The Disparate Impact of Up-or-Out Promotion Policy on Fertility Timing *

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Abstract

There is growing evidence that child birth can have especially adverse effects on the career advancement of women. Our study examines how this affects the fertility decisions of men and women on the partner track. We use the *After the JD* study, a rich panel data set on a nationally representative sample of lawyers, and find that women are more likely to delay their first child until after the promotion decision is resolved in comparison with men. This difference in fertility timing is not easily explained by gender-based sorting; however, descriptive evidence suggests that reduced employer investment in mothers and social norms that tie women to child care are relevant mechanisms.

JEL Codes: J13, J71
Keywords: Fertility timing, up-or-out policy, disparate impact, lawyers

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1 Introduction

A well-known and controversial statistic is that women earn 80 cents on average for each dollar that men make.[1] Although there are numerous factors that contribute to the gender wage gap[2], recent economic research has begun to coalesce around the child penalty as the principle explanation for this result (Bertrand et al., 2010; Budig and England, 2001; England et al., 2016; Kleven et al., 2018). The penalty refers to the fact that earnings trajectories of men and women are strikingly similar until child birth, after which the earnings of women immediately diverge and never recover. This pattern has been documented both in cross-sectional and longitudinal data (Bertrand et al., 2010; Wood et al., 1993), across multiple countries (England et al., 2016; Kleven et al., 2018), and in diverse occupations (Adda et al., 2016). Thus, the evidence increasingly points to career interruptions and labor supply reductions tied to child birth as being largely responsible for the gender disparity in earnings.

What receives far less attention is the possibility that the child penalty could have important implications for gender differences in fertility and family formation. If having a child penalizes women professionally and not men, then women may endogenously respond by perhaps delaying their first child or by having fewer total children in comparison with men. This may be especially true in professions that use up-or-out promotion policies (as in law, accounting, consulting, and academia to name a few) that require junior employees to work long hours for an extended period of review. At the same time, mitigating factors such as access to quality child care, parental leave policies, or the ability to outsource home

[1] This statistic is from the 2017 Gender Wage Gap Fact Sheet published by the Institute for Women's Policy Research.

[2] For example, the literature finds that gender differences in human capital investment and productivity (Altonji and Blank, 1999; Gallen, 2015; Mulligan and Rubinstein, 2008; Polachek, 1981), bargaining skills (Card et al., 2016; Reuben et al., 2015), and gender norms (Bertrand et al., 2015) contribute to the gender difference in earnings. See also Blau and Kahn (2016) for a survey of current explanations.

production could have offsetting effects such that there is no gender difference in fertility (Cortés and Pan, 2014). Thus, it is theoretically ambiguous as to whether facially neutral up-or-out promotion policies have a disparate impact on fertility with respect to gender. The primary objective of this paper is to bring forth empirical evidence on this issue.

Our research question requires the study of a profession that uses up-or-out promotion policies, is fairly integrated with respect to gender, and provides rich information of its members. The legal profession satisfies all three criteria. First, young associate attorneys in large private firms are known to be evaluated for promotion to partner after 7 to 10 years on the job. This probationary period is often characterized as a high-pressure environment that requires extensive work hours. Second, although numerous professions continue to be gender segregated, the legal profession is not one of them. Women constitute more than one-third of the profession and a slight majority of students enrolled in accredited law schools (Day, 2018). Finally, the American Bar Foundation commissioned a longitudinal survey called *After the JD* (AJD) that follows a nationally representative sample of law school graduates for the first 12 years of their careers. We use the AJD to analyze whether or not women on the partner track delay or reduce fertility more in comparison with men.[3]

We find that women are less likely to have their first birth early in their career in comparison with men. In particular, female lawyers are roughly 7.9 percentage points ($\sim 15\%$) less likely to have their first child in early-career (i.e. within the first 7 years of their career) than males based on estimates from our preferred specification. This result is robust to an extensive set of demographic controls, and thus, is not easily explained by systematic gender differences in age, marital status, baseline ability, and income. An analysis of heterogeneous

[3]Although our analysis focuses on the legal profession, in the Appendix, we show that fertility related outcomes, such as age at first child and probability of being a parent, are similar to other high-skilled positions and occupations, such as economists, chief executives, post-secondary teachers, accountants, and physicians, using data from the 2000 U.S. Census.

effects confirms that this pattern is specific to junior attorneys whose career advancement is structured by the up-or-out policy (e.g. those who begin their careers in large private firms) and more pronounced among those who expect to receive stronger consideration for promotion. One possible explanation is that child birth in early-career is more adversarial to the career advancement of women versus men.

An alternative explanation is that women on the partner track have weaker preferences for children because women who want children early either exit the partner track or choose an alternative career from the beginning. Two findings belie this possibility. First, if women who survive the longest on the partner track are those who prefer to be without children, then we would expect the negative gender gap in early-career to persist into late-career. We find the opposite; there is a reversal such that women are more likely to have their first birth in late-career (i.e. 9 years or later in their career) than men. In fact, the dynamics pivot precisely when the partnership rates of junior attorneys begin to rise which suggests that the timing is linked to the up-or-out policy rather than differential sorting based on work-life balance. Further, we find no gender difference in completed fertility by the end of the survey which undercuts the idea that the lower rate of early-career fertility reflects a stronger preference for childlessness among women.

Second, the AJD data is exceptionally rich. Among its comprehensive list of questions are those that explicitly ask respondents why they chose their given career path. We find that our results are highly robust to the inclusion of controls for baseline preferences over salary, prestige, work-life balance, and other important margins along which attorneys sort within the legal profession. This further supports the idea that the gender differences in fertility dynamics that we observe are not entirely an artifact of sorting.

We then examine two potential mechanisms for the greater delay in fertility for women.

First, we find evidence that suggests women could delay fertility more than men, in part, because child birth elicits a negative employer response. Mothers in the AJD are much more likely than fathers to report adverse work consequences to child birth, including the loss of clients and challenging assignments and more questioning of their commitment to work, even after we control for differences in how mothers and fathers allocate time between home and work production. These results have implications for who is promoted to partner. If employers reduce their investment in mothers more than fathers after child birth, then mothers may have to exhibit more exceptional qualities than fathers in order to signal the same level of ability and dedication to the firm.[4] Indeed, the data is consistent with mothers being more positively selected than fathers *conditional* on being promoted to partner. In contrast, we find no analogous difference among women and men who are childless at the time of their promotion. This implies that mothers and fathers are evaluated under disparate promotion standards even though up-or-out policies are facially neutral.

Second, we consider the possibility that the gender difference in fertility timing is tied to social expectations that women should be the primary caregiver for children and not men. To examine this possibility, we borrow from Pan (2015) who constructs a sexism index using survey questions from the General Social Survey that asks men about their views on the appropriate role of women in society. There is substantial variation across regions in the extent to which men believe in statements such as, "men should achieve outside the house and women should take care of the home and family." We use this geographic variation to show that women are especially more likely to delay child birth in comparison with men in regions where men have stronger attachments to traditional gender norms. This finding comports

[4] As Carbado and Gulati (2000) write, "Put differently, placing extra burdens on the outsider at the start (or having outsiders work with fewer resources) helps to ensure that the outsiders who win are superstars, and thus, from the employer's perspective, not like other outsiders." [page 138]

with the accumulating evidence that shows gender norms provide important structure on the decision calculus of women and men (Bertrand et al., 2015; Bursztyn et al., 2017).

These findings contribute to the literature in additional ways. There is already a voluminous body of research that sheds light on the optimal timing of child birth. This literature has roots in demography which finds that demographic characteristics such as the woman's age and age at first marriage have strong implications for the timing of first and subsequent births (Coombs and Freedman, 1970; Finnäs and Hoem, 1980; Heckman et al., 1985). The economics of fertility pioneered by Becker (1960) shifted emphasis towards the quality-quantity trade-off, the shadow price of children, and income as important determinants of fertility. Recent studies have begun to examine how changes in public policy affect fertility (Lalive and Zweimüller, 2009). In general, though, this literature focuses on women and pays less attention to how facially neutral policies that structure career advancement differentially impact the fertility timing of women and men. Thus, our study of the up-or-out promotion policy and its disparate impacts on fertility links this literature to research on gender inequality in the labor market.

With respect to gender inequality, our study complements existing research that focuses on the gender gap in pay (Azmat and Ferrer, 2017). The emphasis on wages is, in part, motivated by the seminal work in Becker (1957), whose theory illustrates why a wage disparity constitutes a compelling empirical test of employer prejudice. However, some scholars have noted that there is limited scope for employer prejudice to manifest in wages because the law proscribes unequal pay for the same work (Charles, 2000; Foote et al., 2003). This argument is especially pertinent here since the attorneys in our study presumably understand precisely what recourse is available in the event the law is violated. Thus, our paper comports more with the strand of research that shows gender inequality in the workplace can surface along

margins other than wages (Antecol and Cobb-Clark, 2009; Beaman et al., 2018; Egan et al., 2018; Laband and Lentz, 1993, 1998; Sarsons, 2017). Specifically, we find that women on the partner track delay fertility more than men, receive no additional pecuniary compensation for doing so, and that those who have children in early-career face disparate promotion standards in comparison with men.

2 Overview of Up-or-Out Policy

The labor market relies on a wide array of policies to structure the upward mobility of workers. Up-or-out policy is one example and is often used in fields that require workers to attain advanced education. Although specifics can vary from firm-to-firm, in general, new workers enter the profession with an understanding that they will work long hours for an extended period of review that typically lasts between 7 to 10 years. At the end of this probationary period, senior colleagues review the worker's performance and decide either to promote the worker or to effectively terminate the relationship. Promotion is highly coveted due to significant improvements in pecuniary and/or non-pecuniary benefits. An important point is that federal law defines the boundary of permissible interactions between all up-or-out policies and workers of a protected class; for example, a female worker cannot be denied promotion to partner because she is deemed not feminine enough (*Price Waterhouse v. Hopkins*, 490 U.S. 228 (1989)). Thus, up-or-out contracts are devoid of explicit gender classifications that would invite legal scrutiny otherwise.

