THE FATHERHOOD BONUS & THE MOTHERHOOD PENALTY

Parenthood and the Gender Gap in Pay

Michelle J. Budig, PhD

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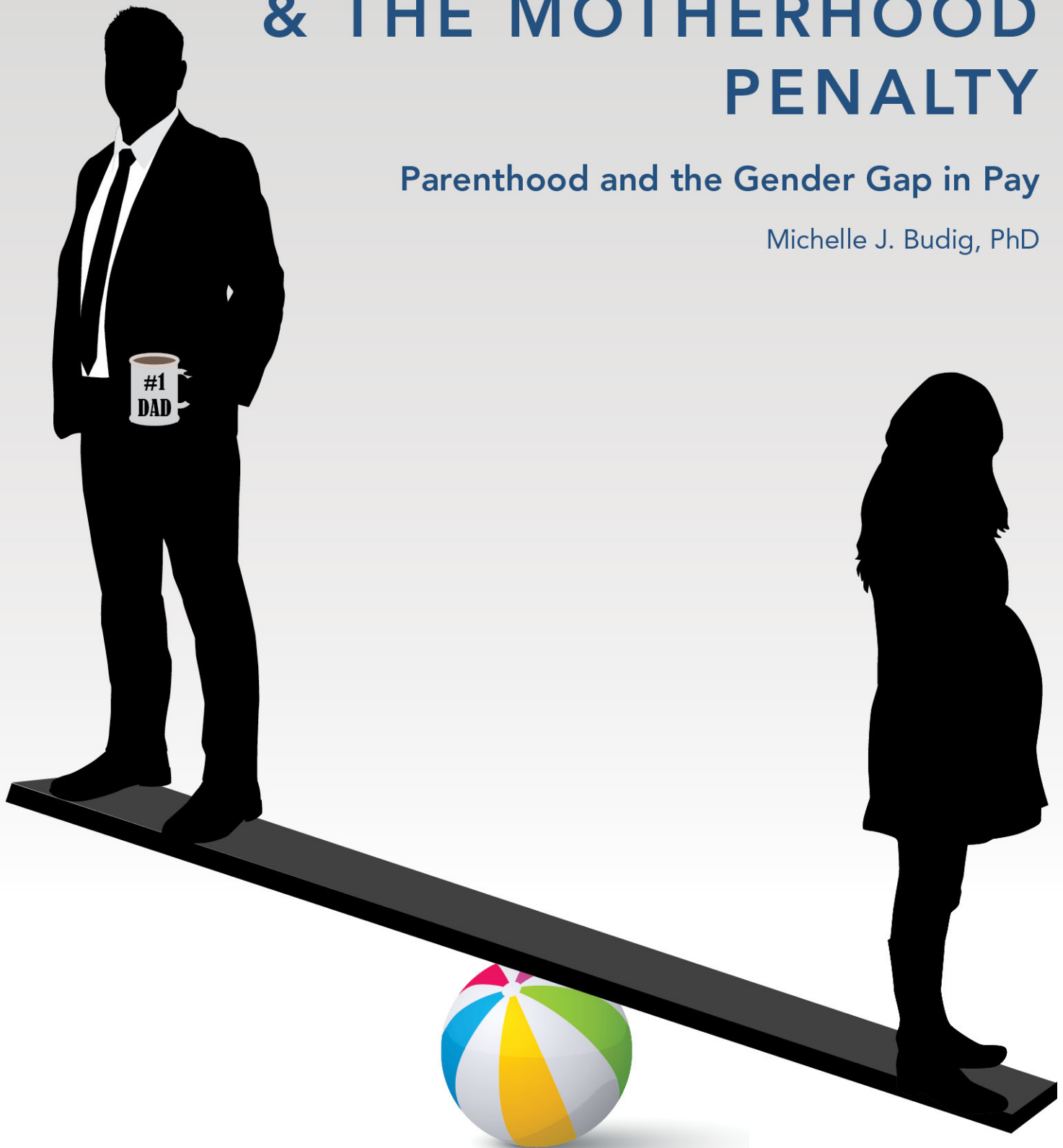
N E X T

WHAT'S NEXT?

For the past forty years at least, progressive advocates have been concerned about the status of working women in American society. At the center of that issue has been the persistence of the "wage gap"—the difference between men's and women's earnings. Certainly progress has been made. In 1979, as the first large generation of feminists were making their way into the work force, women made 63 cents for every dollar men made. By the turn of the century, however, that gap had closed to 81 cents on the dollar and for certain selected sub populations, unmarried, childless women in urban areas, women were making more money than men. Overall, never married women in 2012 had almost closed the wage gap—earning 96% of what men earn. So why are we still concerned about the wage gap? Is this issue over?

Michelle J. Budig, a professor at the University of Massachusetts-Amherst, clarifies this debate by looking at the wage gap in terms of the one thing that the majority of adults experience in their lifetime—parenthood. In a new and provocative paper, Budig looks at fathers and mothers. For most men the fact of fatherhood results in a wage bonus; for most women motherhood results in a wage penalty. "While the gender pay gap has been decreasing, the pay gap related to parenthood is increasing," says Budig.

