

# Job Tasks, Leadership, and the Gender Gap After Parenthood

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Parenthood marks a divergence in the career trajectories of women and men. Mothers experience a steep decline in relative earnings that persists for decades and accounts for a large share of overall gender earnings inequality. Yet little is known about occupational transitions, and the accompanying shift in job tasks, that may occur after the birth of a child.

In this paper, we use large-scale, linked survey and administrative data from the United States to study shifts in job tasks before and after parenthood. We use data from the Occupational Information Network (O\*NET) to construct occupation-level task measures. Because our focus is on measuring career advancement, we construct a novel leadership task, which reflects managing or directing teams, or span of control (Lucas, 1978). We also construct several tasks studied in the literature, including non-routine analytic, routine cognitive, social, and decision-making (Autor, Levy and Murnane, 2003; Deming, 2017, 2021).

Our results reveal that job tasks do change over the lifecycle. We first show that

leadership has an increasing and concave profile, before and after parenthood, and for both women and men. But a clear break opens up after parenthood, with women falling behind men by approximately 0.05 sd in leadership tasks. We argue that this estimate likely understates the true gap because it captures only cross-occupation leadership gaps.

We find that a gender gap of similar magnitude emerges in social tasks after parenthood. In contrast, the gender gaps in decision-making and non-routine analytic tasks remain stable. We argue that these patterns are consistent with glass ceiling effects: leadership is inherently social, but non-routine analytic and decision-making tasks may be required in both leadership and non-leadership positions.

When we study occupational transitions, instead of tasks, a similar story emerges. The largest change in occupational shares for men, after parenthood relative to before, are increases in leadership-intensive managerial occupations. Meanwhile, the largest change in occupational shares for women are toward less leadership-intensive, administrative and human resource positions.

This paper contributes to the job task literature, where our contribution is to provide new evidence on trends in job tasks before and after parenthood. While the literature has documented shifts in the nature of work over the 20th and 21st centuries (Autor, Levy and Murnane, 2003; Atalay et al., 2020; Deming, 2021), little is known about how job tasks evolve over the life cycle and, in particular, gender differences around parenthood. Research has found that women are less likely to be promoted or advance to managerial roles in firms (Blau and Kahn, 2017; Haegele, 2024), are more commonly assigned to non-promotable tasks (Babcock et al., 2017), and receive lower ratings in their poten-

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tial for advancement (Benson, Li and Shue, 2024). Our contribution is to use U.S.-wide restricted survey and administrative data linked to occupational task data to provide evidence that differential advancement to leadership tasks is an important component of the divergence in women’s and men’s careers after parenthood.

## I. Data

Our analysis relies on linkages between several sources of survey and administrative data. We describe the sample briefly here, with full details available in Jack, Tannenbaum and Timpe (2025). We construct a sample of parents whose first child was born between 2008-2014, when the parents were age 23-45, using the Census Household Composition Key (CHCK) files and the 2000 Census. Because we are interested in a sample of parents who had established careers prior to childbirth, we use the Longitudinal Employer-Household Dynamics (LEHD) file to restrict the sample to parents who were employed in each of the four years prior to the child’s year of birth. Finally, we link our sample at the person-year level to the 2003-2019 ACS, which provides details on occupation. The final sample consists of working parents observed between 5 years prior and 9 years after childbirth.

We measure job tasks by linking individuals by occupation to data from O\*NET. This survey provides nationally representative information about the tasks workers perform on the job, by occupation.

We construct five indices of job tasks. The first is the novel leadership task, which captures team management, authority and direction, and reflects workers’ position on the job ladder within an organization.<sup>1</sup> We provide evidence below that leadership tasks are distinct from other tasks commonly studied in the literature. The other four tasks follow Deming (2021) and include

(i) routine cognitive; (ii) non-routine analytic; (iii) social; and (iv) decision-making. We standardize each task, weighting each occupation by its share among all prime-age workers, so that the indices are expressed in terms of standard deviation units in the labor market.