However, facial neutrality does not preclude up-or-out policies from having a disparate impact with respect to gender. There is growing evidence that gender-neutral employment practices can unknowingly exacerbate gender disparity in labor market outcomes. For ex-

ample, studies show that women negotiate worse bargains than men (Card et al., 2016), and thus, a firm could contribute to gender pay disparity by allowing its employees to negotiate salary.[5] Women are also more frequently assigned to and accept less desirable tasks in comparison with men (Babcock et al., 2017; Carbado and Gulati, 2000). Thus, standard protocols to assign tasks to employees (e.g. seniority based task-assignment or a volunteer system) could have a differential impact on the promotion prospects of men and women. In academia, the broad adoption of "clock stopping" policies allow both male and female junior faculty with newborn children to take more time to achieve performance markers required for promotion to tenure, but help men secure promotion faster than women because men use their time on parental leave differently than women (Antecol et al., 2016).

The legality of facially neutral practices that engender disparate impacts is ambiguous. In the landmark case *Griggs v. Duke Power Co.*, the Supreme Court struck down a company policy that required employees to have a high school diploma in order to be considered for its higher paying jobs on the grounds that it disproportionately excluded African-American workers without sufficient evidence that the diploma was necessary to perform the job. Thus, a practice that is not expressly motivated by invidious prejudice can nonetheless be deemed unlawful when it has disparate impact on a protected class and the defendant cannot convincingly demonstrate that the practice in question is a "business necessity".[6] However, there are limits to disparate impact theory. In *Washington v. Davis*, the Court upheld

[5]Some firms have stopped the practice of negotiating salary in light of this research. See, for example, Liz Davidson, "A Powerful Way to Close the Pay Gap: Don't Negotiate Salaries," *Forbes*, April 11, 2018.

[6]As another example, in *Dothard v. Rawlinson* the Court struck down an employment practice because of its disparate impact on a protected class. State penitentiaries in Alabama only hired applicants whose height and weight exceeded minimum thresholds as prison guards. The Court ruled that the height and weight requirement unlawfully excluded women due to population height and weight disparities between men and women. The Court did not find these requirements were necessary to perform the job. However, the Court upheld the ban on women in "close contact" positions on the grounds that women are more vulnerable to sexual assault.

the police department's use of an aptitude test that disproportionately excluded African-Americans because it served the rational purpose of screening potential employees.[7] In general, disparate impact theory provides a framework through which the Court balances the economic value of a given practice to the firm versus its adverse impact on a protected group.

Up-or-out policies are necessary, in part, because the employer does not immediately know with certainty whether or not the worker is qualified for an elevated role (Barlevy and Neal, 2019). In law, a junior attorney who thrives in law school could be ill-suited for partnership because different skill sets are needed to excel in these respective roles. For example, the ability to maintain existing relationships with valuable clients and foster new ones could be relatively inessential for students and essential for partners. The up-or-out promotion policy allows the firm to navigate this informational asymmetry in various ways. The long probationary period allows the firm to observe myriad signals about the worker which improves the reliability of the firm's inference of the worker's latent ability. The extensive work hours also allow employees to separate themselves from one another to the extent that high ability lowers the marginal cost of effort. In this case, high ability types are more likely to endure long hours, achieve high performance, and less likely to exit. Thus, both facets of the up-or-out policy help the firm minimize the risk associated with promoting a worker who is, in fact, unfit for partnership.[8]

[7]The Court used rational basis review because the plaintiff relied on a constitutional rather than a statutory claim. In this case, the plaintiff needed to prove that the police department's use of the aptitude test was motivated by discriminatory intent. In *Personnel Administrator of Massachusetts v. Feeney*, 442 U.S. 256 (1979), the Court found that knowledge of a disparate impact is not sufficient to prove invidious intent.

[8]There are additional benefits associated with up-or-out promotion policies. For example, in academia, a common defense of the tenure system is that it insulates scholars from backlash that could arise from pursuing ideas outside the mainstream. In addition, tenure encourages senior faculty to hire the most talented candidates since tenure removes the possibility that the incoming faculty will replace them (Carmichael, 1988). Brown Jr (1997) argues that tenure allows senior faculty to monitor university administrators without

At the same time, up-or-out promotion policies are not without controversy. One issue stems from sizable racial and gender disparities in promotion rates[9]; for example, in the legal profession, minorities comprise of roughly 17% of all lawyers in U.S. law firms but only 8% of its partners.[10] These statistics are concerning on at least two fronts. First, there is growing evidence that female leadership is important to the career advancement of women (Carbado and Gulati, 2000; Kofoed et al., 2017; Kunze and Miller, 2017; Langan, 2018; Matsa and Miller, 2011).[11] Thus, today's scarcity of female partners could serve to perpetuate this demographic imbalance. Second, there is the subject of *why*. One explanation is that women earn less and are promoted at lower rates because they under-perform in comparison with men (Azmat and Ferrer, 2017). Less innocuous is the possibility that the performance gaps themselves reflect disproportionate burdens that seemingly neutral practices impose on women (Carbado and Gulati, 2000; Guinier et al., 1994). Our paper pursues this idea with an emphasis on fertility which receives less attention in the discourse despite its standing as a foremost life decision.

3 After the JD and Descriptive Statistics

The *After the JD* is a research project commissioned by the American Bar Foundation and the National Association for Law Placement (NALP) in efforts to gather detailed information on members of the legal profession. The AJD data is uniquely suited for our study. The

fear of reprisal.

[9] Another concern is that the up-or-out policy distorts effort in the post-probationary period among those who receive promotion. For example, in economics, Brogaard et al. (2018) finds that there is a decrease in research productivity both in terms of the quantity and social impact of publications, and in law, Yoon (2016) finds that legal scholars publish more in less competitive outlets post-tenure.

[10] This statistic is from the 2017 Law Firm Diversity Survey Report by the Minority Corporate Counsel Association.

[11] For example, Langan (2018) shows that, in economics departments, the gender disparity in publications, promotion rates, and wages all fall when a female replaces a male department chair.

sample is drawn from the population of individuals who graduated from a U.S. law school between July 1, 1998 and June 30, 2000 and entered the bar for the first time in 2000. Thus, the AJD data is nationally representative of all lawyers who entered the bar in 2000. The data is also longitudinal and collected in three waves. Waves I, II, and III are administered between May 2002 and May 2003, July 2007 and May 2008, and May 2012 and January 2013, respectively, which ensures that researchers can follow individuals in early, mid, and late portions of their careers. Moreover, the survey is exceptionally detailed. There does not exist another data set (to our knowledge) in which researchers can observe how fertility timing relates to the promotion decision among workers subject to up-or-out policies, and examine potential mechanisms to the same degree.[12]

We impose a few restrictions on the data. There are 4,538 individuals in Wave I but 34% of the initial respondents leave the sample by Wave III. We keep all individuals who appear both in Wave I and Wave III of the AJD in order to focus on a subset of individuals for whom we observe baseline characteristics and whose fertility histories are not right-censored.[13] By including Wave III, we also build on previous studies that use only the

[12]There are data sources on the legal profession including the University of Michigan Law School Alumni Survey (UMLS) and surveys published by the National Association for Law Placement (NALP). We use the AJD because it is better suited for our specific set of research questions. However, it is worth noting that we find similarities across data sets where there is overlap. For example, NALP states that the median first-year associate salary at large law firms was $160,000 in 2014 (National Association for Law Placement, 2014a). When we restrict the AJD data to lawyers at law firms with at least 250 lawyers (our definition for "large firms"), the median reported salary after adjusting for inflation is $167,259.13. For another example, NALP reports that the average law firm responding to its 2014 survey required its associates to bill 1,884 annual hours (National Association for Law Placement, 2014b) which is similar to the 1,870 average annual billed hours for lawyers at large firms in the AJD.

[13]A concern is that the attrition in the AJD is systematically related to the gender difference in fertility timing. However, in the Appendix, we present descriptive evidence that women with children are not more likely to exit the AJD prior to completion. In addition, our analysis uses inverse probability weights in order to account for the fact that our final sample may no longer be representative of our original population of interest due to the modest differences between "stayers" and the initial Wave I sample. In the Appendix, we show that our results are highly robust to removing the weights and to different approaches to estimating the weights.

first two waves because the third wave was unavailable at the time of study (Azmat and Ferrer, 2017; Dinovitzer et al., 2009; Lehmann, 2013). We also drop 869 individuals who report missing values for key variables such as gender and children's age and who report inconsistent job start- and end-dates. This leaves us with a final sample of 2,087 individuals. For some analysis, we transform the data into an individual-by-year panel in order to provide a richer characterization of fertility dynamics.

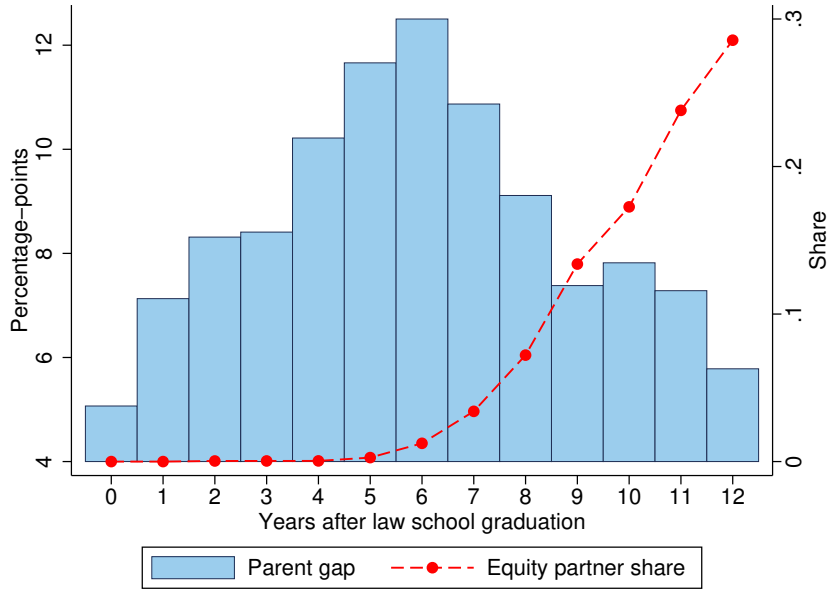
Figure 1 provides a visual illustration of the key empirical facts that motivate this study. The primary y-axis shows the gender difference in the probability of having at least one child and the x-axis shows the number of years since law school graduation. In year 1, the male-female differential is roughly 7 percentage points which implies that men are 45% more likely to begin their legal careers as a parent in comparison with women. This difference steadily grows until year 6 at which point it peaks at 12.5 percentage-points, then gradually declines until year 9, after which it stabilizes around 7 percentage points. This inverted-U shape implies that men are more likely to have children in early- and mid-career than women but women eventually catch up in late-career. The fact that the gender difference does not persist is consistent with female lawyers *delaying* fertility in comparison with their male colleagues rather than eschewing parenthood altogether.

