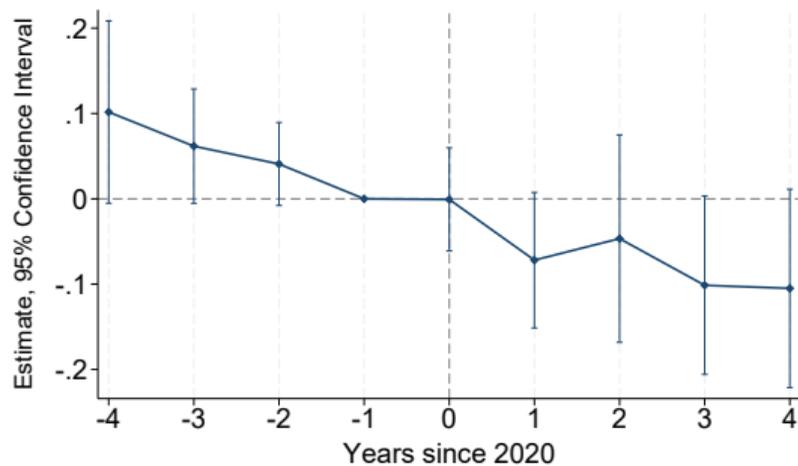
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Log of Total Revenue

NAICS-by-Year FE, Unweighted



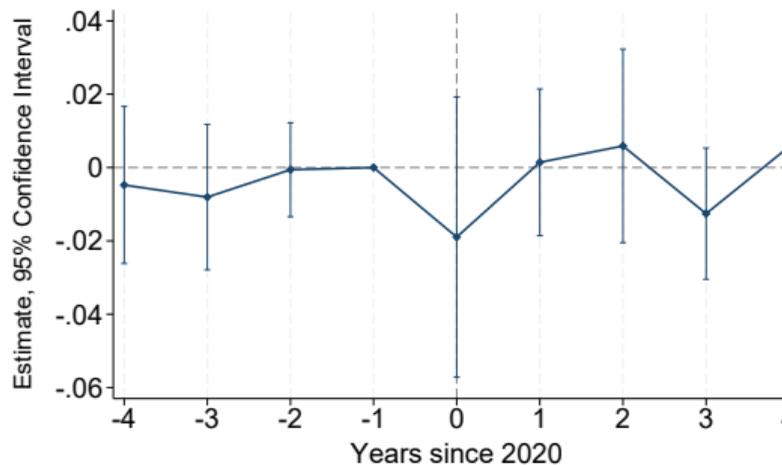
NAICS-by-Year FE, Weighted



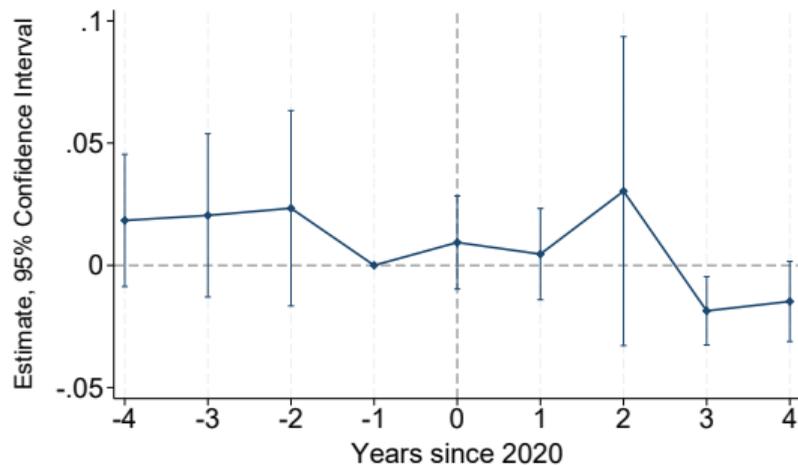
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Gross Margin