## II. Research Design

We examine lifecycle changes in job tasks using the following regression:

$$(1) \quad y_{it} = \sum_{r \neq -1} \delta_r Mom_i \cdot D_r + \sum_{r \neq -1} \beta_r D_r + X_{it} \gamma + \epsilon_{it}$$

where  $y_{it}$  represents worker  $i$ ’s task intensity in sample year  $t$ ,  $r$  indexes year relative to first birth,  $D_r$  are indicators for relative year, and  $Mom_i$  is an indicator for being a mother. We control for a quartic in age at first birth and indicators for ACS calendar year. This adjusts our estimates for gender differences in age at first birth, but also allows  $\beta_r$  and  $\delta_r$  to capture lifecycle patterns. For increased precision, we create two-year bins and estimate equation 1 where  $r$  represents a two-year bin.

Note that all observations are conditional on working, since our focus is on career progressions of working parents, and individuals need to have a current occupation to measure their job tasks. We provide evidence that selection out of the workforce is not driving our main results. Note also that all variation in task intensity is across occupations. Because individuals’ job tasks may change even when their occupation does not change, our analysis likely understates the extent that job tasks shift after parenthood, along with the gender gap.

## III. Results

Figure 1(a) shows the evolution of our leadership task intensity. To highlight the lifecycle profile for mothers and fathers, we plot estimates of  $\beta_r$  for fathers, and  $\beta_r + \delta_r$  for mothers, from equation 1. A notable feature of leadership tasks is the increasing and concave profile as workers age. This profile parallels the increasing and concave

<sup>1</sup>We construct this measure by aggregating six occupation-level O\*NET task measures: knowledge of administration and management, achievement and effort, leadership, initiative, coordination and leadership, and responsibility for outcomes and results.

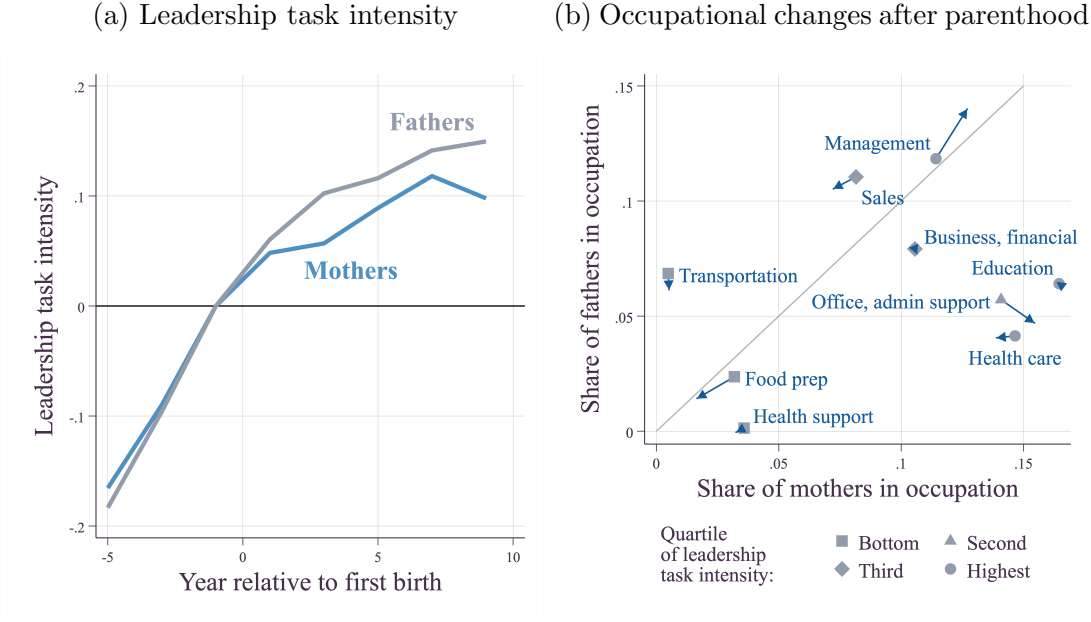


Figure 1. : Evolution of job tasks and occupations over the lifecycle

*Note:* Figure 1(a) plots changes since the year prior to childbirth in the average intensity of leadership tasks in the occupations of working parents, by year relative to the birth of a first child, in standard deviation units. Figure 1(b) plots regression-adjusted share of mothers and fathers working in each 2-digit occupation before childbirth (markers), the post-childbirth change in the share in each occupation (direction and length of arrows), and the quartile of leadership task intensity of the occupation (shape of marker). Results were approved for release by the U.S. Census Bureau. (CBDRB-FY25-P2593-R12027)

wage profile over the lifecycle that has been studied through the lens of human capital investments (Ben-Porath, 1967).

