Female Executives and the Motherhood Penalty: Online Appendix
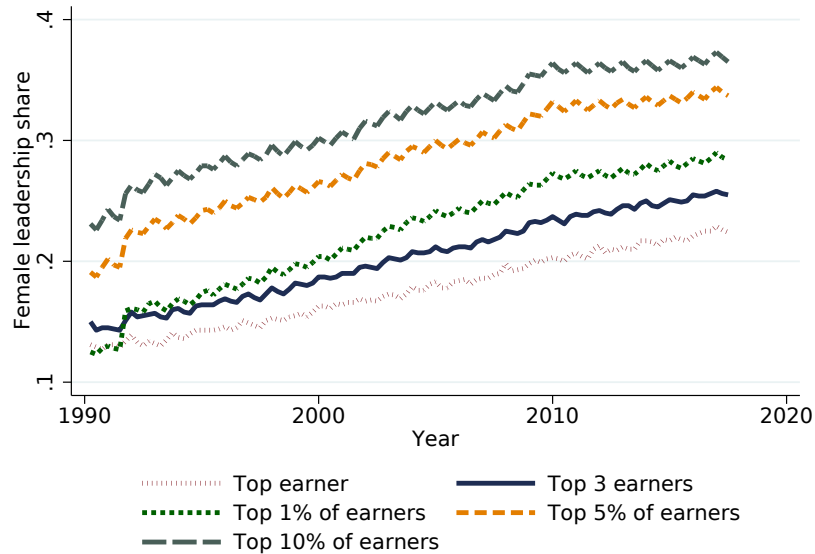
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Appendix A   Additional Results

Figure A.1: Share of Executives that are Female Over Time

Notes: This figure shows the evolution in the share of executives that are female from 1990 through 2017. Although all series identify executives as the top earner(s) at a firm in the LEHD, each series uses a different threshold in determining which individuals qualify as a top earner. The underlying sample of firms from which executives are drawn changes slightly for each series since the minimum firm size grows slightly as the top earner threshold becomes more inclusive (i.e. classifying more worker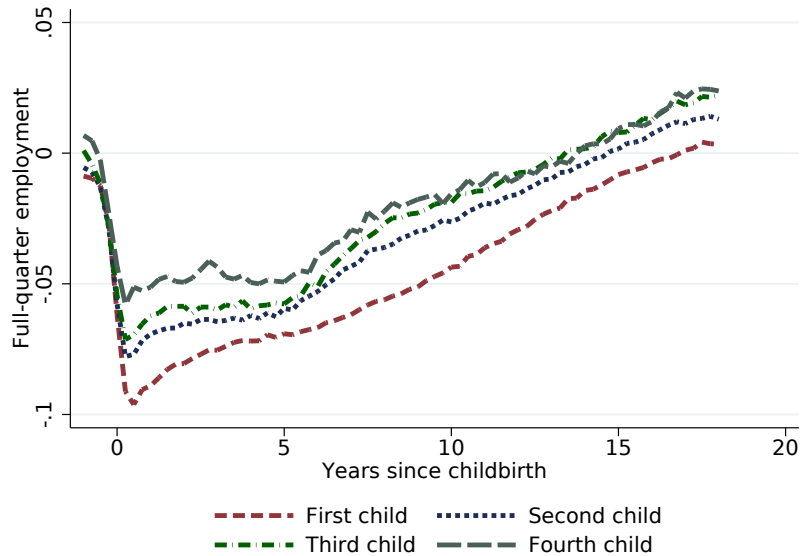s at a given firm as executives). Source: Authors' calculations based on data from the Longitudinal Employer-Household Dynamics.