The persistence of the wage gap occurs because the fatherhood bonus and the motherhood penalty are not evenly distributed across all income and social class levels. Using a sophisticated statistical technique on a large sample of American workers, Budig controls for a variety of variables that could produce a gap between fathers and non-fathers. Her conclusion is that the fatherhood "bonus" is not equal across the income distribution; in fact it is much greater for men at the top. "Fatherhood," she concludes, "is a valued characteristic of employers, signaling perhaps greater work commitment, stability, and deservingness."

The opposite pattern emerges when Budig turns her attention to the effects of motherhood on women's wages. Each child costs women. But as with the fatherhood bonus the motherhood penalty is not evenly distributed across income levels. In fact, at the very top of the income distribution for women, there is no motherhood penalty at all. But at the bottom of the wage distribution, low income women bear a significant and costly motherhood penalty. In other words, "the women who least can afford it, pay the largest proportionate penalty for motherhood."

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Understanding the nuances of this report is critical to social policy. The fact that low income women bear a substantial motherhood penalty that is not offset by a fatherhood bonus among low income men means that simple fixes such as encouraging marriage are not likely to solve the problem. And given that people tend to marry people who are similar to them, these effects are likely to exacerbate inequality.

Budig's paper, "The Fatherhood Bonus and the Motherhood Penalty: Parenthood and the Gender Gap in Pay" is the latest in a series of ahead-of-the-curve, groundbreaking pieces published through Third Way's NEXT initiative. NEXT is made up of in-depth, commissioned academic research papers that look at trends that will shape policy over the coming decades. In particular, we are aiming to unpack some of the prevailing assumptions that routinely define, and often constrain, Democratic and progressive economic and social policy debates.

In this series we seek to answer the central domestic policy challenge of the 21st century: how to ensure American middle class prosperity and individual success in an era of ever-intensifying globalization and technological upheaval. It's the defining question of our time, and one that as a country we're far from answering.

Each paper dives into one aspect of middle class prosperity—such as education, retirement, achievement, or the safety net. Our aim is to challenge, and ultimately change, some of the prevailing assumptions that routinely define, and often constrain, Democratic and progressive economic and social policy debates. And by doing that, we'll be able to help push the conversation towards a new, more modern understanding of America's middle class challenges—and spur fresh ideas for a new era.

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THE FATHERHOOD BONUS & THE MOTHERHOOD PENALTY:

PARENTHOOD AND THE GENDER GAP IN PAY

In September of 2010, ABC World News trumpeted a reversal of the gender pay gap, stating that women were now out-earning men.[1] Analyzing Census data, Reach Advisors, a market research firm, showed that women earn 8% more than their male counterparts. However, this reversal applied only to a very select group of women: unmarried, childless women under 30 years old who live in urban areas. You've come a long way baby? Not really.

While women have made progress vis-a-vis men in terms of employment and earnings, the recent Bureau of Labor Statistics Report[2] reveals that an overall gender gap in pay persists, such that among full-time workers, women earned 81 cents on a man's dollar in 2012. Progress has stalled in the 21st century in reducing this inequality. Consider that in 1979 women earned 63 cents to a man's dollar, and that this gap declined every year until 2003, when it reached the current 81 cents level and has remained there ever since. In past decades, between 1979-89, or 1989-99, the gender pay gap declined by 8 to 10 percentage points. Yet in the most recent decade 2003-2013, the gender pay gap has declined by 1 point. Figure 1 from the BLS report reveals this stall in progress.

What could be behind the gender pay gap stall of the last decade? Are women generally behind men in earnings, or are certain groups experiencing larger gender gaps? The BLS report shows that smaller gender gaps exist among young workers, consistent with the ABC News report. Figure 2 shows that among full-time workers, women aged 25 to 34 years earn 90.2 cents on a man's dollar, but this gap widens precipitously among those aged 35 to 44 to 78 cents and never recovers for any older age group. One possibility is that this is a "cohort effect" wherein younger generations experience smaller gender pay gaps and will maintain these smaller gaps over time (due to the higher educational attainment and greater employment opportunities of younger generations of women). However, the data more robustly