The results show that despite nearly identical profiles of men and women prior to parenthood, leadership intensity flattens for women relative to men by 0.04 to 0.05 standard deviations after the birth of a child.<sup>2</sup> This flattening mirrors the flattening of within-firm earnings growth found in Jack, Tannenbaum and Timpe (2025).<sup>3</sup>

<sup>2</sup>The mean leadership task intensity in the omitted period is 0.34 for women and 0.27 for men, so that women sort into more leadership-intensive occupations pre-parenthood.

<sup>3</sup>These results are not driven by selection out of the labor force. To show this, we use our LEHD employment measure to capture the share of their child's first five years life in which parents are working. We regress this on our measure of leadership task intensity prior to childbirth. Our estimate is a small but positive coefficient of 0.013 (s.e. 0.0015), suggesting that mothers who work in leadership-intensive occupations are more, not less, likely to work when their first child is in their pre-kindergarten years, and that selection is leading us

We next ask which occupations exhibit the largest changes in employment shares for mothers and fathers around parenthood. We regress an indicator for working in a 2-digit occupation on post-childbirth indicators for working mothers and fathers and the covariates in equation 1. In Figure 1(b), the markers show the means prior to childbirth, with values for women on the horizontal axis and values for men on the vertical axis. The length and direction of the arrows show our estimate of the change in the share of mothers and fathers in each occupation after childbirth. The shape and color of the markers correspond to quartiles of leadership task intensity.

Figure 1(b) reveals systematic gender differences in sorting across occupations after the birth of a child, with men shifting toward—and women generally away from—leadership-intensive occupations. Women

to understate the gender gap in leadership.

Table 1—: Leadership task intensity is predictive of wage income

	(1)	(2)	(3)	(4)
	Outcome: Log of wage and salary income			
Leadership	0.183 (0.00128)	0.132 (0.00127)	0.107 (0.00185)	0.082 (0.00226)
Social				-0.083 (0.00245)
Non-routine analytic				0.063 (0.00164)
Routine				0.054 (0.00120)
Decision-making				0.144 (0.00247)
Baseline	X	X	X	X
Education		X	X	X
2-digit occupation			X	
R-squared	0.301	0.358	0.426	0.384
Observations	474,000	474,000	474,000	474,000

*Note:* Table reports estimates from a regression of log wage income on occupation leadership task intensity prior to the birth of children. Sample includes women and men in the 2003-2019 ACS linked to fertility history in the CHCK and earnings history from the LEHD. Baseline covariates include age fixed effects, calendar year fixed effects, and age at birth fixed effects. Results were approved for release by the U.S. Census Bureau. (CBDRB-FY25-P2593-R12027)

and men are almost equally likely to work in high-leadership management occupations prior to childbirth. After parenthood, however, the share of men in management increases by 2.2 percentage points, an effect nearly twice as large as that among mothers. On the other hand, office and administrative support positions—which offer relatively little leadership opportunity—are much more common among women at baseline and become even more gender-segregated after parenthood.

We next contrast the evolution of leadership to changes in other job tasks over the lifecycle. Figure A2 plots the evolution of gender differences in routine tasks, nonroutine analytic tasks, social tasks, and decision-making, using estimates of  $\delta_r$  from equation 1. Perhaps surprisingly, we find that despite a positive trend prior to childbirth, the evolution of mothers’ decision-making task intensity parallels that of fathers. On the other hand, social tasks closely mirror the pattern we see in leadership, with a parallel trend prior to childbirth and a drop of about 0.05 standard

deviations afterward. We interpret this result as consistent with leadership being inherently social, while decision-making and non-routine analytic tasks are not.

Finally, we explore the extent to which leadership task intensity captures characteristics that are valued in the labor market. We regress log earnings on tasks along with an increasingly detailed set of controls. We stress that this regression does not recover the returns to leadership tasks, because workers likely sort into occupations based on unobservable skills. Instead, we interpret this regression descriptively, as a validation exercise that demonstrates that leadership tasks are highly predictive of individual earnings even after controlling for other task measures, detailed education categories, and even broad occupation codes.