NAICS-by-Year FE, Unweighted



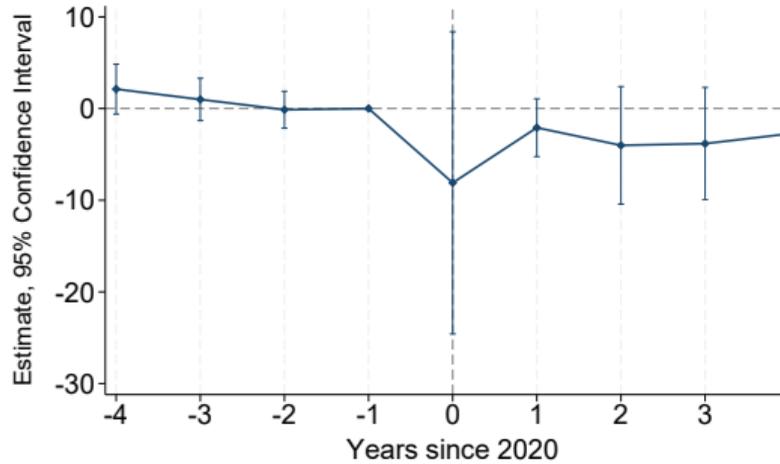
NAICS-by-Year FE, Weighted



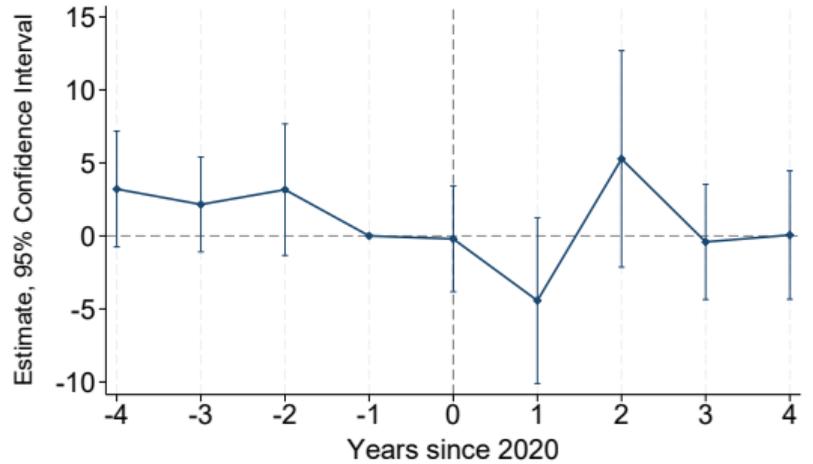
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Earnings Per Share