It is notable that the gender difference begins to close in year 7 which is precisely when promotion rates begin to rise. On the secondary y-axis, we show the probability of being promoted to equity partner which is effectively zero until year 6 and rises thereafter. From years 7 to 10, the unconditional probability of being promoted is 3.4%, 7.2%, 13%, and 17% in each respective year. This is consistent with survey and anecdotal evidence that suggests the probationary period tends to last between 7 to 10 years.[14] The fact that the relative

[14] A 2012 survey by ALM Legal Intelligence found that 41 percent of new partners worked for 7-9 years before being promoted. The AJD data are consistent with the survey's findings as the equity partner share

increase in female fertility occurs precisely around the time when partnership decisions are made suggests that the delay in female fertility is linked to the up-or-out promotion policy.

Figure 1: Male-Female Difference in Share of Parents Over Time



Source: AJD restricted data.
Notes: This figure depicts the gender difference in parent status over time (bars) and the share of equity partners among lawyers in firms with at least 30 lawyers (dashed line).

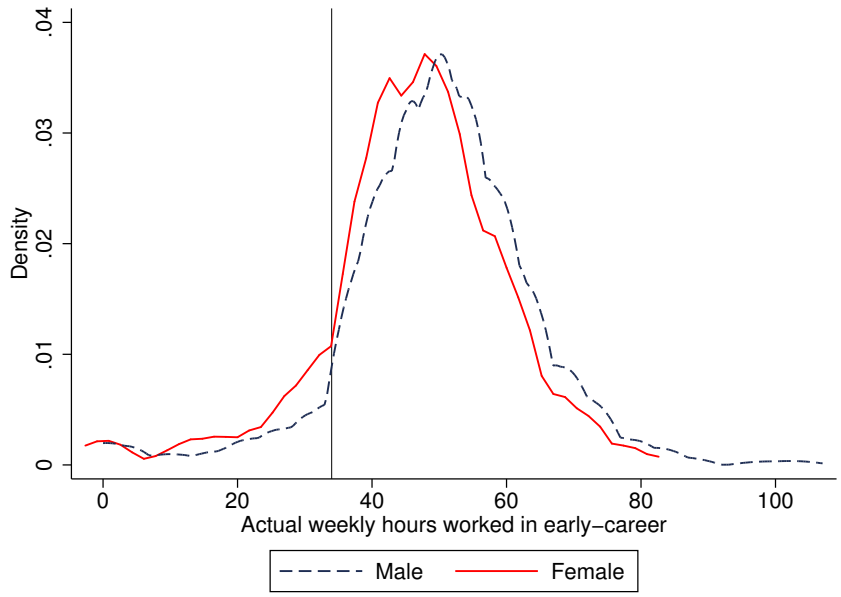
These dynamics are interesting because the early- and mid-careers of junior attorneys are often characterized as periods of intense labor supply. Figure 2 highlights this point by showing how the distribution of weekly hours worked by junior attorneys in early-career separately by gender. As a point of comparison, the vertical line shows that the average labor supply among all employees on private non-farm payrolls is 34 hours per week.[15] There is significant mass to the right of this line under both distributions; specifically, roughly 90%

begins to increase significantly in year 7 and the largest increase occurs in year 9.

[15]This statistic is from January 2007. (U.S. Bureau of Labor Statistics, Average Weekly Hours of All Employees: Total Private [AWHAETP], retrieved from FRED, Federal Reserve Bank of St. Louis; https://fred.stlouisfed.org/series/AWHAETP).

and 85% of male and female junior attorneys work more than the U.S. average, respectively. The figure also shows considerable dispersion such that there is substantial mass at higher levels of labor supply. For example, roughly 25% and 10% of male and female junior attorneys work more than 60 hours per week, respectively. With regards to gender, there appears to be slightly more mass at higher values for males in comparison with females. Thus, male attorneys supply more labor *and* are more likely to start families than females in early-career, on average.

Figure 2: Distribution of Hours Worked by Gender



Source: AJD restricted data, U.S. Bureau of Labor Statistics.
Notes: This figure depicts the distribution of weekly hours worked, separately for male and female lawyers. The vertical black line at 34 illustrates hours worked for an average employee in the private, non-farm industry.

Table 1: Descriptive Statistics

		Share of Respondents			
Characteristic	N	Everyone	Males	Females	p-value
Female	2,087	45.8%			
Race and ethnicity	2,061				
White		82.2%	83.9%	80.2%	0.0472
Black		4.1%	3.2%	5.2%	0.0199
Hispanic		3.5%	3.3%	3.8%	0.5173
Asian		5.9%	5.4%	6.6%	0.2745
Other		4.2%	4.3%	4.1%	0.8810
U.S. News' 2003 law school ranking	2,068				
Ranked 1-10		8.9%	9.1%	8.6%	0.7062
Ranked 11-20		9.0%	8.9%	9.2%	0.7779
Ranked 21-100		49.2%	49.6%	48.7%	0.7513
Tier 3 (101-137)		17.7%	16.7%	19.0%	0.3097
Tier 4 (138-178)		13.1%	13.5%	12.6%	0.6348
Foreign degree		0.5%	0.1%	0.9%	0.0681
Unaccredited school		1.6%	2.1%	1.0%	0.0507
General law review	2,002				
Member		20.6%	20.7%	20.5%	0.9382
Editor		12.3%	11.7%	13.0%	0.4774
Judicial clerkship	483	14.9%	13.5%	16.3%	0.4923
Ever-married status					
In early-career	2,066	64.9%	66.9%	62.4%	0.0982
In late-career	2,056	90.2%	92.0%	88.1%	0.0288
Have children	2,087				
By law school graduation year		9.6%	11.9%	6.9%	0.0011
10 years after law degree		61.2%	64.8%	56.9%	0.0045
Birth year (median)	2,087	1972	1972	1973	
Law school graduation year	2,087	1999.5	1999.5	1999.5	0.6314
		(0.6)	(0.6)	(0.6)	
Undergraduate GPA (standardized)	1,428	-0.01	-0.17	0.14	0.0000
Law school GPA (standardized)	1,277	0.00	-0.04	0.04	0.2420
Number of positions	1,801	3.1	3.0	3.1	0.7340
Length of stay at a position (years)	1,801	4.1	4.2	4.0	0.2291
Initial number of cases	1,199	8.3	8.2	8.3	0.6869
Early-career weekly hours	1,695	48.2	49.8	46.3	0.0001
Early-career salary	1,904	$ 82,934	$ 88,113	$ 76,683	0.0000
Late-career salary	1,869	$ 165,563	$ 198,412	$ 125,207	0.0000
Mid-career annual billed hours	771	1,545	1,616	1,435	0.0139

Source: AJD restricted data.
Notes: N is the number of individuals. The last column reports the p-value from the hypothesis test that female and male shares/means are equal. "Early career" variables are from the Wave 1 survey (2002-2003), "mid career" variables are from the Wave 2 survey (2007-2008), and "late career" variables are from the Wave 3 survey (2012-2013). Salary is total gross annual salary including bonus, profit sharing/equity distribution, and stock options. Billed hours is reported only for those in private law firms.

Table 1 provides descriptive statistics for various baseline characteristics. Overall, male and female lawyers are similar along numerous dimensions. For example, women participate in general law review, secure judicial clerkships, and attend prestigious law schools at similar rates as men. GPAs are also similar at both the undergraduate and law school levels. Thus, men and women enter the legal profession with similar levels of cognitive ability. There are, however, substantive differences along other margins. For example, women are 4.5 percentage points less likely to have ever been married than men in early-career. This gender difference in marital rates could explain some of the gender difference in fertility timing to the extent that there is a preference for having children after finding a life-partner. Our empirical analysis will take care to account for differences in baseline attributes by including them in the conditioning set.

4 Empirical Model

Our empirical analysis examines whether women and men differ in their timing of first birth in relation to the partner clock. We partition the partner clock into two periods, early- and late-career, which we define as the first seven years after law school graduation and nine years after law school or later, respectively. This is motivated by the fact that the modal duration of the probationary period is reported to be eight years in the AJD. Our outcome variables of interest are binary variables, *early parenthood* and *late parenthood*, that indicate whether one's first birth occurs in the early- or late-career, respectively.[16] We run

[16]Our results are robust when we use another approach to determine the how to partition the partner clock to define early- and late-career. Specifically, we regress a year indicator variable and a quartic time trend against the change in share of parents and choose the year that maximizes the R^2 of the regression. The growth rate in parent share peaks in year 6, so pregnancies before year 6 are classified as "early" and pregnancies after year 6 are classified as "late". Our findings do not change with the alternative threshold; see Appendix for results.

the following linear probability model for each outcome variable:

$$Y_i = \beta_0^Y + \beta_1^Y \cdot F_i + X\gamma^Y + \varepsilon_i^Y \tag{1}$$

where Y_i is either *early parenthood* or *late parenthood*, F_i is an indicator variable for whether individual i is female, X is a vector of individual-specific baseline characteristics, and ϵ_i is the error term. The superscripts on the parameters reflect the fact that their values could depend on the outcome variable, Y. The main parameter of interest is β_1^Y; β_1^{Early} and β_1^{Late} represent the female-male difference in the conditional probability of having a first child in early- versus late-career, respectively.

An extensive set of controls are included in X. The demographic characteristics include indicators for race and ethnicity, age, initial marital status, law school graduation date, and geographic location at the time of initial survey. The demography literature finds that the first three (race, age, and marital status) are important determinants of fertility timing, and as shown in the descriptive statistics, marital status correlates with gender in our sample. We condition on law school graduation date in order to account for potential cohort effects. The geographic fixed effects adjust for all unobserved and persistent region-specific factors that plausibly affect the gender difference in fertility timing. We also include controls for spousal employment status at time of initial survey, early-career household income, the respondent's early-career salary, initial firm's size, and early-career weekly hours worked, and area of law.