Figure A.2: Motherhood Penalty

(a) Log Earnings
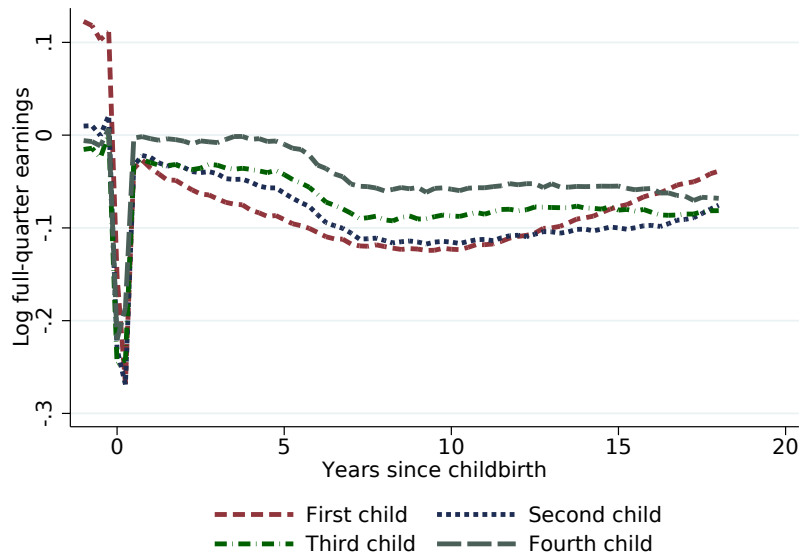
(b) Employment

Notes: These figures plot estimates of the quarterly evolution of the log full-quarter earnings penalty, Panel (a), and full-quarter employment rate penalty, Panel (b), associated with childbirth from one year before the childbirth to 18 years after the childbirth. These penalties are allowed to differ for the first, second, third, and fourth childbirth. The regression specification includes fixed effects controlling for the woman's age (in quarters), race, education, and total number of childbirths between the ages of 18-40, as well as time fixed effects.

Source: Authors' calculations based on matched data from the Longitudinal Employer-Household Dynamics, the 2000 and 2010 Decennial Censuses, and the American Community Survey.

Table A.1: Frequency top 3 earner given occupation by firm size

Firm Size	Executive / Manager		Professional		Supervisor	
	Female (1)	Male (2)	Female (3)	Male (4)	Female (5)	Male (6)
0-19 employees	13.01	23.78	9.52	25.98	11.64	21.20
20-49 employees	9.40	19.10	5.22	15.94	6.60	12.65
50-249 employees	4.19	11.00	1.85	6.71	1.88	4.61
250-499 employees	1.87	6.11	0.81	3.11	0.78	1.97
500+ employees	0.71	2.38	0.27	1.15	0.33	0.85

Notes: Each column reports the frequency with which ACS respondents who are one of the top three earners at their firm report having an occupation of Executive or Manager (columns (1) and (2)), Professional (columns (3) and (4)), or Supervisor (columns (5) and (6)). Whether the ACS respondent is a top earner at their firm is determined using the full-quarter earnings of the respondent and all their co-workers at the time of the survey. The table distinguishes between female top earners (columns (1), (3), and (5)) and male top earners (columns (2), (4), and (6)). The sample of firms differs for each row based on the firm size (number of full-quarter employees at the respondent's firm at the time of the ACS survey).

Source: Author's calculations based on matched data from the Longitudinal Employer-Household Dynamics and the American Community Survey.

Table A.2: Motherhood Penalty by Sex of Executives

	Quarters after birth															5-8 quarters after birth
	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	
A. Main estimates																
0/3 top earners female	-85	-53	-23	-82	-257	-459	-2270	-3050	-1580	-1420	-1430	-1530	-1570	-1620	-1710	-1610
	(9)	(9)	(10)	(11)	(13)	(15)	(18)	(20)	(20)	(20)	(21)	(22)	(23)	(24)	(24)	(21)
1/3 top earners female	-127	-102	-60	-104	-275	-487	-2180	-3110	-1710	-1490	-1450	-1510	-1550	-1640	-1700	-1600
	(13)	(14)	(14)	(16)	(19)	(20)	(24)	(27)	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(29)
2/3 top earners female	-108	-67	-24	-100	-230	-470	-2210	-3040	-1680	-1460	-1450	-1540	-1530	-1580	-1640	-1580
	(21)	(21)	(22)	(25)	(29)	(32)	(37)	(41)	(41)	(42)	(43)	(45)	(47)	(48)	(49)	(43)
3/3 top earners female	-199	-156	-78	-174	-373	-600	-2430	-2990	-1660	-1530	-1470	-1610	-1630	-1600	-1670	-1630
	(33)	(34)	(36)	(39)	(46)	(51)	(59)	(65)	(64)	(66)	(68)	(69)	(72)	(73)	(75)	(66)
B. Difference																
1/3 top earners female	-42	-49	-38	-22	-18	-28	84	-60	-127	-62	-20	20	23	-17	5	8
	(16)	(16)	(17)	(19)	(23)	(25)	(30)	(33)	(33)	(34)	(35)	(36)	(37)	(39)	(40)	(34)
2/3 top earners female	-23	-14	-1	-18	27	-12	58	14	-99	-34	-17	-17	36	35	66	30
	(22)	(23)	(24)	(27)	(32)	(35)	(41)	(45)	(45)	(46)	(47)	(49)	(51)	(52)	(54)	(47)
3/3 top earners female	-114	-103	-56	-91	-117	-142	-162	61	-74	-108	-36	-83	-63	18	37	-23
	(34)	(35)	(37)	(41)	(47)	(53)	(62)	(67)	(67)	(68)	(70)	(72)	(75)	(76)	(78)	(68)