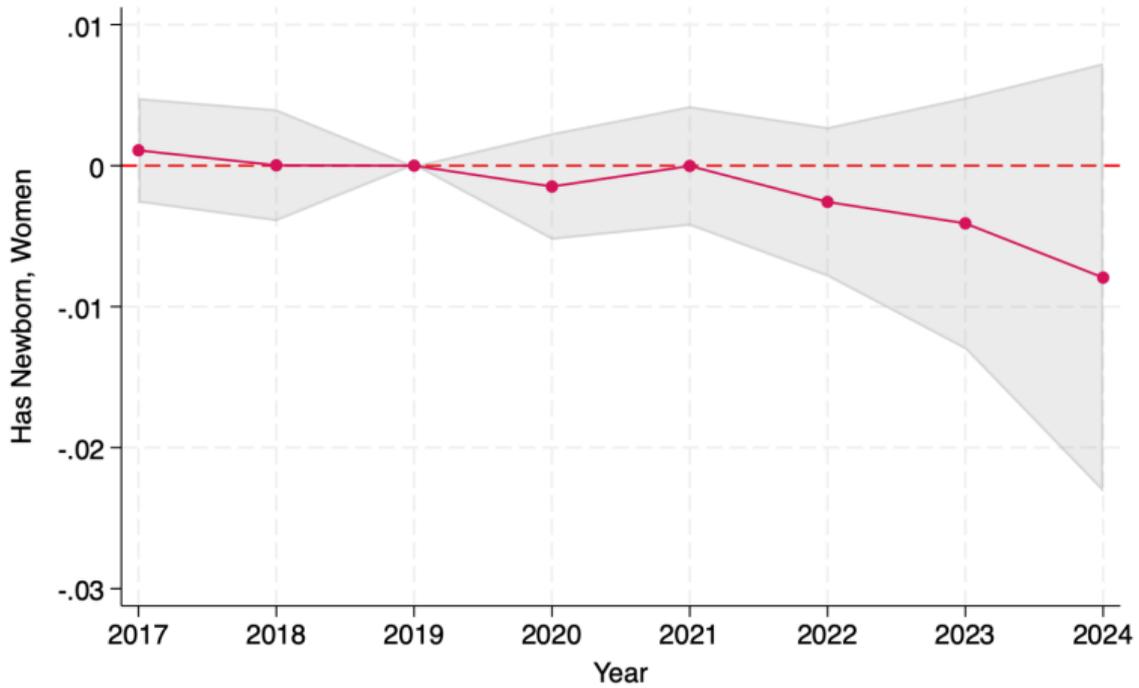
NAICS-by-Year FE, Unweighted



NAICS-by-Year FE, Weighted



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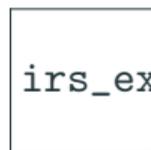
Childcare Market: Pre-2020

Childcare Availability and Maternal Labor Supply

- Literature has examined availability of kindergarten (Gelbach 2002, Cascio 2009) or universal pre-Kindergarten (kindergarten) for female labor supply (Fitzpatrick 2010, Humphries et al. 2024)
 - Main idea: Price \rightarrow 0
- In tax data, we examine birth cutoffs around school start dates, which vary across localities
- Summary:
 - +1.4 p.p. W2, only among mothers not using paid childcare at age 4 (possibly due to constraints)
 - +3.5 p.p. for UPK at age 4

RD Around Kindergarten Start Dates

Any Paid Childcare



Any W2



RD Around Kindergarten Start Dates: 2-Year Wage Growth

	(1)	(2)	(3)	(4)	(5)	(6)
		Age 5			Age 4	
	All	No 2441 Pre Yr	Had 2441 Pre Yr	All	No UPK	UPK
Born Pre Cutoff	0.0147** (0.00745)	0.0173 (0.0111)	-0.00101 (0.00888)	0.0100 (0.00743)	0.00552 (0.0139)	-0.0483 (0.0343)
N	415,678	250,773	164,905	407,325	119,298	20,376
Dep Mean	0.151	0.210	0.0672	0.144	0.149	0.186

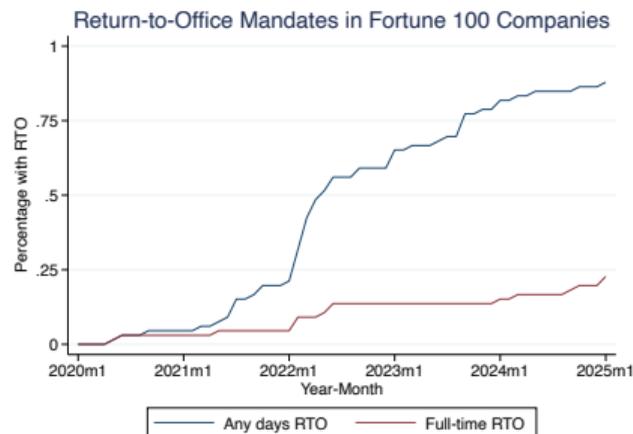
Notes: RD estimate. Also controls for separate linear trends on either side of cutoff, year and mother's age.