In addition, we control for baseline ability by including standardized undergraduate and law school GPAs, U.S. News' 2003 law school ranking, participation in law review, judicial clerkship, number of initial job offers, and number of bar exam attempts. Although GPA and law school ranking are standard measures of cognitive ability, the other variables plausibly

capture additional dimensions of ability. For example, it is standard for judges to use a holistic review when screening applicants for clerkship that considers diverse factors including writing samples, letters of recommendation, and interviews in addition to grades. Further, judicial clerkship is a highly valued position both by law school students and the labor market; for example, large private law firms have been known to pay sizable signing bonuses for judicial clerks. Thus, our measures account for multiple facets of ability that plausibly affect performance on the partner track.

A prime concern is that our estimates of β_1^Y could reflect gender differences in sorting based on preferences for work-life balance rather than the up-or-out promotion policy. Our analysis speaks to this concern in two ways. First, we emphasize that gender-based sorting and the up-or-out policy should have opposite impacts on the gender difference in fertility timing. If women who have a strong preferences for children either avoid the partner track from the start or exit earlier to have children, then women who remain on the partner track should have relatively strong preferences for childlessness. In this case, we would expect $\hat{\beta}_1^{Early} > 0$ and $\hat{\beta}_1^{Late} < 0$ such that women are more likely than men to have their first birth in early-career but less likely than men to have their first birth in late-career.

Alternatively, women who remain on the partner clock could have similar preferences for children as men but differ more in shadow price. Child birth in early-career could be especially adversarial to the career advancement of women to the extent that child care is expected to crowd out more of their labor supply. As a result, it is possible that women delay fertility until late-career more than men in order to smooth time-intensive endeavors over time. In this case, we expect $\hat{\beta}_1^{Early} < 0$ and $\hat{\beta}_1^{Late} > 0$ such that women are less likely than men to have their first birth in early-career but more likely than men to have their first birth in late-career. Thus, the competing explanations have distinct predictions on the joint

signs of $\hat{\beta}_1^{Early}$ and $\hat{\beta}_1^{Late}$.

Second, the AJD is exceptionally rich which allows us to control for gender differences in preferences for work-life balance directly. For example, we can include fixed effects for the initial area of law (e.g. tax, corporate, and etc.) which accounts for differences in norms across fields. In addition, the AJD includes an extensive set of questions on *why* respondents chose their initial sector and job which allows us to further account for variation in preferences holding the area of law constant. Specifically, the AJD asks respondents to rate the importance of various attributes including salary, office collegiality, expected hours worked, prospects for advancement, potential for work-life balance and more. Because the questions are numerous, we use factor analysis in order to reduce the dimensionality of the data. However, in the Appendix, we show that our results are similar when we use a kitchen sink approach and include all of these questions jointly in X.[17]

In addition to equation (1), we present estimates from a more flexible model that yields year-specific gender differences in the hazard rate (i.e. the probability of first birth in a given year). This requires transforming our data set into an individual-by-year panel and then estimating the following model:

$$Y_{it} = \alpha_i + X_{it}\gamma + \sum_{k=1}^{12} \tau_{it}^k + \sum_{k=1}^{12} \tau_{it}^k \times F_i + \varepsilon_{it} \tag{2}$$

where Y_{it} is equal to 1 if the i-th person becomes a first-time parent in year t, α_i is an individual fixed-effect, and X_{it} is a vector of time-varying characteristics[18], τ_{it}^k is an indicator

[17]The details of our factor analysis are provided in the Appendix. This discussion includes results from different methods used to construct the factor scores. Our findings are very similar across the different specifications.

[18]These are firm-type (private law firm or not), firm-size, respondent's lagged predicted income, and spouse's lagged predicted income.

variable that equals 1 in the k-th year relative to law school graduation and 0 otherwise, F_i is a binary variable for females, and ε_{it} is the error term. The panel is unbalanced such that in any given year the sample includes only those who were childless in previous years. This allows us to interpret our main parameters of interest, τ_{it}^k and $\tau_{it}^k \times F_i$, as the hazard rate for males and the female-male difference in the hazard rate, respectively.

Model (2) is a more flexible version of (1) since it allows for year-to-year changes in fertility timing. An important point is that model (2) also controls for all time-invariant individual-specific characteristics via the person fixed effects, α_i. This is relevant to the extent that there remain unobserved variables that are not captured in model (1) but still affect the gender difference in fertility timing; for example, living in close proximity to grandparents who can help with child care. The person fixed effects would also account for preferences over children to the extent that they are constant over time. However, an advantage of model (1) is that it allows for more precise estimates because parsimoniously dividing the partner clock into two periods uses fewer degrees of freedom. Thus, models (1) and (2) have different comparative advantage. Model (2) allows for richer dynamics which we use to provide visual evidence of how the gender difference in fertility timing relates to the partner clock. Model (1) yields more precise estimates of the gender difference in fertility timing.

5 Main Results

5.1 Gender difference in fertility

Panel A of Table 2 shows the gender difference in the probability of first birth in early-career conditional on various sets of controls. We begin with the unconditional gender gap in column (1) which implies that female lawyers are 10.9 percentage points (∼21%) less likely

than male lawyers to have their first child in early-career. In column (2), the estimate of the gender gap falls modestly from 10.9 to 7.8 percentage points when we control for demographic characteristics. Although this represents a 28% decrease, we note that the 95% confidence intervals are sufficiently wide such that the two estimates are not statistically different from one another. Thereafter, the estimate of the gender gap is remarkably stable even when we systematically add controls for baseline ability, job characteristics, income and spousal employment, and finally the factor scores that proxy for baseline preferences over work-life balance. Specifically, in columns (2) to (6), the estimated gender gap ranges between 7.9 to 9.3 percentage points which implies that women are 15 to 18% less likely to have their first child in early-career in comparison with men. All of the estimates are statistically significant at the conventional 5% level.[19]

Panel B of Table 2 shows the gender difference in the probability of first-birth in late-career. Similar to Panel A, we show the gender gap conditional on a systematically richer set of controls. In column (1), the unconditional gender difference is about 9.1 percentage-points which implies that women are 29.68% more likely to have their first child in late-career than men. There is a modest reduction in the gap when we include demographic characteristics as controls, but the estimate is very stable thereafter. Overall, columns (2) to (6) imply that female lawyers are between 5.7 and 6.5 percentage points more likely than male lawyers to have their first child in late-career. All of the estimates are statistically significant at the conventional 5% level.[20]

[19]It is worth noting the robustness to one's own and spousal income. There is a voluminous economics literature that shows the demand for children rises with income (Black et al., 2013; Dettling and Kearney, 2014; Lindo, 2010; Lovenheim and Mumford, 2013; Schaller, 2016) and that households have children earlier in the life-cycle in response to increases in permanent income. This is relevant because our descriptive statistics that show men earn roughly 12.97% more than women in early career despite their similar performance in law school. However, we find that the estimates are stable even when we control for gender differences in income.

[20]It is worth noting that our effect sizes are not out of line with other studies in the literature. For

Table 2: Gender Difference in Early Parenthood and Late Parenthood

	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Early parenthood						
Female	-0.109***	-0.0782***	-0.0811***	-0.0925***	-0.0806***	-0.0789***
	(0.0278)	(0.0240)	(0.0238)	(0.0242)	(0.0245)	(0.0245)
Panel B: Late parenthood						
Female	0.0911***	0.0603**	0.0627***	0.0652***	0.0574**	0.0581**
	(0.0280)	(0.0239)	(0.0237)	(0.0243)	(0.0247)	(0.0247)
Observations	2,087	2,087	2,087	2,087	2,087	2,087
Controls for:						
Demographic characteristics		Yes	Yes	Yes	Yes	Yes
Ability proxies			Yes	Yes	Yes	Yes
Job characteristics				Yes	Yes	Yes
Income and spousal employment					Yes	Yes
Factor scores						Yes

Source: AJD restricted data.
Notes: Likelihood of early parenthood is 0.51 (males) and 0.40 (females). Likelihood of late parenthood is 0.44 (males) and 0.53 (females). Early parenthood is defined as having one's first child within 7 years after law school. Late parenthood is defined as having one's first child at least 9 years after JD. Childless lawyers are classified as having a late parenthood. Demographic characteristics account for race and ethnicity, age, law school graduation date, geographic location at time of initial survey, and initial marital status. Ability proxies include standardized undergraduate and law school GPAs, U.S. News' 2003 law school ranking, participation in general law review, judicial clerkships, number of initial job offers, and number of bar exam attempts. Job characteristics control for initial firm's size, early-career weekly hours worked, and area of law. Employment controls include spousal employment status at time of initial survey, early-career household income, and respondent's early-career salary. Factor scores are: social responsibility, earning potential, prestige, career development, firm's ranking, mission match, and financial security. *** p< 0.01, ** p< 0.05, * p< 0.1

Together, Panels A and B strongly oppose the idea that our results are driven by gender-based sorting for two reasons. First, if our estimates are driven by preferences for work-life balance, then we would expect that controlling for area of law, labor supply, and the factor

example, Lalive and Zweimüller (2009) is relevant to ours even though we study up-or-out policy rather than parental leave because the Austrian reform affected the inter-temporal cost associated with child birth. Specifically, the policy stipulated that "treated" mothers who had another child before 27.5 months were automatically eligible for a renewal of parental leave without having to fulfill the work requirement first. The authors find that eligible mothers were roughly 8 percentage points more likely than non-eligible mothers to have another child within 17 to 28 months. Thus, their paper provides another example in which policies that affect the inter-temporal cost of child birth can have comparable impact on fertility timing.

scores would explain a sizable portion of the raw gender difference in fertility timing. Instead, the estimates are insensitive to these controls.[21] Second, if our results are driven by women having stronger preferences for childlessness, then we would expect women to have lower rates of first birth both in early- *and* late-career. Instead, the patterns imply that women are less likely to have first birth in early-career but *more* likely to have first birth in late-career than men. In other words, the lower fertility rate in early-career is a temporary delay rather than a difference that persists over time. On the whole, the evidence comports more with the idea that women delay fertility until late-career more than men in strategic pursuit of their career advancement.