Table 1 shows that leadership tasks are highly predictive of earnings: Workers in occupations with 1 standard deviation higher leadership task intensity earn 18.3 percent more. Columns 2-4 show that this figure does not simply capture differences in

education or broad occupational categories: while the estimate falls when we control for education, two-digit occupation, and other task categories, it remains statistically and economically significant.

#### IV. Discussion

Our analysis suggests that a potential mechanism behind the gender earnings gap that widens after parenthood is differential advancement to leadership positions. Our O\*NET-based measure of leadership tasks significantly predicts earnings, above and beyond education categories, suggesting that leadership is indeed rewarded in the labor market. The lifecycle profile of leadership tasks is increasing and concave, similar to the pattern of lifecycle earnings. This finding shows that advancement into leadership tasks are a potential source of earnings growth over the lifecycle—one that women face barriers to after parenthood.

The gender gap in leadership tasks may arise from multiple sources. Firms may not promote women as quickly after they have children, based on a real or perceived reduction of hours (Thomas, 2020; Benson, Li and Shue, 2024). Alternatively, women may not seek out or negotiate their professional advancement (Haegle, 2024), or may prefer roles within the firm that allow for greater flexibility.

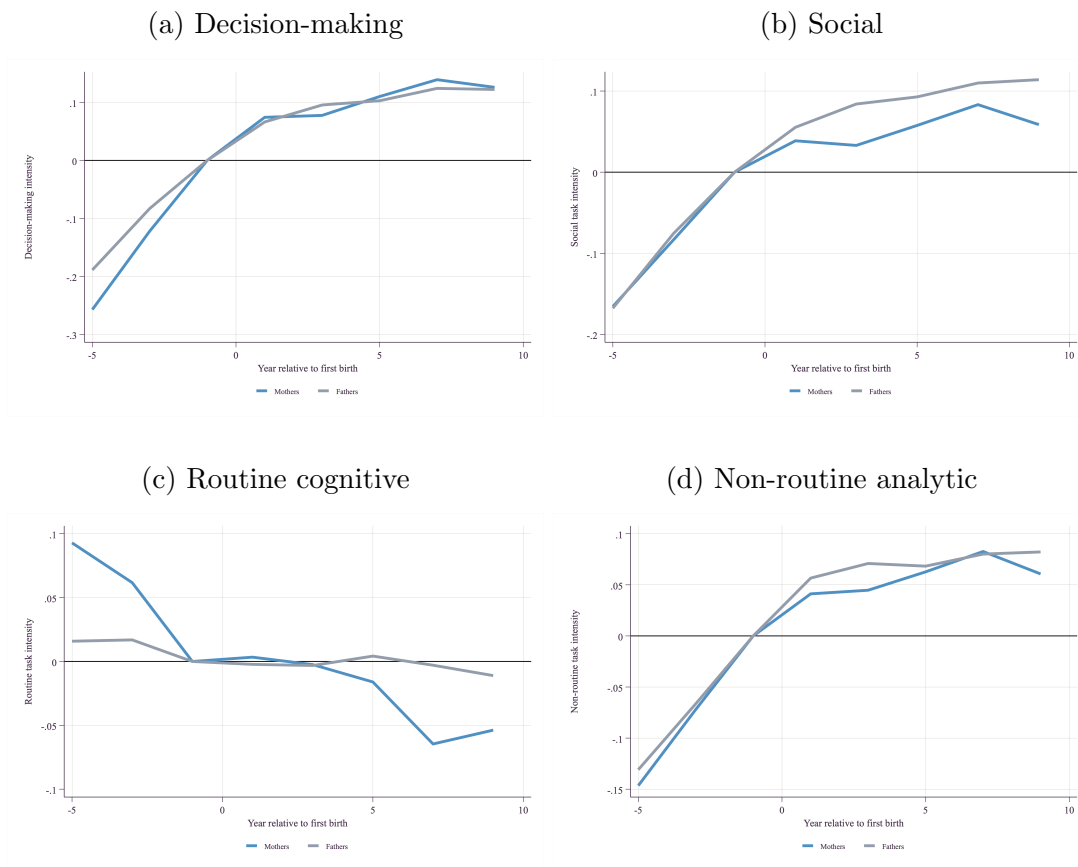
Overall, our findings highlight leadership tasks as a source of earnings growth over the lifecycle and suggest differential promotion to leadership positions as a mechanism behind the gender earnings gap.