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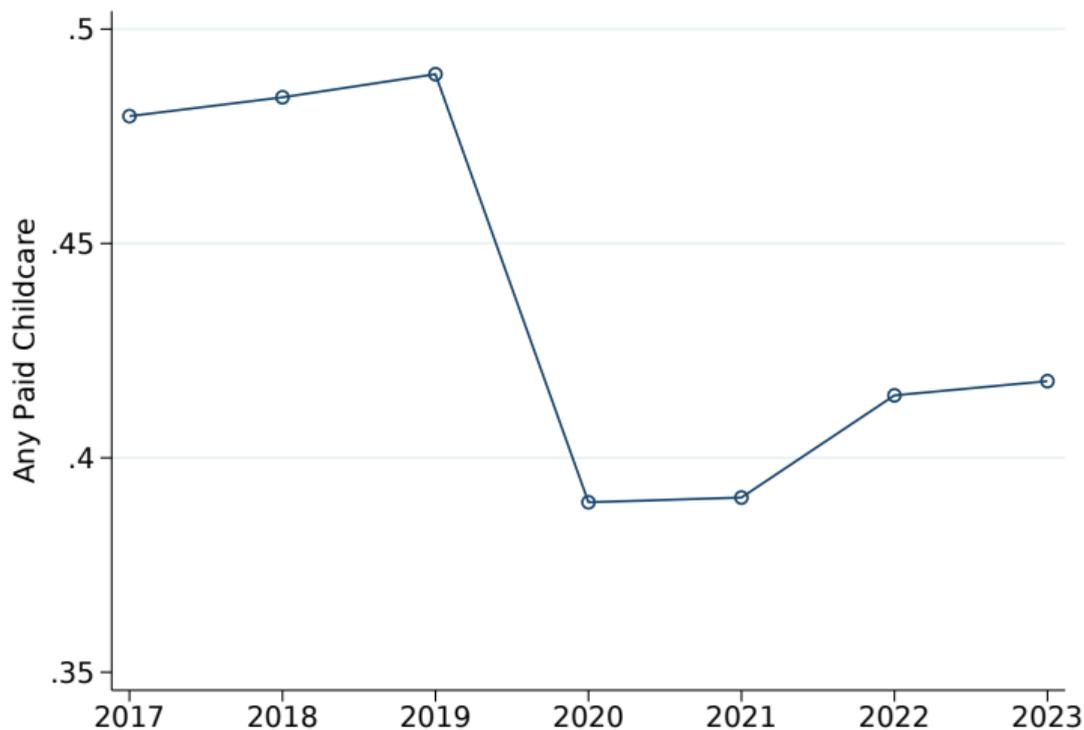
Firm-Specific Policies

- Exploit firm-specific policies for causal effects
- We collect information on return to work policies for Fortune 500 companies via Factiva searches of news articles and transcripts of corporate earnings calls
- Classify firms into three groups based on their policy as of 2024:
 1. Remote First (18)
 2. Hybrid (269)
 3. Office First (24)

X No info available (189)
- Simplest Design: Assign mothers to 2019 firm and follow through 2023 (ITT)