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Figure 1. Women's Median Weekly Earnings as a Proportion of Men's, Full-time Wage and Salary Workers, 1979-2013[3]
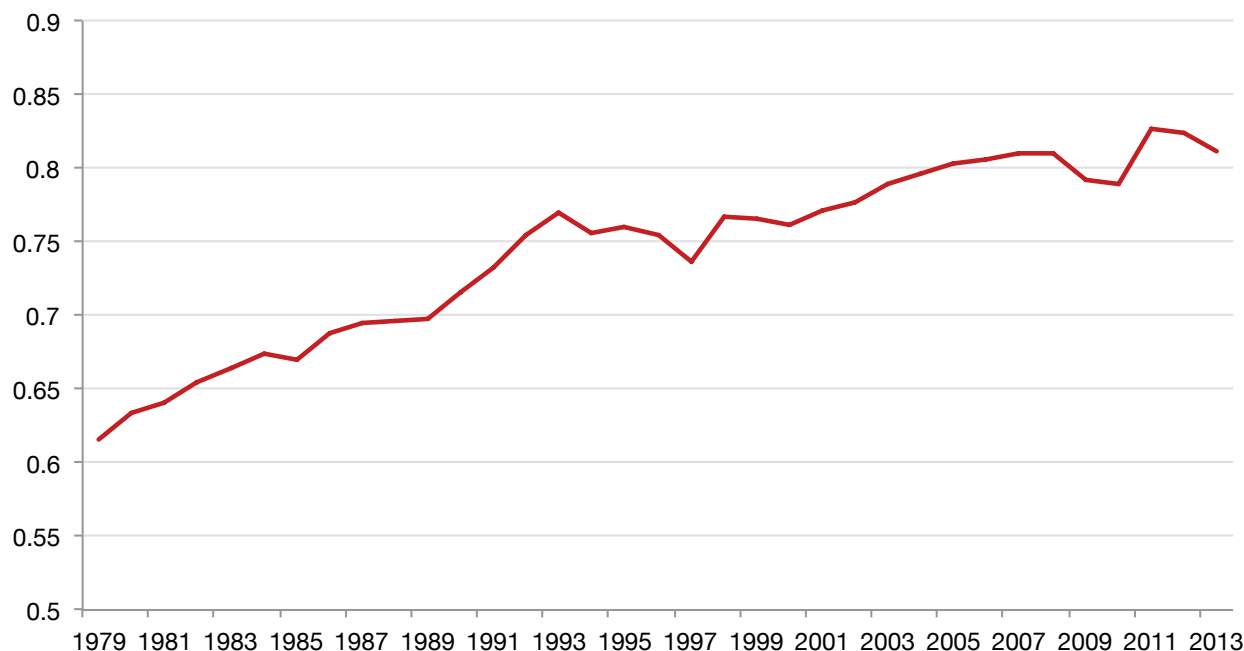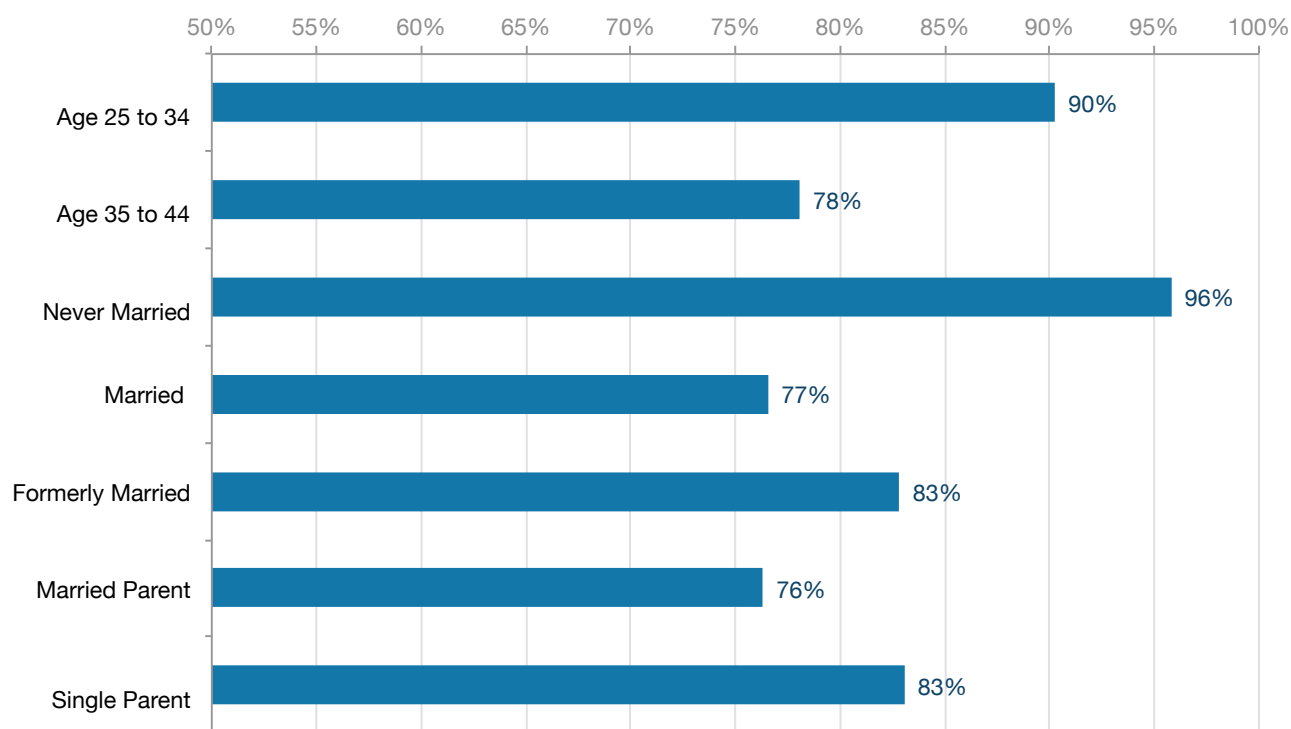

Figure 2. Women's Median Weekly Earnings as a Percentage of Men's by Selected Characteristics, 2012[4]

Characteristic	Percentage
Age 25 to 34	90%
Age 35 to 44	78%
Never Married	96%
Married	77%
Formerly Married	83%
Married Parent	76%
Single Parent	83%

support a second hypothesis—the "lifecycle effect" wherein the gender pay gap widens within cohorts as they age and are exposed to processes that affect earnings and thus increase the gender gap.