Notes: This table presents estimates from equation 4. The outcome variable is quaterly earnings. Panel A present estimates of $\beta^{l,k}$ for a different value of k that are defined by the column. The final column presents the average effect 5-8 quarters after birth. Panel B presents the difference between firms where 1-3 of top three earners at the firm that are female and firms where no top earners are female. The sample includes approximately 6 million person quarter observations. Standard errors are clustered at the level of the coworker pair

Source: Authors' calculations based on matched data from the Longtitudinal Employer-Household Dynamics, the 2000 and 2010 Decennial Censuses, and the American Community Survey.

Table A.3: Motherhood Penalty by Sex of Executives

	Quarters after birth															5-8 quarters after birth
	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	
A. Main estimates																
0/3 top earners female	.008	.008	.008	.007	.004	-.004	-.027	-.037	-.026	-.032	-.034	-.036	-.038	-.042	-.049	-.041
	(0)	(0)	(0)	(0)	(.001)	(.001)	(.001)	(.001)	(.001)	(.001)	(.001)	(.001)	(.001)	(.001)	(.001)	(.001)
1/3 top earners female	.008	.008	.008	.007	.004	-.007	-.033	-.045	-.032	-.034	-.033	-.034	-.036	-.039	-.048	-.039
	(.001)	(.001)	(.001)	(.001)	(.001)	(.001)	(.001)	(.002)	(.001)	(.002)	(.002)	(.002)	(.002)	(.002)	(.002)	(.002)
2/3 top earners female	.01	.01	.01	.009	.007	-.006	-.033	-.055	-.034	-.035	-.03	-.034	-.033	-.036	-.044	-.037
	(.001)	(.001)	(.001)	(.001)	(.002)	(.002)	(.002)	(.003)	(.002)	(.003)	(.003)	(.003)	(.003)	(.003)	(.003)	(.002)
3/3 top earners female	.013	.013	.013	.012	.006	-.009	-.045	-.064	-.036	-.033	-.031	-.035	-.035	-.031	-.039	-.035
	(.002)	(.002)	(.002)	(.002)	(.003)	(.004)	(.005)	(.005)	(.005)	(.005)	(.005)	(.005)	(.005)	(.005)	(.005)	(.004)
B. Difference																
1/3 top earners female	0	0	0	0	0	-.002	-.006	-.008	-.006	-.002	0	.002	.003	.003	0	.002
	(.001)	(.001)	(.001)	(.001)	(.001)	(.001)	(.002)	(.002)	(.002)	(.002)	(.002)	(.002)	(.002)	(.002)	(.002)	(.002)
2/3 top earners female	.002	.002	.002	.002	.003	-.002	-.006	-.018	-.009	-.003	.003	.002	.005	.006	.005	.005
	(.001)	(.001)	(.001)	(.001)	(.002)	(.002)	(.003)	(.003)	(.003)	(.003)	(.003)	(.003)	(.003)	(.003)	(.003)	(.003)
3/3 top earners female	.005	.005	.005	.005	.002	-.005	-.018	-.026	-.01	-.002	.002	.001	.003	.012	.009	.006
	(.002)	(.002)	(.002)	(.002)	(.003)	(.004)	(.005)	(.005)	(.005)	(.005)	(.005)	(.005)	(.005)	(.005)	(.005)	(.004)

Notes: This table presents estimates from equation 4. The outcome variable is an indicator equal to one if quarterly earnings are strictly positive. Panel A present estimates of $\beta^{l,k}$ for a different value of k that are defined by the column. The final column presents the average effect 5-8 quarters after birth. Panel B presents the difference between firms where 1-3 of top three earners at the firm that are female and firms where no top earners are female. The sample includes approximately 6 million person quarter observations. Standard errors are clustered at the level of the coworker pair. Source: Authors' calculations based on matched data from the Longitudinal Employer-Household Dynamics, the 2000 and 2010 Decennial Censuses, and the American Community Survey.