Table 3: Gender Differences in Fertility

	Pr(Parent)	Number of Children	Want more children?
	(1)	(2)	(3)
Female	-0.029	-0.206***	-0.038
	(0.025)	(0.066)	(0.025)
Observations	2,087	2,087	2,087
Baseline controls	Yes	Yes	Yes

Source: AJD restricted data.
Notes: Each column is a separate OLS regression. Number of Children includes having no children. Baseline controls include demographic characteristics, ability proxies, job characteristics, employment controls, and factor scores. See notes in Table 2 for description of baseline controls. *** p< 0.01, ** p< 0.05, * p< 0.1

Thus far, our analysis focuses on first birth which is worrisome to the extent that gender differences in fertility preferences affect the *intensive* rather than extensive margin. Table

[21] An alternative explanation for why the estimates in Table 2 are robust to the factor scores is that the scores are unreliable proxies of preferences related to work-life balance. However, in the Appendix, we show that controlling for the factor scores completely explains away the fact that women are modestly less likely to hold their first job in a private law firm than men. Thus, the factor scores can predict why women and men differ in their choice of initial firm type but cannot explain the gender difference in fertility timing.

3 shows a series of regression estimates in which we replace the dependent variable with the following outcomes all of which are observed in late-career (i.e. in Wave III): whether the respondent is a parent, the total number of children, and whether the respondent wants more children in the future. The estimates in columns (1) to (3) imply that women are roughly 2.9 percentage points less likely to be a parent, have 0.21 fewer children, and 3.8 percentage points less likely to want more children than men. Although the gender difference in column (2) is statistically significant at the 5% level, the point estimate is fairly close to zero which suggests that women catch up to men in the total number of children by late-career despite the earlier delay. The other two estimates suggest that women and men are similar in the probability of being a parent and in their desire to have more children in the future. Thus, these results are not wholly consistent with women having stronger preferences for childlessness in comparison with men.

5.2 Heterogeneous Effects

In this section, we examine heterogeneity in whose fertility is affected by the up-or-out policy. Our approach is twofold. First, those who begin their careers as associate attorneys in large private law firms are expected to face more intense pressure to maximize labor supply in early-career.[22] Thus, if the up-or-out policy is what drives our result, then the gender difference in the timing of first birth should be more pronounced among this group. To this end, we construct an indicator variable for whether the respondent's first position is an associate attorney in a large private law firm in which "large" is defined as a firm with

[22]Our focus on those who *begin* their careers as associates in large private law firms has substantive implications. An associate who transitions out of a large private firm, perhaps because of child birth, is still categorized as someone who began their career on the partner track. If women exit the partner track at higher rates due to child birth, then these child-related transitions should push us towards the *opposite* finding that women who begin their careers on the partner track are *more* not less likely to have their first birth in early-career.

more than 250 lawyers.[23] We include main and interaction effects between this variable, the female indicator variable, and the timing variables specified in model (2). This will yield estimates of the gender difference in the hazard rate – probability of first birth in a given year – separately for those who start out as associates in large private firms versus those who do not. For brevity, we refer to associates in large private law firms and its complement as *large* and *small* firms hereafter.

A drawback to the preceding approach is that it ignores heterogeneity with respect to performance. High performing associates, who are near the margin of promotion, could be especially motivated to delay fertility in order to maximize labor supply prior to review. For low performing associates, child birth is arguably less deleterious because their prospects for promotion are already diminished. This motivates a second analysis in which we examine whether the fertility dynamics differ with respect to mid-career performance.[24] We pursue this idea using mid-career billed hours which is known to receive heavy weight in the partnership decision (Fortney, 2005). One methodological issue is that billed hours in mid-career could just as easily depend on fertility timing which suggests that left- and right-hand side variables are jointly determined. Thus, we use only the variation in billed hours predicted by predetermined correlates of ability in order to mitigate simultaneity bias as in Bertrand et al. (2010). We define high and low performers as those whose predicted billed hours is

[23]The 250 threshold is the same as in Lehmann (2013) who uses the AJD to study racial disparity in promotion to partner. She writes, "I define a large law firm as a firm with 250 lawyers or more, just below the average size of 262 lawyers in our sample among those working in a private law firm. This definition is consistent with the typical distinction between large- to medium-sized law firms found in literature." [page 21] Thus, the 250 threshold is not arbitrary but grounded both in descriptive statistics and the broader literature on the legal profession.

[24]In the Appendix, we present a theoretical model that further motivates this empirical exercise. The model shows that high performing associates have more responsive demand for children in early-career because their production is closer to the threshold that employers use to decide promotion. Further, employers use different promotion thresholds for mothers versus fathers because there is greater uncertainty about women's future labor supply after child birth.

in the top quartile versus bottom three quartiles, respectively, and then use model (2) to estimate the gender difference in the hazard rates separately for each group.[25]

We present graphical evidence of how the gender difference in fertility timing evolves year-to-year throughout the partner clock. We expect two patterns to emerge in the data. First, recall that our earlier results show that women are less (more) likely to have first birth than men in early-career (late-career). This strongly implies that the gender difference in the hazard rates should dip at some point in early-career and then subsequently recover. It is worth noting, however, that the precise timing of the dip and recovery is not clear. For example, if associates receive strong signals from senior partners on their prospects for promotion prior to the actual decision, then the inflection point in the hazard rates could occur before partnership rates actually begin to rise. Second, we expect this pattern to be especially pronounced among those who begin their careers in large firms and those who are stronger candidates for promotion based on their mid-career performance because these are the junior attorneys whose career advancement is structured by the up-or-out policy.[26]

Figure 3 shows the gender difference in the hazard rate separately for those who begin their career in large firms (the solid line) versus those who do not (the dashed line). The plot is largely aligned with our expectations. The dashed line is fairly stable across all periods which implies that the promotion decision does not substantially structure the timing of first birth for those who begin their careers in small firms. The line is persistently less than zero, although not statistically significantly so, which implies that these women are less likely

[25] Our measure of predicted performance is strongly correlated with the actual probability of promotion. A one-standard deviation increase in predicted billed hours is associated with an 8 percentage-point increase in the likelihood of being promoted to partner (a 47% increase). In the Appendix, we show that using actual billed hours rather than predicted billed hours yields qualitatively similar results.

[26] It is worth noting that the length of the partner clock can modestly vary across firms, and thus, our estimates reflect a weighted average across probationary periods of different lengths. This has the effect of attenuating the sharpness of a dip and subsequent recovery.

to have first birth than men in all periods. This could relate to the fact that our sample consists of highly educated persons and fertility declines with education especially for women (Aaronson et al., 2014). In contrast, the solid line exhibits more inter-temporal variability. There is a sharp dip in year 5, followed by a gradual ascension between years 6 to 8, and then a dramatic one time jump up in year 9. Specifically, women are 16.6 percentage points less likely to have their first birth than men in year 5, but nearly 11 percentage points more likely to have their first birth than men in year 9.[27] Although most of the confidence intervals include zero, the pattern of dip and recovery is consistent with women who begin in large firms having stronger motivation than men to delay first birth.[28]

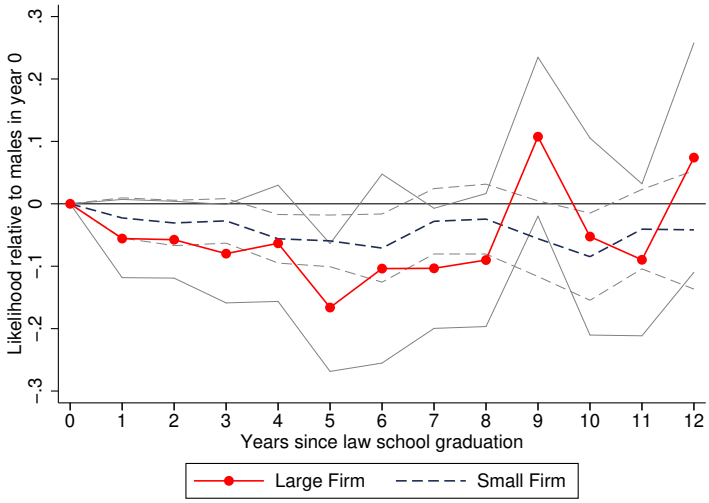
Figure 4 shows the gender difference in the hazard rates separately for high and low performers and the corresponding 95% confidence intervals. For low performers, the gender difference in the hazard rate is negative in the first 5 years and then approaches zero thereafter. However, the magnitude of these changes is far more modest than what we observe for higher performers. For high performers, there is even stronger visual evidence of a dip and subsequent recovery than before. The gender difference in hazard rate sharply declines in years 5 and 6 causing the two lines to diverge considerably. Specifically, in year 6, the gender difference in the hazard rate is 19.4 and 2 percentage points for high and low performers, respectively, and this 17.4 percentage point difference is statistically significant at the 5% level. Thereafter, the gender difference steadily recovers until year 9. In this graph, the inflection point occurs in year 7 which is precisely when partnership rates begin to rise.

[27]It is interesting that the gender difference in the hazard rates drop in year 10. One reason could be tied to the fact that the median female lawyer is 38 years old in year 10 when female fecundity is in decline (American College of Obstetricians and Gynecologists, 2014). This is not true for men whose fecundity begins to decline around age 45 (Harris et al., 2011).

[28]In the Appendix, we show that the patterns are similar when we use more aggregated categorizations of attorneys based on their exposure to the up-or-out policy; for example, those who begin their careers as associate attorneys versus not.