What life cycle events have happened by age 35 for modern Americans? The answer is childbirth and marriage. While the period of age 35 to 44 is one when, in general, wages show the greatest lifetime gains, it is also the same period when intensive family responsibilities, particularly for mothers, are in full force. Especially for college educated women in full-time jobs, who are more apt to delay motherhood, caring for small children is intense in their mid-thirties. Among those in their childbearing years (ages 15 to 44) in 2006-2010, 36% had their first birth after age 30, and an additional 41% had their first birth between the ages of 35 and 40.[5] Age at first birth has risen for all educational groups, and the time period of intensive childrearing is increasingly concurrent with career-building years for American women. Gender differences in family responsibilities are linked to the gender pay gap. Among full-time workers, marriage and children (under age 18) are associated with higher earnings among men, but lower earnings among women. The figure above shows the large differences in earnings between women and men of varying marital and parental statuses, as reported by the BLS.

The comparisons of the gender pay gap by marital and parenthood statuses are striking in the BLS data. The smallest gender pay gap is found among unmarried men and women: Unmarried women earn 96 cents to an unmarried man's dollar, and childless women (including married and unmarried) earn 93 cents on a childless man's dollar. In contrast, wives and mothers fare far less well. Even among full-time workers, married mothers with at least one child under age 18 earn 76 cents on a married father's dollar. Single mothers earn 83.1 cents to a single custodial father's dollar (that single moms are much less likely to be employed full-time relative to single dads is masked by this estimate among full-time workers). These figures show that married mothers of minor children experience the largest wage gaps. Marriage and motherhood are statuses that the majority of American women experience at some point in the course of their lives. Though age at first marriage and age at first birth are creeping upward, most Americans eventually engage in parenthood. Despite men's increased participation in childcare, women, even full-time employed women, still carry the lion's share of domestic and child-related responsibilities.[6]

Among full-time workers, marriage and children are associated with higher earnings among men, but lower earnings among women.

Moreover, American workplaces have made few accommodations for the needs of workers to balance family and work responsibilities.

The statistics reported thus far have shown only average differences between groups. But there are many reasons to expect that motherhood should be associated with wage declines and that fatherhood should be associated with wage gains. For example, mothers typically reduce work hours, at least temporarily, following the birth of a child, while men often increase hours after becoming fathers. If one can adjust for these other factors, is there still an association between parenthood status and earnings? Multivariate models and advanced statistical methodologies are needed to answer this. I turn to findings from studies employing these methods next.

While causality is complex, there is a strong empirical association between the gender gap (pay differences between women and men) and the family gap (pay differences between individuals with and without children).[7] Economist Jane Waldfogel's research showed that 40 to 50 percent of the gender gap can be explained by the impact of parental and marital status on men's and women's earnings. Moreover, Waldfogel shows that while the gender pay gap has been decreasing, the pay gap related to parenthood is increasing.

The effects of children on men's and women's earnings are referred to as the fatherhood bonus and the motherhood penalty, respectively. The fatherhood bonus is measured by comparing earnings of fathers relative to childless men, taking into account differences that might exist between men with and without children. Similarly, the motherhood penalty compares women with varying numbers of children (including the childless) to see how children reduce earnings. My research into the impact of parenthood on worker's earnings suggests that gender pay gaps widen with parenthood. The impact of parenthood plays out differently for men and women, and differently by social class (as marked by education, professional status, and earnings).

Generally, men find that their earnings increase when they become fathers, while each additional child is associated with earnings decline for women. As I document below, in addition to generating gender pay gaps between women and men, the effects of parenthood on earnings vary in such a way as to exacerbate earnings inequalities among low-income and high-income families. The fatherhood bonus is highest for the most advantaged men—married white college graduates with professional occupations involving cognitive skills. Similarly, the motherhood penalty is the smallest among the most

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advantaged women—those earning above the 90th percentile among women workers. Conversely, unmarried, African-American men in non-professional occupations requiring few cognitive skills incur the smallest fatherhood bonus, while women at the bottom of the wage distribution incur the largest motherhood penalty. Since men and women tend to marry those similar to themselves in terms of education, race, and professional status, the combination of uneven fatherhood bonuses and motherhood penalties implies increasing inequality among heterosexual, two-parent households with children. Below I present the detailed evidence of these phenomena.

DADDY BONUS: HOW FATHERHOOD RAISES (MOST) MEN'S WAGES

How much more do men earn when they become fathers, relative to being childless? This is the question central to the analysis presented in Hodges and Budig.[8] Using the 1979-2006 waves of the National Longitudinal Survey of Youth 1979 (NLSY79), we investigated whether and how the transition from childlessness to fatherhood impacts men's wages. Our key findings are that, all else equal, fatherhood increases men's earnings by over 6%. Moreover, this daddy bonus is larger for white men and Latinos, professional workers, the highly educated, and for those whose occupations involve higher levels of cognitive complexity. We conclude that the daddy bonus increases the earnings of men already privileged in the labor market.

We defined first-time fatherhood as a man who became a father by birth or adoption and who co-resides with the child (thus, single fathers who co-reside with their child(ren) are included). We argue that the earnings of unmarried fathers who do not co-reside with their newborn are unlikely to be impacted by either the caring responsibilities or the social status changes associated with participatory fatherhood. We focus on the transition to fatherhood, rather than number of children, because this transition will trigger any differential treatment of men in the workplace based on fatherhood status. On the family front, fatherhood status, rather than number of children, also predicts increased men's time in childcare activities. Time-use evidence shows that while fathers spend more time than childless men in childcare (just under one hour daily), fathers' childcare time declines as the number of children in the home increases.[9] The opposite is true for women (childcare time increases with more children born), presumably because with larger numbers of children, fathers and mothers experience greater gender divisions of paid and unpaid work.

