Social Norms, Child Care and Maternal Labour Supply: Evidence Using Exogenous Increases in School Entry Ages Across US States

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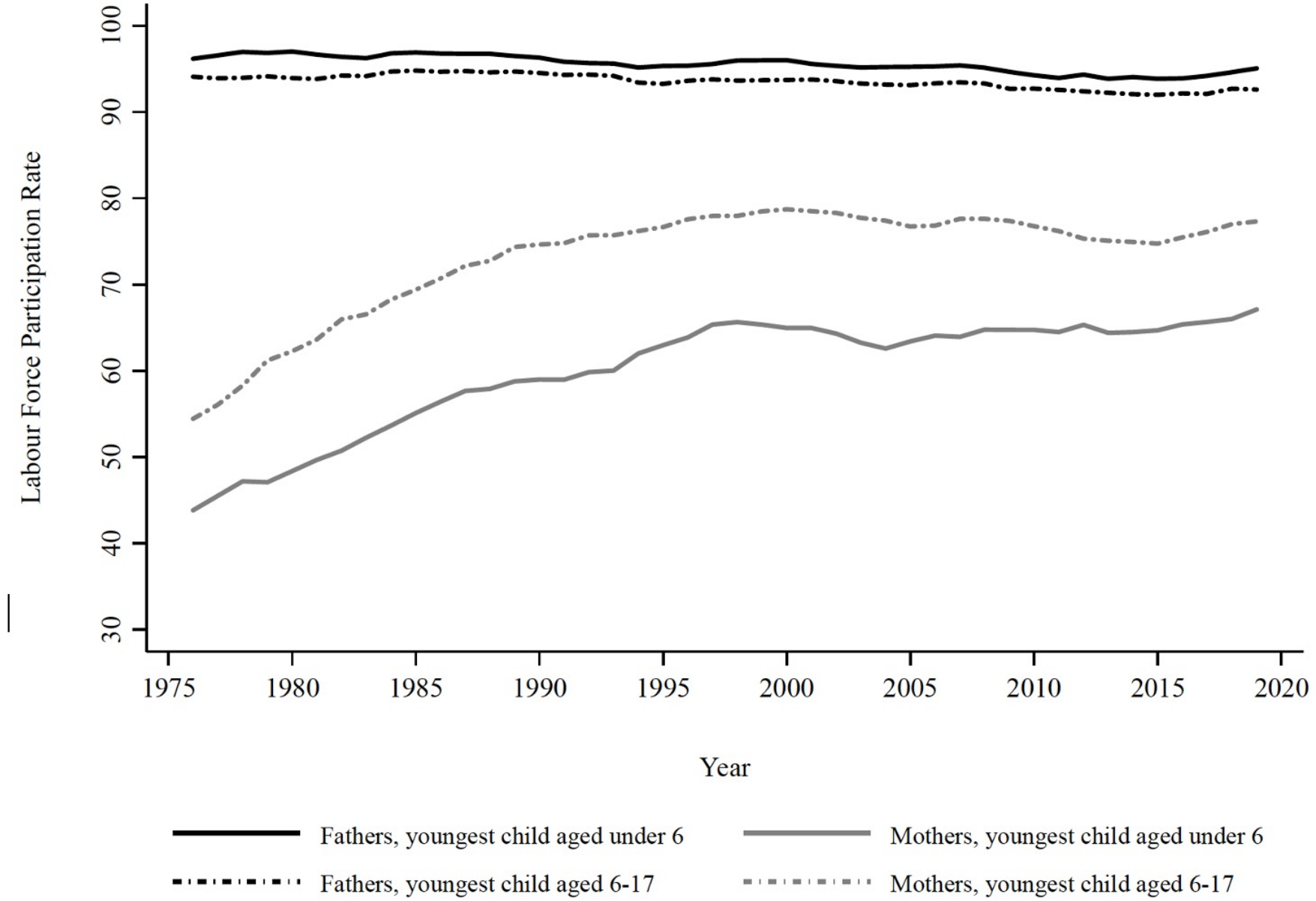
Maternal vs. Paternal Labour Force Participation (US)



Determinants of Maternal Labour Supply

What explains the persistently large gender participation gap between mothers and fathers with young children?