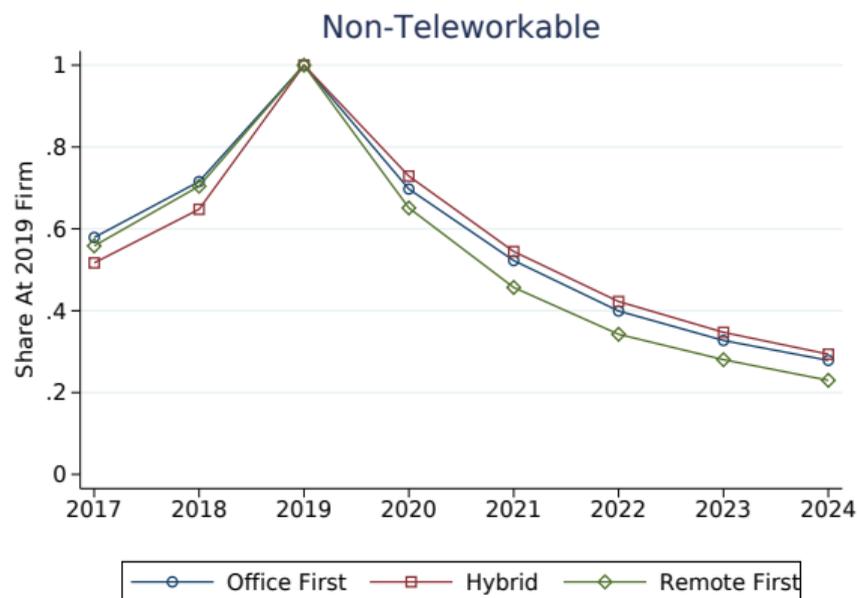
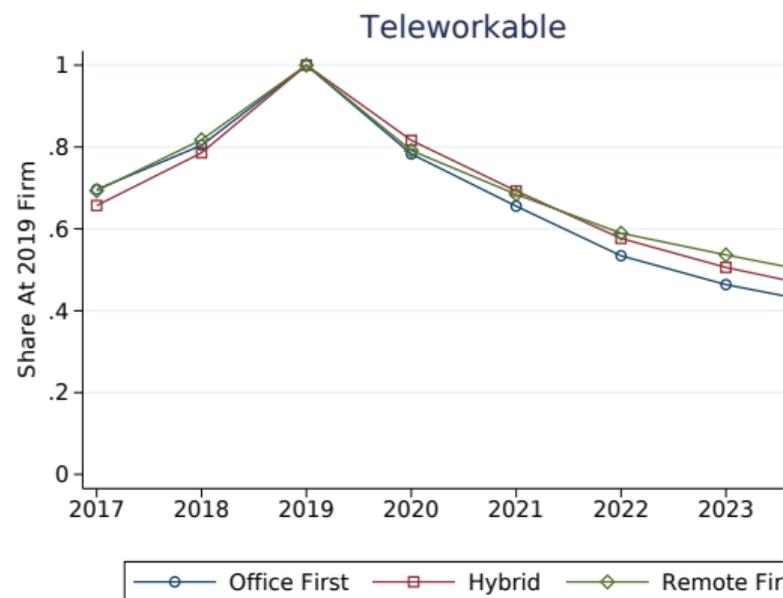