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Why might men's earnings rise when they become fathers? There are two possible explanations. A wage increase at fatherhood could result from a "treatment" effect or a "selection" effect. The selection argument states that the same factors that predict higher wages among men also predict greater likelihoods of becoming a father. This is an example of positive selection into fatherhood: Men who would have earned more, on the basis of their characteristics, are also more likely to be fathers, thus rendering the relationship between fatherhood and earnings spurious. The selection effect suggests that what appears to be a positive effect of fatherhood is really due to men who have higher earnings potential being more likely to become fathers. By using fixed-effects techniques, our statistical models control for stable unmeasured differences among men, including innate intelligence, social class background, and career-orientation. (See appendix for details on fixed effects regression and the modeling strategy.)

In Figure 3, the first model using ordinary least squares (OLS), regression shows an effect of fatherhood on men's earnings of 8.3%. This means, holding region and urban area constant, men's wages rise, on average, by 8% when they become fathers. The second model incorporates fixed-effects, which remove the impact of stable differences among men in shaping this effect (i.e., if smarter or stronger men are more likely to become fathers and smartness and strength are related to pay and thus generating the fatherhood bonus, fixed-effects models controls for this). Surprisingly, we find that the fatherhood bonus is

Figure 3. Effect of Becoming a Father on Ln Annual Earnings: NLSY 1979-2006[11]
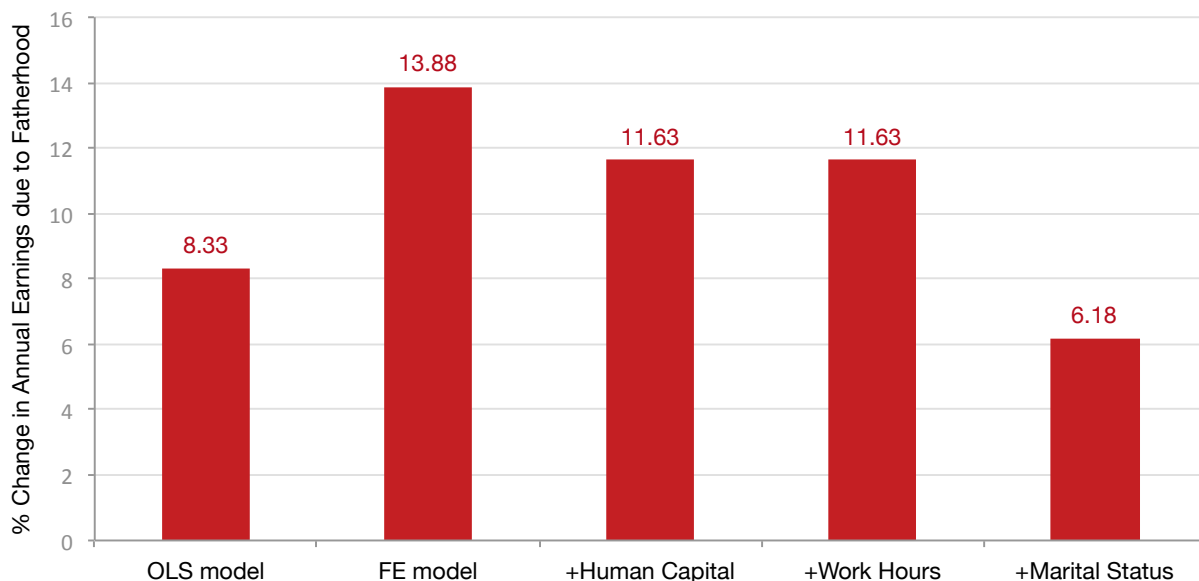
larger in fixed effects models, of almost 14%. This suggests negative selection into fatherhood, consistent with past research.[10] Negative selection means that the characteristics that predict lower wages are associated with greater likelihoods of becoming a father, indicating that men with less education or job experience, for example, are more likely to become fathers at younger ages.

In the human capital model, we test whether men with greater human capital are more likely to become fathers and earn higher wages. If this is the case, the fatherhood bonus would be spurious, or approach zero. Including these controls reveals that men receive a wage bonus of 11.6% when they become fathers. This means that men's wages in their post-fatherhood years are, on average, 12% higher than in their pre-fatherhood years, net of statistical controls. It also means that there is some positive selectivity into fatherhood, thus the bonus with human capital controls is slightly smaller than the bonus without the controls. Finally, because fathers are disproportionately married relative to childless men, we add a control for marital status. This shrinks the fatherhood bonus to 6.2%, but it remains significant.

One version of the treatment argument regarding the fatherhood bonus suggests that men might change their work-related behaviors when they become (or anticipate becoming) fathers in ways that increase their pay. Indeed, previous studies find that men's work hours and effort increase following a child's birth, particularly when mothers reduce their work hours.[12] Our fourth model controls for changes in work effort, however the wage bonus for fatherhood is unchanged compared to the human capital model that lacks these controls. In both models the effect of fatherhood nets an 11.6% earnings bonus.