Overall, the patterns in both Figures 3 and 4 are strongly consistent with the idea that the gender difference in fertility timing is linked to the differential impact that first birth has on the career advancement of women versus men.[29]

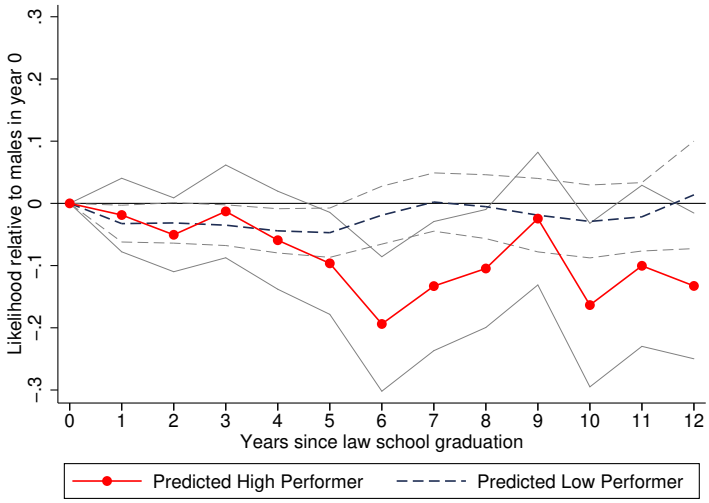
Figure 3: Gender Difference in Hazard Rate by Firm Type



Source: AJD restricted data.
Notes: This figure depicts each year's contribution to the female's hazard of exiting the childless state relative to male's in year 0, separately for lawyers in large firms and small firms. "Large firms" are lawyers whose first job was as an Associate in a law firm with at least 250 lawyers, and "small firms" are otherwise. Gray lines are 95% confidence intervals. N = 15,356. The sample is on the same 2,087 individuals in Tables 2 and 3, but the data have been transformed into a person-by-year panel in order to estimate the hazard rate.

[29]When we use the more parsimonious specification in model (1) that partitions the partner clock into early and late periods, we find that high-performing women are roughly 15 percentage points (12 percentage points) less (more) likely to have first birth in early-career (late-career) than high-performing men and both estimates are statistically significant at the 5% level. The analogous estimates for low performers are closer to zero and are not statistically significant at the 5% level.

Figure 4: Gender Difference in Hazard Rate by Predicted Performance



Soutce: AJD restricted data.
Notes: This figure depicts each year's contribution to the female's hazard of exiting the childless state relative to male's in year 0, separately for predicted high performers and predicted low performers. Lawyers are classified as high performers if their predicted performance-level is in the top quartile and as low performers otherwise. Gray lines are 95% confidence intervals. N = 18,081. The sample is on the same 2,087 individuals in Tables 2 and 3, but the data have been transformed into a person-by-year panel in order to estimate the hazard rate.

These figures show patterns that continue to oppose the idea that the gender difference in the timing of first birth is driven by preferences related to work-life balance. In theory, preferences over work-life balance could affect fertility timing in several ways. For example, women with strong preferences for early child birth could eschew the partner clock from the start. This would imply that the women who begin their careers in large firms should have stronger preferences for childlessness, and thus, their hazard rates should be below that of men's in all periods. However, Figure 3 shows that women in large firms are more likely to have their first birth in late-career than men which betrays this hypothesis. Another possibility is that preferences over work-life balance evolve. For example, women could delay

fertility initially in pursuit of partnership and then develop relatively strong preferences for child birth over time. Although this would also generate a U-shaped pattern, it would not easily explain the differences between high and low performers in Figure 4. For example, we might expect women with low mid-career performance to update their preferences over fertility timing more as they receive inauspicious signals about their prospects for partnership. In this case, we would expect a similar, if not, earlier dip and recovery among low performers which is the opposite of what we find.[30]

6 Potential Mechanisms

6.1 Motherhood Penalty

One potential mechanism is that women delay fertility more than men in anticipation of an employer backlash in response to child birth. Women could be especially concerned that they will be transitioned from challenging to routine cases or that the employer will be less invested in their skill development after first birth. Such a response need not be motivated by employer distaste à la Becker (1960). Instead, employers could rationally invest less in women who have children because, on average, women reduce their labor supply more than men after child birth. For example, Bertrand et al. (2010) shows that women with children work substantially fewer hours per week (24% less) than men whereas for childless women this gap is only 3%.[31] In this section, we examine whether or not there is any evidence that

[30] An alternative explanation relates to gender differences in marital status. If there is a general preference for finding a life partner prior to having children and women are less likely to have a life partner in early-career than men, then this could explain the gender difference in fertility timing. However, in the Appendix, we show that the patterns are very similar when we restrict the sample to those who are already married in Wave I.

[31] In the Appendix, we show that women are more likely to work part-time after having their first child than men in the AJD. Employers could view this as confirmatory evidence of negative stereotypes that

employers respond to child birth more negatively for women than men.

We conduct our analysis in two parts. First, the AJD includes questions on whether respondents experience the following adverse consequences due to child birth – elevated questioning of their commitment to work, loss of challenging assignments, and loss of clients. Thus, we can examine whether employers respond negatively to child birth, and if so, whether the response differs for mothers versus fathers. Importantly, the AJD also includes questions on one's involvement in child care; for example, whether respondents leave work early for the child, arrange child care, and look after children in evening hours. Thus, if we find a gender gap in adverse consequences, then we can further assess whether it can be explained by *actual* differences in time allocation between home and work. These results are organized in the following way. In Table 4, Panels A, B, and C presents estimates of the gender difference in a specified adverse consequence due to child birth and each subsequent column presents the estimate from a specification that conditions on a more extensive set of controls in comparison with the previous one.

We focus on column (1) to start. In Panel A, column (1) shows that women are substantially more likely to have their commitment questioned after child birth in comparison with men. Specifically, the gender difference is 25.8 percentage points, and thus, over one-third of all mothers have their commitment questioned after child birth since the male mean is 0.133. In Panels B and C, column (1) shows that women are much more likely to lose challenging assignments and to lose clients after child birth in comparison with men, respectively. In particular, the estimated gender gap in the likelihood of losing challenging assignments and clients is 18.2 and 7.7 percentage points, respectively. All of these estimates are statistically

describe mothers as being less committed to their work after child birth than fathers even though these statistics could reflect an equilibrium outcome driven, in part, by their own response towards women with children.

significant at the 5% level. The fraction of men who report losing challenging assignments and clients due to child birth is only 1.5% and 2.2%, respectively. Thus, fathers are not subject to the same reduction in desirable assignments and clients that mothers experience after child birth.

Within each panel, the estimates are very stable across the three columns. In Panels A, B, and C, the estimates range between 22.4 and 25.8 percentage points, 16.1 and 18.5 percentage points, and 7.65 and 7.79 percentage points, respectively. In addition, the estimates retain their statistical significance at the 5% level as we move across columns. Because columns (2) and (3) explicitly control for labor supply and involvement in child care, *actual* differences in time allocation cannot explain this motherhood penalty. An alternative explanation is that employers *perceive* mothers to be less reliable after child birth (Budig and England, 2001), and thus, question them more and transition them to less valuable assignments and to fewer clients.[32] This is consistent with other studies that show employers are less willing to invest in training women when there is increased uncertainty regarding their future labor supply (Prada et al., 2015; Thomas, 2016).[33] In equilibrium, employer beliefs could self-confirm if mothers reduce labor supply, in part, because the motherhood penalty effectively lowers their marginal return to effort.

[32] Correll et al. (2007) conduct an audit study in which employers are sent fictitious resume pairs that differ only in whether the applicant is listed as a "Parent-Teacher Association coordinator". The authors find that mothers receive significantly fewer callbacks than fathers. Their result is consistent with the idea that employers stereotype mothers as being less reliable after child birth whereas fathers are viewed more favorably.

[33] Thomas (2016) finds that Family and Medical Leave Act of 1993 increased employment but decreased promotion rates for women because the extension of parental leave dampens the employer's willingness to invest in women because there is increased uncertainty about women's future productivity. Also see Claire Cain Miller, "When Family-Friendly Policies Backfire," *New York Times*, May 26, 2015.

Table 4: Adverse Consequences Due to Child Birth

	(1)	(2)	(3)
Panel A: Questioning of Commitment to Work			
Female	0.258***	0.249***	0.224***
	(0.0284)	(0.0294)	(0.0336)
Mean Male Outcome		0.133	
Observations	1,404	1,404	1,404
	(1)	(2)	(3)
Panel B: Loss of Challenging Assignments			
Female	0.182***	0.185***	0.161***
	(0.0194)	(0.0205)	(0.0214)
Mean Male Outcome		0.015	
Observations	1,393	1,393	1,393
	(1)	(2)	(3)
Panel C: Loss of Clients			
Female	0.0769***	0.0779***	0.0765***
	(0.0164)	(0.0175)	(0.0202)
Mean Male Outcome		0.022	
Observations	1,379	1,379	1,379
Controls for:			
Demographics and Ability Proxies	Yes	Yes	Yes
Employment		Yes	Yes
Division of Childcare Responsibilities			Yes

Source: AJD restricted data.

Notes: See notes in Table 2 for description of Demographic controls and Ability Proxies. Employment controls include initial firm's size, initial weekly hours worked, initial area of law, billed hours in mid-career, spouse's initial employment status, initial household income, initial salary. Division of Childcare Responsibilities include arranging for child care, leaving work for children's needs, and looking after children during daytime and evening hours. Robust standard errors are in parentheses. The number of observations shrinks from 2,087 because not all respondents answered the survey questions about adverse consequences. *** p< 0.01, ** p< 0.05, * p< 0.1

Second, we examine whether this motherhood penalty affects who receives promotion.

Our approach is motivated by the idea that a reduction in employer investment could generate differences in quality between mothers and fathers who are promoted to partner. If employers transition mothers to less desirable assignments, reduce their client portfolio, or question their commitment more than fathers, then mothers may have to exhibit more exceptional qualities than fathers in order to signal the same level of ability or dedication to the firm. To this end, we construct two samples of partners: (i) those who have their first birth prior to promotion (i.e. parent-first sample) and (ii) those who are childless at the time of their promotion (i.e. partner-first sample); and then estimate gender differences in various skill dimensions within each sub-sample. The specific outcomes include initial caseload, participation in general law review, judicial clerkship, billed hours, and book of business (i.e. value of the attorney's clientele).[34]

Panels A and B in Table 5 show covariate-adjusted gender differences in skill *conditional* on being promoted to partner for the parent-first and partner-first samples, respectively. In Panel A, the estimates in columns (1) to (4) are consistent with the idea that women who have children prior to promotion are more positively selected in comparison with the otherwise similar men. These women receive roughly 1.4 more cases in early-career, are 22.2 percentage-points more likely to have participated in general law review, 25.3 percentage-points more likely to have been in an editorial role, and 45.7 percentage-points more likely to have held a judicial clerkship in comparison with men. All of these estimates are statistically significant at the 5% level. In Panel B, the gender differences are more modest for the women and men who are without children at the time they are promoted to partner. To take one

[34] An alternative approach is to estimate the gender gap in promotion rates in the pooled sample conditional on performance. In the Appendix, we show that women are less likely to be promoted than men conditional on performance. Specifically, the estimated gender gap is 3.6 percentage points (a 16.6% difference), and this estimate is statistically significant at the 10% level. Thus, this approach also suggests that it is more difficult for women to attain promotion in comparison with men *ceteris paribus*.

example, in the partner-first sample, women receive 0.328 fewer cases than men, whereas in the parent-first sample, women receive 1.4 more cases than men in early-career. Initial caseload is an interesting measure to the extent that highly skilled associates are the ones who receive more cases early on.