Any Paid Childcare, Fortune 500 Sample



Notes: Mothers in teleworkable occupations in 2019 at firms with RTO policy

Share at Same Fortune 500 Firm, by 2019 Teleworkable



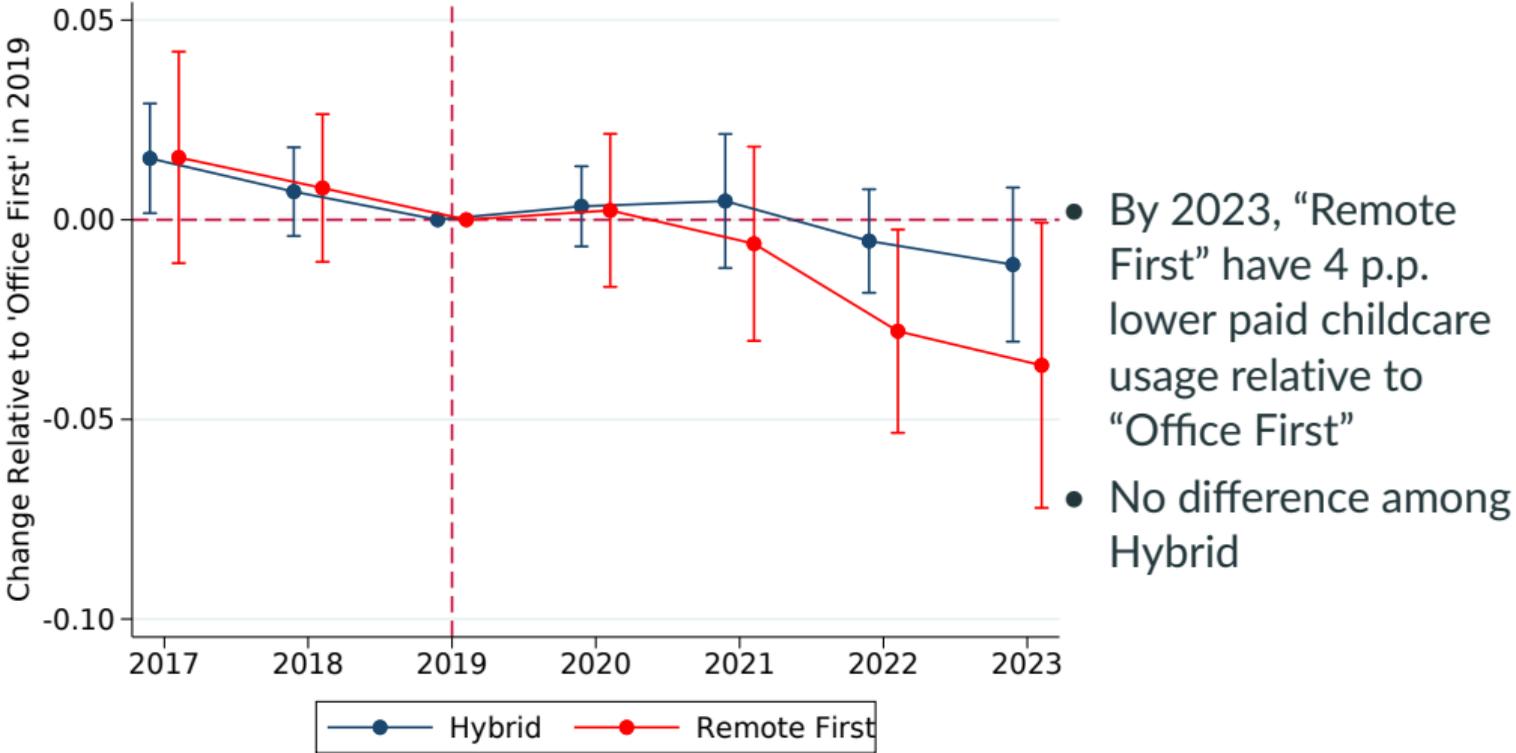
At non-remote firms, workers in non-tele occs do not follow same trends.
Motivates restricting to those in teleworkable occupations in 2019.

Evolution of Outcomes By Firm Policy

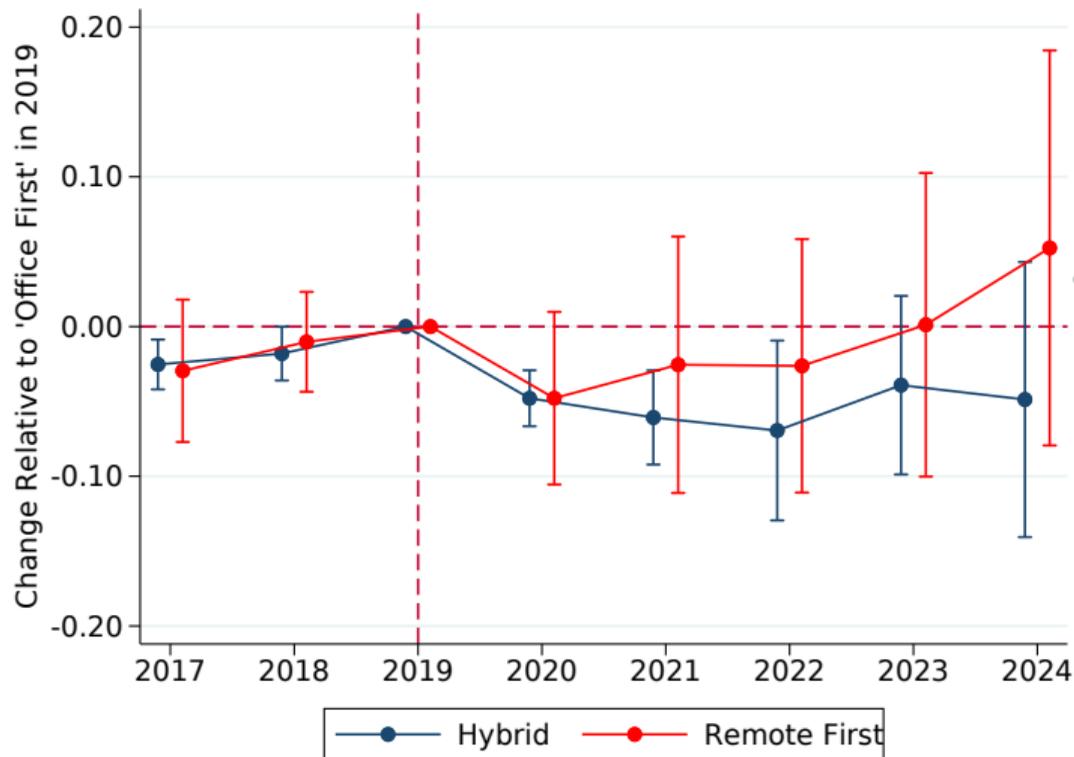
$$y_{it} = \sum_{k=1 \in T \setminus 2019} (\beta_k \mathbf{1}\{\text{Remote}(j)\} \mathbf{1}\{t = k\} + \delta_k \mathbf{1}\{\text{Hybrid}(j)\} \mathbf{1}\{t = k\}) \\ + \gamma_i + \gamma_{NAICS(j) \times t} + \gamma_{State(i) \times t} + \epsilon_{it}$$