But perhaps it is not men's work hours that matter, but their wives/partners' work hours. If fathers have female partners who do not work, or work part-time, these partners may take on even greater shares of family life responsibilities, freeing these fathers to focus on employment, relative to fathers whose partners are employed full-time and unmarried men. Yet, when we include measures of female partners' work hours in the model, the fatherhood bonus is unchanged. Past research confirms this robust finding of fatherhood bonuses regardless of wives' work hours: Even when wives work continuously after a birth, husbands earnings still rise.[13] This implies a different type of treatment effect.

An alternative treatment argument is that others—employers, coworkers, hiring agents—treat male workers differently based on their fatherhood status. While the survey data we use does not allow us to

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test for favorable treatment of fathers in the workplace, evidence from experimental and audit studies suggest that fathers receive preferential treatment over childless men from potential employers. Shelly Correll and her colleagues found that among men with equivalent resumes, fathers are more likely to receive call-backs and higher wage offers than are childless men.[14] Fatherhood may serve as a signal to potential employers for greater maturity, commitment, or stability. In the context of higher employer expectations for the "family man," they found that fathers are given less scrutiny for poor performance and more opportunities to demonstrate their abilities than are childless men.

If fatherhood confers a more favored status on male workers, how does it link to other status hierarchies in the workplace? Our analyses find that while all men experience a wage bonus for fatherhood, the size of the bonus varies by racial/ethnic group, educational attainment, professional status, and skill demands of the occupation. To demonstrate this, we re-estimated the fifth "Marital Status" model and included statistical interactions between fatherhood and racial/ethnic group, between fatherhood and professional status, and between fatherhood and occupational skill demands. Figure 4 shows the significant differences for these comparisons. In regard to racial/ ethnic differences, white men receive larger fatherhood bonuses than do black men or Latinos. Among white men, this bonus is larger for professionals and managers ($3,044; in 2006 dollars) than for non-professionals and non-managers ($2,020), and it is larger for men in occupations with high cognitive demands ($6,033) compared to low cognitive demands ($2,104). College educated white and Latino men receive significantly larger fatherhood bonuses than less educated men of the same race. White college educated men receive an average fatherhood bonus of $5,258 while Latino college graduates receive an average fatherhood bonus of $4,170. This is relative to bonuses of roughly $2,200 among less educated white men, $1,400 among less educated Latinos and $1,500 among all African-American men.

In summary, our findings point to significant wage bonuses for fatherhood that cannot be explained by differential selection into fatherhood on factors that lead to higher wages. Moreover, this bonus cannot be explained by fathers' or their partners' changed work hours following the birth of a child. Our findings show that fatherhood bonuses are ever-larger for more privileged men. This, in combination with past findings of employer preferential treatment of fathers, suggests that fatherhood is a valued characteristic of employers, signaling perhaps

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Figure 4. Fatherhood Bonus in Dollars, by Professional Status, Occupational Cognitive Demands Education (OCD), and Race/Ethnicity, Adjusted for Human Capital[15]
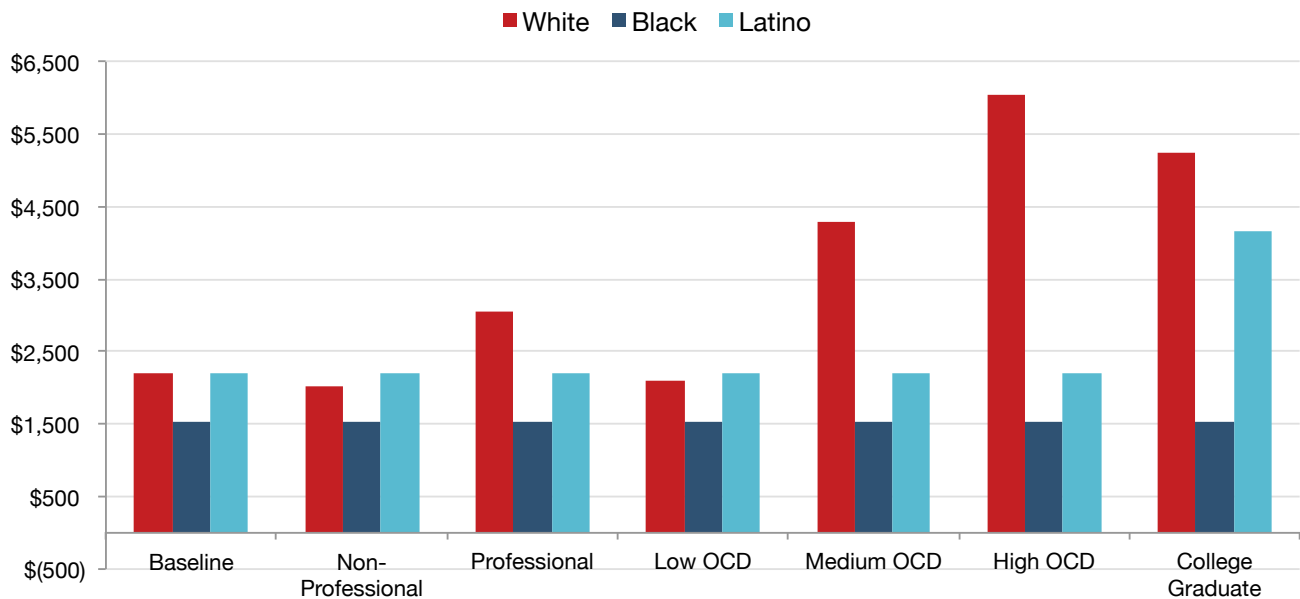
greater work commitment, stability, and deservingness. Men's traits that are valued in organizational settings combine with fatherhood to produce larger earnings bonuses. White (and sometimes Latino) married college graduates in professional occupations receive the largest fatherhood bonuses. Notably, none of these factors serve to alter the fatherhood bonus among African-Americans, which remains the lowest of all racial/ethnic groups in every analysis. In summary, men who are either better positioned or more valued due to their race/ethnicity, human capital, and professional standing receive a larger earnings bonus for fatherhood.