1) Affordability and availability of childcare
    - Positive effect of improved access to low-cost early childcare programs (Baker et al., 2008; Berlinski & Galiani, 2007; Haeck et al., 2015; Herbst, 2017; Lefebvre et al., 2009; Lefebvre & Merrigan, 2008; Powell, 2002) and kindergarten (Gelbach, 2002; Cascio, 2009)
2) Social norms surrounding role of women/mothers in society
    - Conservative gender attitudes reduce employment of women (Fortin, 2005; Bertrand et al., 2015; Cavapozzi et al., 2021)

- Studied in isolation but are likely highly interdependent → *interaction* of these factors shape maternal labour supply decisions
- No literature investigating how the interaction of social norms with government policy impacts maternal labour supply

This Paper

- How is maternal labour supply impacted by the interaction of social norms and childcare affordability/availability?
- Exploit increases in minimum school-entry age laws across states/time in the US to examine impact of ***reduction*** in free childcare on maternal labour supply (2000-2019)
- Examine heterogeneity of labour supply responses to childcare reduction across:
  1) Attitudes regarding gender progressiveness (social norms)
  2) Household income (affordability)

School Entry Ages in the US

- Long-standing international debate about optimal school starting age
- Since 1950s, most states have introduced legislation specifying minimum birthdate at which a child is eligible for enrollment in public primary school
  - Month and day define enrollment eligibility (i.e., birthdate cut-offs)
  - Children must be five years old by cut-off date to be eligible for kindergarten
- In the US, school entry ages have been increasing over time (opposite in the ROW)

Data: Minimum School-Entry Ages

- School entry law records (2000-2019)
- Using birthdate cut-offs, compute the youngest age in months that a child is eligible for public school enrollment → variation across states and time
- Example: Rhode Island
  - In 2003: birthdate cut-off was December 31st → child must be 56 months old in September to be eligible for kindergarten
  - In 2004: birthdate cut-off was September 1st → child must be 60 months old in September to be eligible for kindergarten

Data: Current Population Survey (2000-2019)

- Labour supply:
  - Participation = 1 if employed or unemployed
  - Employment = 1 if employed
  - Actual hours worked (conditional on employment)
- Sociodemographic characteristics:
  - Age of each household member (including children)
  - Marital status, educational attainment, number of children, location of residence, immigrant status, household income
- Main sample:
  - Women aged 30-55 who have a 5-year-old child (married and single mothers examined separately)
  - Remove individuals residing in states that designate birthdate cut-offs to LEA (CO, MA, NH, NJ, PA, VT, VA)
  - Limit analysis to October, November and December

Empirical Strategy: Two-Way Fixed Effects

(1) $Y_{ismt} = \alpha + \beta MinimumAge_{st} + \eta X_{ismt} + \mu Z_{st} + \delta_m + \gamma_t + \sigma_s + \varphi_s t + \epsilon_{ismt}$

where *i* indexes individuals, *s* states, *m* months, and *t* years.

Y_{ismt} = employment, participation or hours worked

$MinimumAge_{st}$ = minimum school starting age in months

X_{it} = quadratic maternal age, educational attainment, number of children under 18 years old, age of youngest child, rural residency, immigrant status, family size, race (Black, Asian, Hispanic)

Z_{st} = proportion of 3- and 4-year-olds enrolled in preschool

δ_m = month fixed effects

γ_t = year fixed effects

σ_s = state fixed effects

$\varphi_s t$ = state time trend

The effect of school age laws on the labour supply of mothers, aged 30-55, by marital status