Figure A.3: Heterogeneity by Motherhood and Birth Cohort of Top Earner
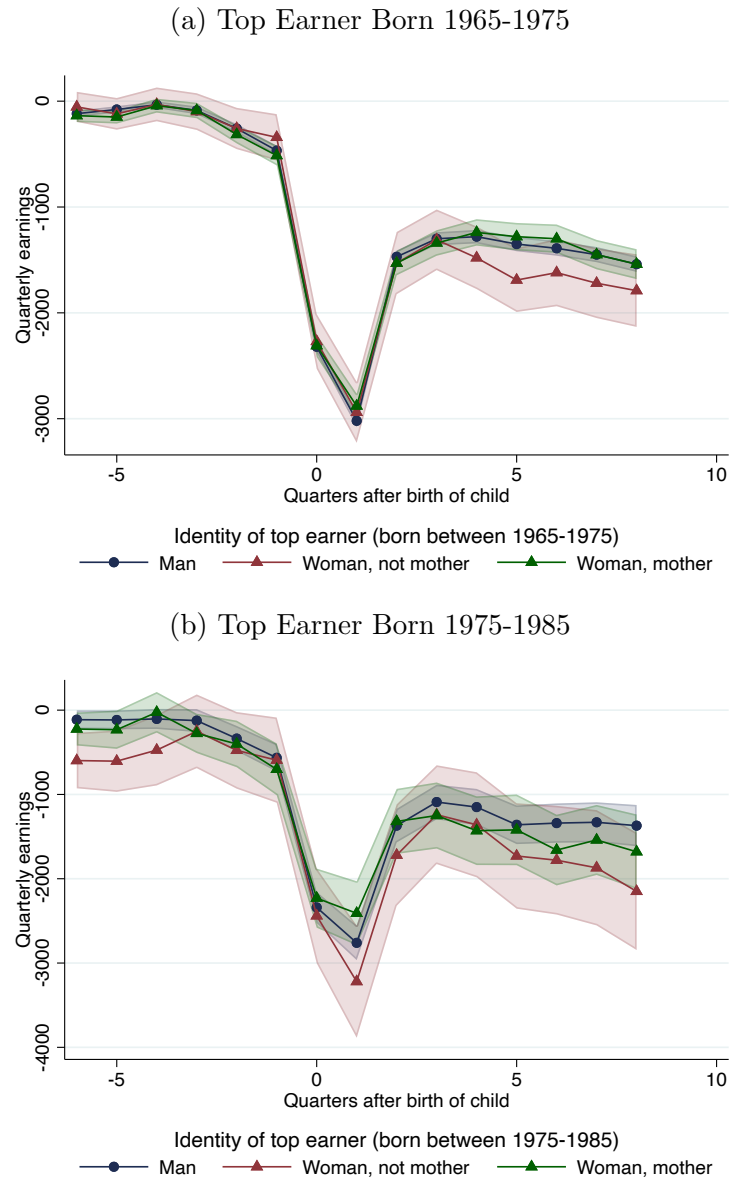
(a) Top Earner Born 1965-1975

(b) Top Earner Born 1975-1985

Notes: This figure presents estimates from a modified version of equation 4, which allows for a different effect of having a child based on characteristics of the top earner, as opposed to the top three earners at the firm. The outcome variable is quarterly earnings. Both panels present estimates for three types of mothers based on whether the top earner at the employer was male, female and not ever a mother or female and at some point a mother. In Panel A and B the top earner at the firm was born between 1965-1975 and 1975-1985, respectively. The sample in Panel A and B includes 1.8 and 0.2 million person quarter observations, respectively. Standard errors are clustered at the level of the coworker pair and 95% confidence intervals are depicted by the dashed lines.

Source: Authors' calculations based on matched data from the Longitudinal Employer-Household Dynamics, the 2000 and 2010 Decennial Censuses, and the American Community Survey.