MOTHERHOOD WAGE PENALTY: THE COST OF EACH ADDITIONAL CHILD ON A WOMAN'S WAGE

In contrast to men, the impact of minor children in the home on women's earnings is negative. In a set of studies, we have established two major findings. First, there is a wage penalty for motherhood of 4% per child that cannot be explained by human capital, family structure, family-friendly job characteristics, or differences among women that are stable over time. Second, this motherhood penalty is larger among low-wage workers while the top 10% of female workers incur no motherhood wage penalty.

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It is widely documented that American women experience a wage penalty for motherhood.[16] There are at least five explanations for the association between motherhood and lower wages. First, many women spend time at home caring for children, and thus interrupt their job experience, or at least full-time job experience, and this can lead to lower wages. Second, mothers may trade higher wages for "mother-friendly" jobs that are easier to combine with parenting. Third, mothers may earn less because the needs of their children leave them exhausted or distracted at work, rendering them less productive. Fourth, employers may discriminate against mothers by assuming lower work commitment or performance. Finally, like the selection argument for the fatherhood bonus above, women who are less likely to earn higher wages may be more likely to become mothers, and the relationship between motherhood and wages can be explained by these other factors.
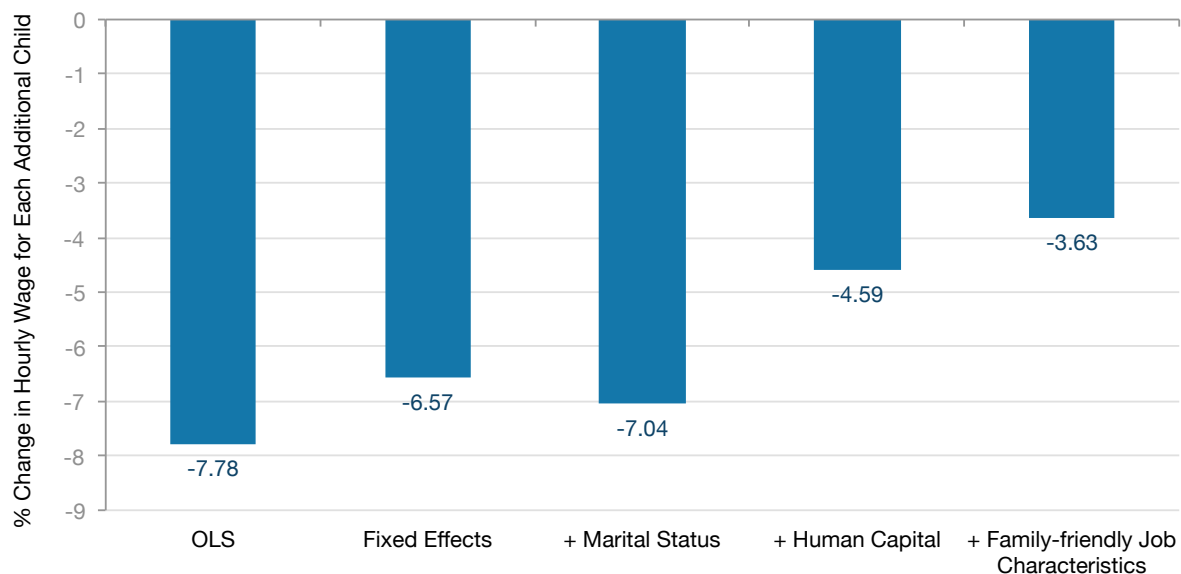
In my 2001 publication with Paula England, we investigated these arguments using NLSY79 data and fixed-effects models (again, similar to those presented in the fatherhood bonus section). The analysis differs, however, in its measure of children and the inclusion of single parents. We argue above that the status of becoming a father activates changed behaviors among men (e.g., increased work hours) and changed treatment of men by employers and co-workers (e.g., view a father as a more committed worker than a childless man). However, because women, on average, perform more of the care work of bearing and raising children, each additional dependent child (under age 18) that she has will impact her time allocations to home and work, as well as her opportunity costs for remaining employed while childcare costs increase. In addition, in contrast to the analysis above that did not include non-coresidential single fathers, we include single mothers who co-reside with their newborns (but not the baby's father) in this analysis. This is because while there is a significant number of single mothers in the data, there are virtually no co-residential single fathers.

FINDINGS

The figure below mimics (in the opposite direction) the figure for the fatherhood bonus in presenting tests of these competing explanations. For the methods and models producing the figures below, please see the appendix.