	Married Mothers			Single Mothers		
	Participation	Employment	Actual Hours	Participation	Employment	Actual Hours
Panel A: Five-Year-Old Present						
Minimum age of school entry (in months)	-0.013	-0.012	-0.088	-0.015	-0.016	-1.030**
	(0.009)	(0.009)	(0.192)	(0.014)	(0.019)	(0.496)
Number of observations	45,928	45,928	28,147	10,876	10,876	7,460
Mean of dep. variable	0.643	0.621	34.168	0.771	0.698	36.090
Panel B: Youngest Five						
Minimum age of school entry (in months)	0.004	0.002	0.112	-0.004	-0.015	-0.721
	(0.009)	(0.009)	(0.264)	(0.016)	(0.018)	(0.533)
Number of observations	26,161	26,161	17,319	8,052	8,052	5,847
Mean of dep. variable	0.690	0.665	34.664	0.810	0.739	36.330
Panel C: Five-Year-Old + Younger Children						
Minimum age of school entry (in months)	-0.036**	-0.032**	-0.405	-0.032	-0.011	-2.404**
	(0.015)	(0.014)	(0.258)	(0.024)	(0.027)	(1.012)
Number of observations	19,771	19,771	10,831	2,884	2,884	1,662
Mean of dep. variable	0.581	0.561	33.362	0.667	0.590	35.286

Placebo Test

	Married Mothers			Single Mothers		
	Participation	Employment	Actual Hours	Participation	Employment	Actual Hours
Panel A: Youngest child 7 years old						
Minimum age of school entry (in months)	-0.016***	-0.010	-0.100	-0.008	-0.007	0.627
	(0.006)	(0.009)	(0.242)	(0.018)	(0.021)	(0.395)
Number of observations	25,957	25,957	18,041	8,973	8,973	6,599
Mean of dep. variable	0.725	0.697	34.704	0.805	0.744	36.999
Panel B: Youngest child 8 years old						
Minimum age of school entry (in months)	-0.018	-0.021	-0.053	0.015	0.017	0.238
	(0.014)	(0.013)	(0.232)	(0.011)	(0.015)	(0.341)
Number of observations	25,950	25,950	18,270	9,626	9,626	7,169
Mean of dep. variable	0.732	0.702	34.929	0.815	0.756	37.034
Panel C: Youngest child 9 years old						
Minimum age of school entry (in months)	-0.004	-0.005	-0.089	0.026	0.028	-0.727
	(0.004)	(0.004)	(0.235)	(0.016)	(0.019)	(0.545)
Number of observations	25,780	25,780	18,452	9,873	9,873	7,347
Mean of dep. variable	0.740	0.714	35.241	0.820	0.752	37.246
Panel D: Youngest child 10 years old						
Minimum age of school entry (in months)	-0.003	-0.001	-0.302	-0.004	-0.009	-0.755*
	(0.008)	(0.007)	(0.501)	(0.010)	(0.016)	(0.404)
Number of observations	25,536	25,536	18,313	10,078	10,078	7,568
Mean of dep. variable	0.746	0.718	35.419	0.823	0.763	36.978

Social Norms

- Prevailing norms about the role of women in society and/or beliefs about the maternal responsibilities of women
- Use state classification of gender progressivity generated by Bertrand et al. (2016) → similar to Kleven (2023)
  - *"It is much better for everyone involved if the man is the achiever outside the home and the woman takes care of the home and family"* (GSS, 1973-2014)

Hypothesis: negative effects largest among mothers residing in states with low gender progressiveness

- Greater expectation that mothers will provide homecare for school-ineligible children

The effect of school age laws on the labour supply of mothers, aged 30-55, by gender progressivity

	Married Mothers			Single Mothers		
	Participation	Employment	Actual Hours	Participation	Employment	Actual Hours
Panel A: Low						
Minimum age of school entry (in months)	-0.000	-0.001	0.317	0.104*	0.155**	-8.834**
	(0.043)	(0.059)	(1.141)	(0.058)	(0.069)	(3.368)
Number of observations	5,895	5,895	3,037	983	983	552
Mean of dep. variable	0.553	0.533	33.935	0.674	0.577	35.048