- i -individual, j - i 's firm in 2019, t -year
- $\gamma_{NAICS(j) \times t}$ -firm NAICS time trends, and $\gamma_{State(i) \times t}$ -state time trends
- (β_k, δ_k) trace out effect of working at (“Remote First”, Hybrid) firm, relative to “Office First” firm
- Cluster S.E.s at Company level

Event Study Estimates of Firm Policies: Any Paid Childcare



Event Study Estimates of Firm Policies: Ln Wages



- “Remote first” do not appear to exhibit wage penalties in medium-run (but estimates are noisy)

Effects of Firm Policies: Additional Outcomes

$$y_{it} = \beta_{post} \mathbf{1}\{\text{Remote}(j)\} Post_t + \delta_{post} \mathbf{1}\{\text{Hybrid}(j)\} Post_t \\ + \gamma_i + \gamma_{NAICS(j) \times t} + \gamma_{State(i) \times t} + \epsilon_{it}$$

	(1)	(2)	(3)	(4)	(5)
	All Mothers with Children <13				All Women
	Any Paid Childcare	Childcare expenses	Wages>0	Ln Wages	New Birth
Post×Remote First	-0.031** (0.017)	-348.68** (170.58)	0.009 (0.009)	0.016 (0.047)	-0.002* (0.001)
Post×Hybrid	-0.013 (0.009)	-101.38 (111.88)	-0.001 (0.004)	-0.043 (0.033)	-0.001* (0.001)
N	802,301	802,301	955,415	910,442	4,537,842

Effects of Firm Policies: By Youngest Child Age

	(1) Any Paid Childcare	(2) Childcare expenses	(3) Any em- ployment	(4) Ln Wages
a. Mothers with Children <6				
Post×Remote First	-0.047 (0.029)	-582.31 (506.27)	0.017 (0.012)	0.023 (0.058)
Post×Hybrid	-0.001 (0.001)	-132.41 (379.43)	-0.006 (0.007)	-0.042 (0.043)
b. Mothers with Children 6-12				
Post×Remote First	0.017 (0.020)	325.93 (312.85)	0.004 (0.009)	0.029 (0.047)
Post×Hybrid	0.002 (0.009)	101.79 (181.67)	-0.005 (0.005)	-0.041 (0.030)

Effects of Firm Policies: Job Stayers

	(1) All Mothers with Children <13	(2) All Mothers with Children <13	(3) All Mothers with Children <13	(4) All Women
	Any Paid Childcare	Childcare expenses	Ln Wages	New Birth
Post×Remote First	-0.063*** (0.016)	-518.99* (269.11)	0.147*** (0.054)	0.000 (0.001)
Post×Hybrid	-0.019 (0.011)	5.14 (123.64)	-0.003 (0.022)	-0.000 (0.000)
N	268,673	268,673	313,384	2,803,092