Table 5: Gender Differences in Skill Among Equity Partners by Parental Status

	Initial	General law review:		Judicial	Billed Hours	Book of
	caseload	Member	Editor	clerkship	(std)	Business
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Parent-first sample						
Female	1.394***	0.222**	0.253***	0.457**	-0.0676	-81,917
	(0.523)	(0.105)	(0.096)	(0.206)	(0.313)	(161,682)
Avg. male likelihood	7.89	0.22	0.12	0.2	0.43	341,475.50
Observations	119	172	172	39	127	142
	(1)	(2)	(3)	(4)	(5)	(6)
Panel B: Partner-first sample						
Female	-0.328	-0.0091	0.0676	0.305	0.469*	-73,299
	(0.331)	(0.090)	(0.081)	(1.736)	(0.273)	(125,264)
Avg. male likelihood	8.76	0.34	0.28	0.26	0.35	292,339.60
Observations	76	109	109	26	87	98
Baseline controls	Yes	Yes	Yes	Yes	Yes	Yes
Firm controls				Yes	Yes	Yes

Source: AJD restricted data.
Notes: Each column is a separate OLS regression. Billed Hours are standardized by firm size to have mean 0 and standard deviation 1. "Parents-first sample" are lawyers who had children before they became equity partner. "Partners-first sample" are lawyers who had children after they became equity partner. The number of observations shrinks from 2,087 because the sample is restricted to equity partners. There are 292 equity partners, comprised of 179 lawyers in the "parent-first" sample and 113 lawyers in "partner-first" sample. The sample size differs across columns because not all respondents report answers to the outcome in question. Baseline controls include race and ethnicity, age, law school graduation year, geographic location at time of initial survey, and initial marital status. Firm controls include initial area of law and initial firm's size. *** $p< 0.01$, ** $p< 0.05$, * $p< 0.1$

The latter three outcomes are also interesting for several reasons. First, law review and judicial clerkship are highly valued both by law school students and the market which

suggest that they could be reliable signals of latent ability. For example, some large private firms have been known to pay sizable signing bonuses to former judicial clerks. Second, law reviews and judicial clerkships use a holistic review to select their members. It is standard practice for law reviews to use writing competitions and for judges to require letters of recommendations and interviews as part of their screening process. Thus, gender differences in these accomplishments could reflect more intangible qualities, such as writing ability or deftness in interpersonal communication, that are also relevant factors in the promotion decision.[35] Overall, these results are consistent with women being more *positively selected* than men in the parent-first but not partner-first sample.

The next two columns focus on mid-career billed hours and book of business which are known to be important factors in promotion. Before we discuss these results, it is worth noting that our earlier results complicate the interpretation of gender differences in billed hours and book of business. Recall that we find employers reduce investment in mothers in comparison with fathers after child birth. In this case, we expect women to *under-perform* in comparison with men (i.e. a negative gender gap) since the loss of clients and desirable assignments encumbers the accumulation of billed hours and book of business. If female partners perform on par with males (i.e. a zero gender gap), then this implies that women *exceed* expectations since reduced employer investment diminishes their ability to achieve the same levels of performance as men. Thus, in this context, a zero gender gap could very well indicate that women are *infra-marginal* to the extent that exceptional qualities are required to counterbalance these aforementioned challenges.

In Panel A, the estimate in column (5) shows that women and men in the parent-first

[35]For example, in *Price Waterhouse v. Hopkins*, the plaintiff Ann Hopkins was denied promotion despite her strong performance metrics, in part, because the partners at her accounting firm found her personality to be overly aggressive and believed she was in need of a "course in charm school".

sample bill similar hours as the difference is a modest 0.07 standard deviations. Thus, mothers who are promoted to partner bill comparable hours to fathers in spite of the motherhood penalty. Column (6) shows a greater discrepancy in book of business; in particular, women have a client base whose value is roughly $82,000 less (a 24% difference) than that of men in mid-career. In Panel B, the estimates show that women in the partner-first sample bill more hours than men (0.47 standard deviations) but have a book of business valued roughly $73,000 less than that of men in mid-career (roughly 25% difference). Although none of these estimates are statistically significant at the 5% level, it is interesting that estimates across both panels suggest that women are modestly less efficient than men (in terms of dollar value per billed hour) because their clients are associated with less value. One potential explanation could be related to demand-side bias in which male clients have preferences for same-gender representation (Rubino, 2018).

In summary, our results show that women are more likely to report adverse consequences due to child birth than men even after we control for differences in time allocation between mothers and fathers. This is consistent with the idea that employers reduce investment in mothers because there is greater uncertainty over their future labor supply (Barron et al., 1993). This has implications for who becomes partner. In particular, we find that women who have children prior to being promoted are more likely to be types who receive greater responsibility in early-career (i.e. higher initial caseload) and secure highly coveted positions in law school and upon graduation (i.e. law review and judicial clerkship) in comparison with otherwise similar men. We find no analogous differences among women and men who are childless at the time of promotion. In addition, we find that mothers bill comparable hours to fathers which is not necessarily expected given the reduction in employer investment. Overall, these results suggest that mothers and fathers are evaluated under disparate promotion

standards.

6.2 Gender Norms

The preceding results are intimately tied to the fast-expanding literature that document the importance of gender norms in labor and marriage market outcomes. For example, Bertrand et al. (2015) finds that married couples experience greater dissatisfaction when wives violate the gender prescription that "women should not earn more than her husband". In order to conform, wives on the cusp of exceeding 50% of household income exhibit a greater willingness to reduce labor supply, earn less than their potential, and increase home production. Bursztyn et al. (2017) finds that single women at elite MBA programs are less outspoken in class and less willing to reveal the strength of their career ambitions in order to conform to the social norm that "desirable women are not ambitious and assertive". For women on the partner track, stronger expectations that "women should be the primary caregivers of children and not men" could affect the timing of first birth because of its implications for who bears more of the time-cost of child care within the household. We examine this next.

We borrow from Pan (2015) who constructs what she calls a sexism index using eight questions in the General Social Survey (GSS) that center on the appropriate role for women in society. To provide context, we produce three of the eight statements that respondents are asked to either agree or disagree with depending on their views:

- A working mother can establish just as warm and secure a relationship with her children as a mother who does not work.
- It is more important for a wife to help her husbands career than to have one herself.
- It is much better for everyone involved if the man is the achiever outside the house and the woman takes care of the home and family.

The other five statements/questions are in the same vein. Pan (2015) uses responses from male participants to compute separate sexism indices for white-collar and blue-collar occupations for each U.S. Census region. We use the white-collar index since our sample consists of white-collar workers. Census regions that score high (low) on the sexism index are expected to have stronger (weaker) attachment to the gender norm that women should be the primary caregiver of children and not men.[36]

Figure 5 shows the relationship between the gender difference in fertility timing and the sexism index. In Panels A and B, the height of each dot represents the estimated female-male difference in early parenthood and late parenthood, respectively, among high performers (as previously defined) in a given Census region. This analysis focuses on high performing junior attorneys because, as noted earlier, their fertility decisions are expected to be more responsive to the up-or-out policy.[37] The dots differ in size because each region is weighted by its population and the line that cuts through is the familiar line of best fit.[38] Panel A shows that female lawyers in regions with stronger attachment to gender norms are less likely to have their first birth in early-career in comparison with males. Although the region with the strongest positive gender gap also has an above average sexism score, this region has the fewest people and thus exerts minor influence on the pattern overall. The downward sloping line of best fit corroborates that women are more likely to delay fertility where men have

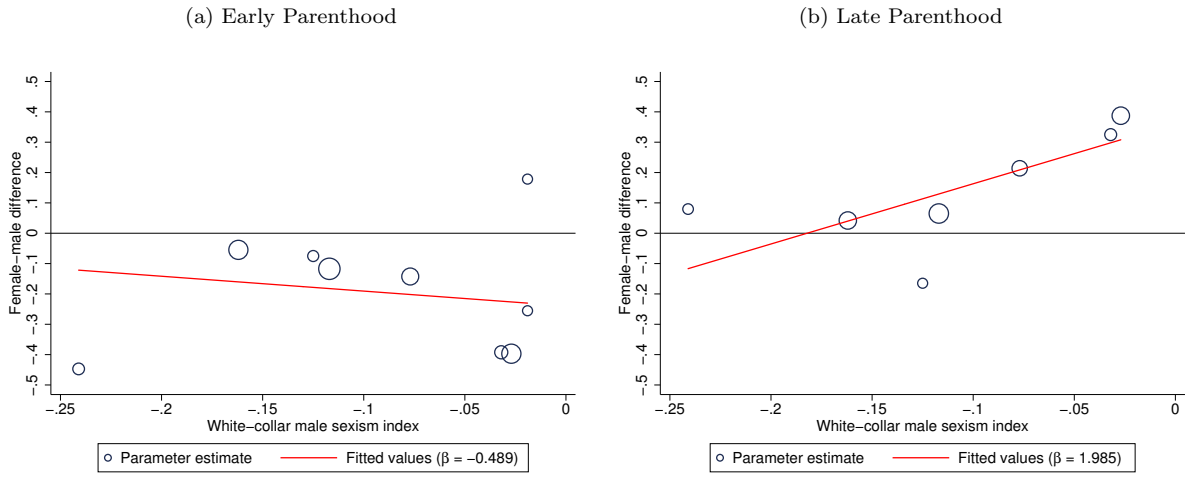
[36]In the Appendix, we extract the portion of Table 5 from Pan (2015) that is relevant for our analysis. It shows that the attachment to traditional gender norms among white-collar males is strongest in the East South Central region and the weakest in New England.