Figure A.4: Heterogeneity by Sex and Birth Cohort of Top Earner
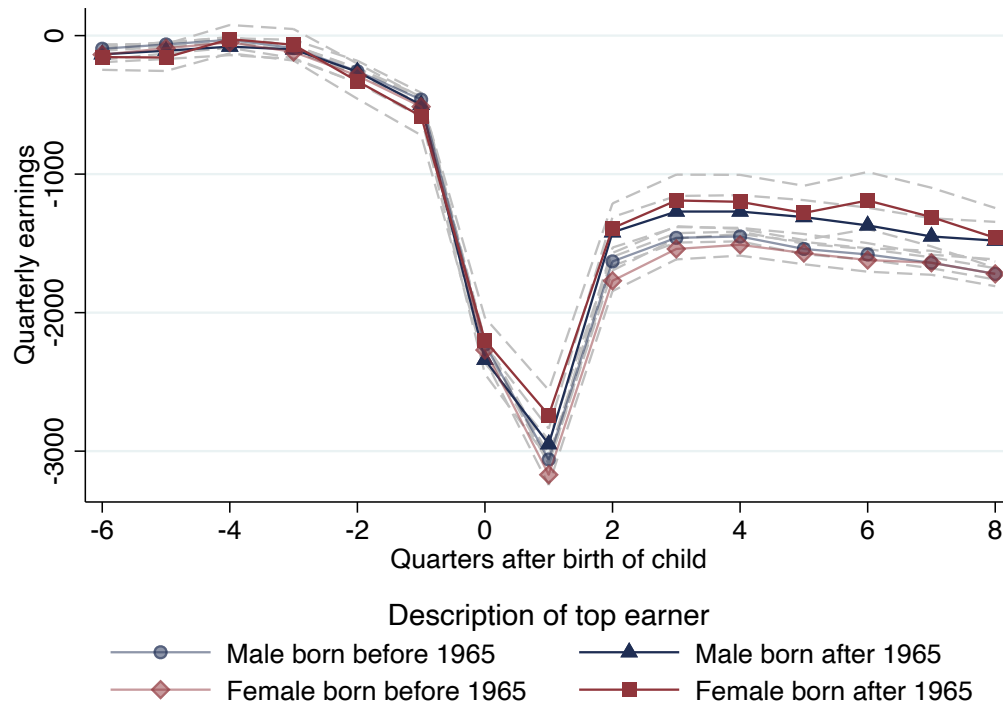
Notes: This figure presents estimates from a modified version of equation 4, which allows for a different effect of having a child based on characteristics of the top earner, as opposed to the top three earners at the firm. The outcome variable is quarterly earnings. The figure present estimates of the motherhood penalty for four groups of women based on whether the top earner at their firm was a male or born before 1965. The sample includes 6 million person quarter observations. Standard errors are clustered at the level of the coworker pair and 95% confidence intervals are depicted by the dashed lines.

Source: Authors' calculations based on matched data from the Longitudinal Employer-Household Dynamics, the 2000 and 2010 Decennial Censuses, and the American Community Survey.

Figure A.5: Executive Transitions, Excluding Births within One Year of Transition
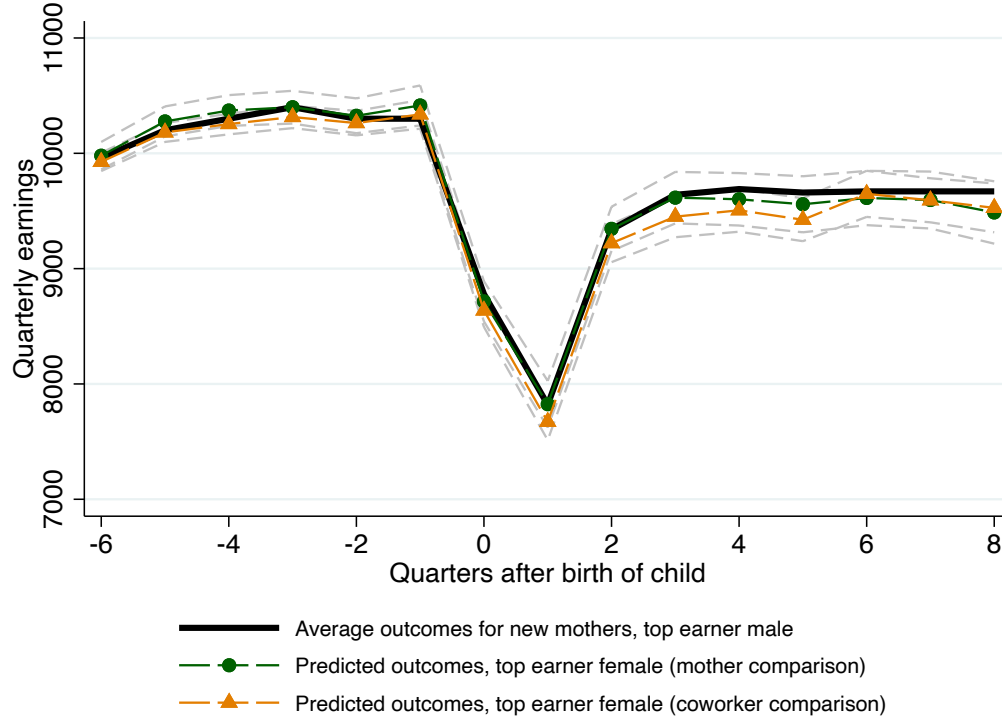
Notes: This figure presents estimates from equation 5. The estimates are displayed as the average earnings of mothers at an employer with a top stable earner who is male plus the point estimates from the regression. The sample includes approximately 1 million person quarter observations and excludes birth that occur within a one year window of the transition event. Standard errors are clustered at the level of the employer and 95% confidence intervals are depicted by the dashed lines.

Source: Authors' calculations based on matched data from the Longitudinal Employer-Household Dynamics, the 2000 and 2010 Decennial Censuses, and the American Community Survey.