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Mean of dep. variable	0.553	0.533	33.935	0.674	0.577	35.048
Panel B: Medium						
Minimum age of school entry (in months)	-0.053***	-0.054***	-0.031	-0.092*	-0.007	-2.298**
	(0.014)	(0.015)	(0.385)	(0.045)	(0.029)	(0.872)
Number of observations	6,598	6,598	3,566	948	948	537
Mean of dep. variable	0.580	0.561	33.570	0.652	0.583	35.481

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Mean of dep. variable	0.580	0.561	33.570	0.652	0.583	35.481
Panel C: High						
Minimum age of school entry (in months)	-0.066***	-0.052**	-0.119	-0.015	-0.026	-2.292**
	(0.019)	(0.019)	(0.661)	(0.047)	(0.037)	(0.791)
Number of observations	4,285	4,285	2,620	546	546	323
Mean of dep. variable	0.642	0.623	31.983	0.680	0.604	35.299

Social Norms

- Results not consistent with hypothesis and other literature showing that women are less likely to work in cultures with more traditional gender norms
- Explanation:
  - Mothers in gender traditional states less likely to be working → do not change labour supply when school starting ages increase
  - Mothers in gender progressive states more likely to be working → sensitive to changes in supply for childcare

Affordability

- Access to **affordable** childcare
- Hypothesis: negative effects largest among mothers whose household income is in lowest tercile
  - Disposable income for formal childcare low relative to higher income households
- Estimation: marginal effects from interaction of minimum school age (in months) with household income tercile using the estimation equation

Marginal effects of school age laws on the labour supply of mothers, aged 30-55, by income tercile

	Married Mothers			Single Mothers		
	Participation	Employment	Actual Hours	Participation	Employment	Actual Hours
Panel A: Low						
Income tercile 1 (poorest)	-0.028	-0.056	1.105	0.107	0.158*	-10.680***
	(0.104)	(0.129)	(2.310)	(0.068)	(0.083)	(3.374)
Income tercile 2	-0.009	-0.012	1.166	0.106*	0.133*	-5.862
	(0.052)	(0.059)	(1.851)	(0.054)	(0.068)	(6.277)
Income tercile 3 (richest)	0.030	0.042	0.446	0.185	0.359*	-4.342
	(0.071)	(0.081)	(1.528)	(0.126)	(0.189)	(3.680)

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Panel B: Medium						
Income tercile 1 (poorest)	-0.057***	-0.046**	-0.659	-0.050	0.042	-0.942
	(0.014)	(0.015)	(0.897)	(0.046)	(0.030)	(1.679)
Income tercile 2	-0.085***	-0.085***	-0.046	-0.084	-0.001	-4.479***
	(0.015)	(0.016)	(0.630)	(0.057)	(0.034)	(1.165)
Income tercile 3 (richest)	-0.064***	-0.067***	-0.500	-0.016	0.081*	-2.651*
	(0.018)	(0.019)	(0.470)	(0.066)	(0.040)	(1.324)

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	(0.018)	(0.019)	(0.470)	(0.066)	(0.040)	(1.324)
Panel C: High						
Income tercile 1 (poorest)	-0.074**	-0.057*	-1.840*	-0.061	-0.060	-3.398**
	(0.023)	(0.030)	(0.965)	(0.055)	(0.039)	(1.364)
Income tercile 2	-0.070**	-0.045	-0.373	-0.110**	-0.114***	0.797
	(0.027)	(0.025)	(1.105)	(0.033)	(0.018)	(1.540)
Income tercile 3 (richest)	-0.071***	-0.059**	-0.001	-0.088	-0.104**	-0.549
	(0.020)	(0.019)	(0.681)	(0.048)	(0.035)	(1.476)

Concluding Remarks

- Provide first estimates of the effects of school-entry age laws on the labour supply of mothers
  - Trend towards older school-entry ages across US states has reduced maternal labour supply at the extensive margin for married mothers and at the intensive margin for single mothers
- Considers how gender norms and childcare availability interact to shape maternal labour supply decisions
  - Evidence that social norms are important for determining women's response to the affordability of childcare