[37]In the Appendix, we show the analogous graphs for low-performing lawyers. These figures show the opposite result such that low-performing women are moderately more (less) likely to have first birth in early-career (late-career) in regions where men have stronger attachment to traditional norms. Overall, these patterns are consistent with the idea that gender norms can interact with up-or-out policy in ways that condition the gender difference in fertility timing.

[38]The Mountain region was combined with the Middle Atlantic due to low power; with only 75 observations, we were unable to obtain estimates for the Mountain region. The gender fertility difference estimate is reported under a newly constructed sexism index for the Mountain-Middle Atlantic region, which is weighted by population.

stronger attachments to traditional gender norms.[39]

Figure 5: Gender Fertility Difference by Level of Gender Norms



Source: AJD restricted data, Pan (2015).
Notes: These figures plot region-specific gender differences in early parenthood and late parenthood by the level of gender norms. The level of gender norms is classified by the Census Region's white-collar male sexism index, which is constructed from the GSS survey (Pan, 2015). More positive values correspond with more gender-prejudiced attitudes. Size of circles represents the census region's population. Fitted values are weighted by population size.

Panel B shows the relationship between the gender difference in late parenthood and the sexism index. The plot shows an upward sloping line of best fit which reinforces the idea that women are especially more likely to have their first birth in late-career than men in regions where men have greater attachments to traditional gender norms.[40] Overall, these patterns suggest that gender norms are important because they structure expectations of

[39]The coefficient on the best fit line is -0.49 which implies that 1 standard deviation increase in the sexism index is associated with a 3.11 percentage-point decrease in the female-male early parenthood gap since the standard deviation in the index is 0.0635. This point estimate is statistically significant at the 5% level.

[40]The coefficient on the best fit line is 1.985 which implies that a one-standard deviation increase in the sexism index is associated with a 12.2 percentage-point increase in the female-male late parenthood gap. This estimate is statistically significant at the 5% level.

how the time-cost of child care will be allocated across parents within the household. In the Appendix, we provide additional evidence that the time-cost of child care is a substantive determinant of the fertility timing of men and women. Specifically, we use the Institute for Women's Policy Research's *Status of Women* 2015 report that grades each state on the extent to which their policies and institutions support work–family balance.[41] We conduct the analogous exercise and ask whether or not the gender difference in early and late parenthood among high performing lawyers differs across regions that are more or less family friendly. The results show that women are especially more likely to delay child birth until late-career than men in states with poor reports. On the whole, our findings comport with a literature that finds policies that affect the time-cost of child care, such as parental leave, may affect fertility as well as labor market outcomes (Lalive and Zweimüller, 2009).

7 Legal Implications

Our findings have substantive implications for the Equal Pay Act of 1963 (EPA) which stipulates that employees of the opposite sex must receive equal pay for equal work barring a few considerations that allow for gender differences in pay. An especially relevant exception is that men and women can be compensated differently when there are differences in their "quantity or quality of production". Our results suggest that this standard could be overly conservative. For example, we show that employers reduce investment more in mothers than in fathers even after accounting for differences in their labor supply and child care. Because skill investments are important inputs into performance, this could generate differences in the "quantity and quality of production" between women and men with children who are

[41] The grades are based on its paid leave legislation, quality of elder and dependent care, and the gender gap in parents' labor force participation rates.

otherwise similar in their ability, effort, and/or productivity. Thus, employers could behave in ways that simultaneously diminish the ability of women to achieve similar performance as men and still survive legal scrutiny because women and men earn the same *conditional* on performance.

It is not clear whether Title VII of the Civil Rights Act of 1964 could offer more recourse. Even though Title VII affords minorities numerous protections from employer discrimination, the comparative advantage of Title VII lies in its ability to thwart discrete and overt forms of discrimination including exclusionary job requirements[42], sexual harassment[43], or promotion denials[44] based on sex name a few. In contrast, the mechanisms that drive our results are more subtle and not obviously in violation of the law. As noted earlier, employers could rationally invest less in women who have children because, on average, women reduce their labor supply more than men after child birth. In this case, the employer response is not arbitrary and genuinely rooted in business interests. Moreover, if the employer can cite other legitimate reasons for reducing investment towards an individual employee, then it would be especially difficult to prove discriminatory *intent* which is the legal standard used in *disparate treatment* cases.

Alternatively, our findings also imply that facially neutral up-or-out contests have disparate impacts both with respect to fertility timing and to the promotion standards applied to women and men. This is relevant because the Court has previously struck down facially neutral workplace practices that have exclusionary effects on minority groups. In these cases, an important consideration is the strength of the employer's stated reasons for using

[42]See, for example, *United States v. Sheet Metal Workers Int'l Ass'n, Local Union No. 36*, 416 F.2d 123, 140 (8th Cir. 1969).

[43]See, for example, *Meritor Savings Bank v. Vinson*, 477 U.S. 57 (1986) in which the Court affirmed that sexual harassment that creates a "hostile work environment" constitutes a violation of Title VII.

[44]See, for example, *Price Waterhouse v. Hopkins*, 490 U.S. 228 (1989).

the practice in question. For example, in *Griggs v. Duke Power Co.*, the Court sided with the plaintiff, in part, because the defendant could not demonstrate that the job requirement was, in fact, important for job performance. However, in our context, there is an extensive body of research that identifies numerous ways in which up-or-out promotion policies serve legitimate business interests. For example, a leading argument is that the intense nature of the probationary period allows employers to obtain numerous signals of worker productivity which substantially lowers the risk of promoting an unqualified type to partner. Thus, it seems unlikely that our evidence would move the needle much in a *disparate impact* case.

Instead, our findings reinforce the idea that employer practices that currently disadvantage women the most are not necessarily those that are proscribed by the law. This tension is partly due to the fact that employers have already responded to the first wave of court cases that reined in more egregious forms of discriminatory behavior. More understated forms of bias continue to operate through institutional or cultural norms, in part, because they are not obviously in violation of the current incarnation of sex discrimination law. For example, an employer that allows employees to negotiate their salary, allows senior colleagues to assign tasks, or extends parental leave to both men and women could unknowingly contribute to gender disparity in pay or promotion because studies find that women are worse negotiators (Card et al., 2016), more likely to accept less desirable tasks (Babcock et al., 2017), and less likely to devote time to work while on parental leave than men (Antecol et al., 2016). Thus, our study is well-aligned with Sturm (2001) who calls for structural reform in order to better counterbalance the deleterious effects of what she refers to as *second-generation* gender bias.

8 Conclusion

We use the *After the JD* study, a nationally representative panel data set of lawyers, and find that women are more likely to delay first birth than men. This gender difference in fertility timing is more pronounced among associates who are more likely to receive strong consideration for promotion. One possible explanation is that these women have different preferences over fertility than men. Gender-based sorting could lead to composition changes in which women who have weak preferences for children remain in firms that require high levels of labor supply. However, our result is robust to a rich set of controls for baseline preferences over work-life balance. In addition, we find that the delay in fertility is not permanent such that women are more likely than men to have their first child in late-career. Further, there is no gender difference in completed fertility (i.e. total number of children) which also suggests that our result is not driven by different preferences over family size.

Several pieces of evidence suggest that the empirical findings are tied to a gender difference in the relative cost of child birth in early- versus late-career. We find that women are much more likely than men to report adverse work consequences after child birth, including loss of clients and challenging assignments, even when we hold labor supply and child care constant. This could motivate women to push child birth into late-career to the extent that employer investment in early-career is important for career advancement. In addition, we use regional variation in the sexism index from Pan (2015) and find that women are especially more likely to delay child birth than men in regions where men have stronger attachment to traditional gender norms that tether women to home production and child care. This suggests that social norms can also contribute to this wedge in the inter-temporal cost of child birth between women and men.

Our analysis relates to existing discourse on the welfare implications of delayed fertility.

On the one hand, children of older mothers have fewer behavioral issues than those of younger mothers, on average, even after accounting for socio-economic characteristics (Trillingsgaard and Sommer, 2018). Older mothers also raise their children with more economic resources because the earnings penalty associated with child birth lessens in older age (Buckles, 2008; Miller, 2011). On the other hand, the women in our data delay child birth more than men but receive no additional pecuniary compensation from doing so even though birth at advanced maternal age is associated with higher risk of Down syndrome (Penrose, 1967), brain damage in-utero (Durkin et al., 1976), dyslexia (Gillberg, 1980), and other chromosomal irregularities. Although medical advances in egg freezing technology could soon diminish these risks, these innovations could also amplify other non-biological concerns identified herein. In particular, employers could become even more inclined to question the commitment of women who have children early on when fertility delay is associated with negligible downside risk.

There are limitations of our study worth noting. Our results could have limited external validity due to substantive differences across fields. However, an alternative view is that we actually extend earlier work that finds, in law school, facially neutral pedagogical practices contribute to substantial gender differences in class rank even though women and men enter with equivalent credentials (Guinier et al., 1994). Our results suggest that gender-neutral practices can continue to impose greater burden on women even upon entering the profession. Another concern is that our study does not specify reasonable remedies to counter the reported disparate impacts. One reason is that the alteration of a discrete rule (e.g. clock stopping policy or extension of parental leave) is unlikely to reverse the deep-seated patterns of interactions that drive our findings. Instead, a structural approach could be more effective in unwinding the complex dynamics that underlie our results.[45]

[45] Sturm (2001) provides several case studies as examples of structural reform. In addition, in *Cahill v. Nike Inc.*, 3:18-cv-01477, U.S. District Court, District of Oregon, four former Nike employees have filed a

Compliance with Ethical Standards

The authors declare that they have no conflict of interest.

federal class-action lawsuit due to gender discrepancies in pay and repeated sexual harassment. The lawsuit seeks multifaceted reform in which Nike adopts specific plans to recruit, hire, and promote minority workers and to monitor Nike in order to ensure compliance with said plans.

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