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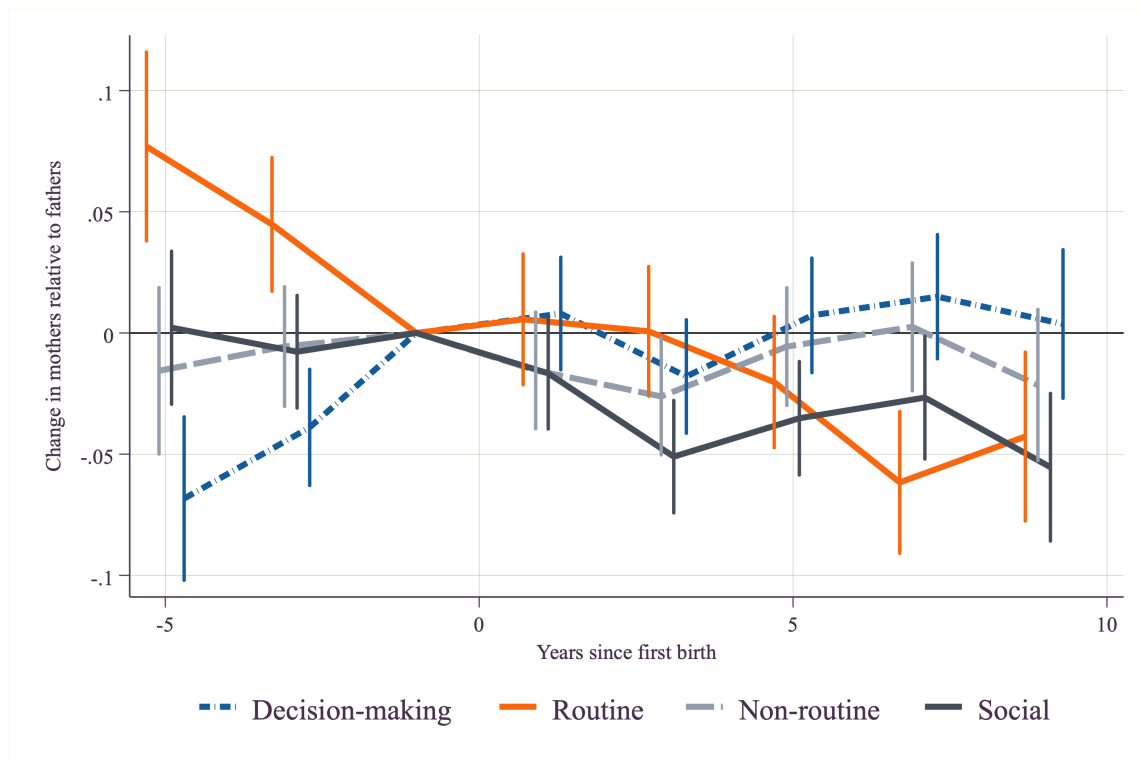
SUPPLEMENTAL APPENDIX: JOB TASKS, LEADERSHIP, AND THE GENDER GAP AFTER PARENTHOOD (DANIEL TANNENBAUM AND BRENDEN TIMPE)

Figure A1. : Job tasks before and after parenthood



*Note:* Each figure plots changes since the year prior to childbirth in the average intensity of the specified measure of tasks in the occupations of working parents, by year relative to the birth of a first child, in standard deviation units. Results were approved for release by the U.S. Census Bureau. (CBDRB-FY25-P2593-R12027)

Figure A2. : Lifecycle changes in job tasks, mothers relative to fathers



*Note:* The figure plots estimates and 95% confidence intervals from an event-study comparing changes in each task intensity measure for mothers relative to fathers, separately by year relative to the birth of a first child, i.e.,  $\hat{\delta}_t$  from equation 1. Measures of task intensity are constructed using O\*NET task measures, weighted by ACS occupation shares. See text for details. Results were approved for release by the U.S. Census Bureau. (CBDRB-FY25-P2593-R12027)