In the first model using OLS regression we find a wage penalty of -7.8% per child, such that a mother of two children would be expected to have a -15.6% penalty. When we control for stable

Figure 5. Effect of Each Additional Child on Women's Ln Hourly Wage: NLSY 1979-1993[17]

Y-axis: % Change in Hourly Wage for Each Additional Child

Category	Value
OLS	-7.78
Fixed Effects	-6.57
+ Marital Status	-7.04
+ Human Capital	-4.59
+ Family-friendly Job Characteristics	-3.63

differences among women using fixed-effects in the second model, we again find a motherhood wage penalty, but of a slightly smaller -6.7% per child. This indicates some level of negative selection into motherhood, meaning women whose stable characteristics predict lower earnings also somewhat predict greater fertility. We next include marital status and find the penalty rises a bit to -7.04% per child. This is because married women incur larger motherhood penalties than do single women. When we introduce human capital measures for job experience, seniority, education, and job turnover, the motherhood penalty is reduced to -4.6%. Taken together, human capital differences between women with more or fewer children explain about one-third of the motherhood penalty. But two-thirds of an unexplained penalty remains. The final model includes a large array of job characteristics that might make work more compatible with caring for children. These include access to part-time work or a seasonal schedule, measures of work effort required and amount of "down time" on the job, holding authority over others, jobs that allow children to be on-location such as child care employment or self-employment, and the extent to which the occupation is female-dominated. The thirty-five job characteristics entered in this model collectively reduce the motherhood penalty to -3.6% per child and much of this reduction is due to part-time work. Thus, while reduced human capital is a significant explanation for one-third of the motherhood wage penalty, we find little evidence that

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The import of this research shows that having children reduces women's earnings, even among workers with comparable qualifications, experience, work hours, and jobs. Research on the motherhood penalty has used a variety of regression methods to estimate the average impact of children on women's average earnings. But the average effect doesn't tell us about differences among women workers, or whether highly-paid women incur smaller or larger penalties for children compared to women with lower earnings.

Given the complex pressures and resources that women at varying earnings levels encounter both at home and at work, it is reasonable to expect differences in the processes leading to motherhood wage penalties among workers with at varying earnings levels. First, the composition of workers on factors shaping the motherhood penalty may systematically differ by earnings level. For example, relative to low-wage workers, high-earning women are likely to live in households with greater resources (e.g., a marital partner, higher family income), possess greater human capital (education), and hold jobs with more family-friendly characteristics (health benefits, greater autonomy and flexibility). The greater assets possessed by higher earners may enable mothers to more easily replace their child caregiving with high-quality services, therein providing both a motivation to increase earnings and the ability to reduce work-family conflict. This may result in smaller motherhood wage penalties relative to lower-wage women. On the other hand, these same household resources might enable high-wage mothers to reduce their labor force participation when children are small, through employment interruptions and reduced working hours. If so, motherhood penalties might be larger among high-wage workers.

In addition to having different amounts of resources among women located at varying points in women's earnings distribution, the degree to which these resources matter may vary by earnings level. For example, higher earning women are more likely to have maternity leave benefits than low-wage women. Moreover, employers may interpret taking leave around a birth differently for high earning versus low wage women. Employers might see maternity leave as an investment in the retention of highly-paid skilled women workers, but as a signal of lowered stability and commitment among low-wage workers, thus low-paid workers who take time off to give birth may face more employer discrimination for doing so, relative to highly paid workers. To do this, we estimate

quantile regression models (see appendix for details) to calculate how children impact earnings for workers at different percentiles of women's wage distribution. We specify the following percentiles: 5th, 10th, 25th, 50th (median), 75th, 90th, and 95th. These quantiles correspond to hourly wages (in 1996 constant dollars) of $4.35, $5.17, $6.48, $9.06, $13.45, $20.36, and $34.70, respectively. We can then compare whether the motherhood wage penalty differs between women with very low, moderate, and very high wages.

FINDINGS

While the average penalty for all women in the full model is about 4% per child, the penalty ranges in size from 6% per child among low-wage workers to no penalty among the earners at the 90th percentile or above. The figure below shows the impact of children on women located in different places in the distribution of all women workers' earnings. The horizontal, or X, axis shows the quantile, or position, in the distribution of women's earnings. The vertical, or Y, axis shows the percentage effect of a child on women's earnings. The dashed line shows the percentage change in earnings for each additional child, controlling for marital status, region of residence, and fixed effects. Thus, at the 0.05 location, or 5th percentile of women earners, the per-child wage penalty is 6.8%. The motherhood wage penalty declines among higher-earning women, and among women in the top tenth percentile, or at the 0.90 and 0.95 quantiles, we find no or positive effects of children on earnings.

The solid line in the figure above shows the impact of each additional child on women's earnings after we control for human capital measures. The human capital model includes variables for marital status, husbands' annual earnings, husbands' work hours, women respondents' work hours, annual weeks worked, education, years of experience, years of seniority, enrollment status, and whether the woman respondent changed employers in the past year. Once again we see that lost work experience and seniority captured in the human capital model partially explains the motherhood penalty: That mothers work less and may accept lower earnings for more family-friendly jobs partially explains the penalty among low-wage workers, and that mothers have less experience, due to interruptions for childbearing, explains some of the penalty among the highly paid. But a significant motherhood penalty persists even in estimates that account for these differences: the size of the median wage penalty after all factors are

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Figure 6. Effect of Each Additional Child on Ln Hourly Wage by Wage Quantile, Controlling for Human Capital, Family Structure, and Demographic Variables with Fixed Effects: NLSY 1979-2004[18]
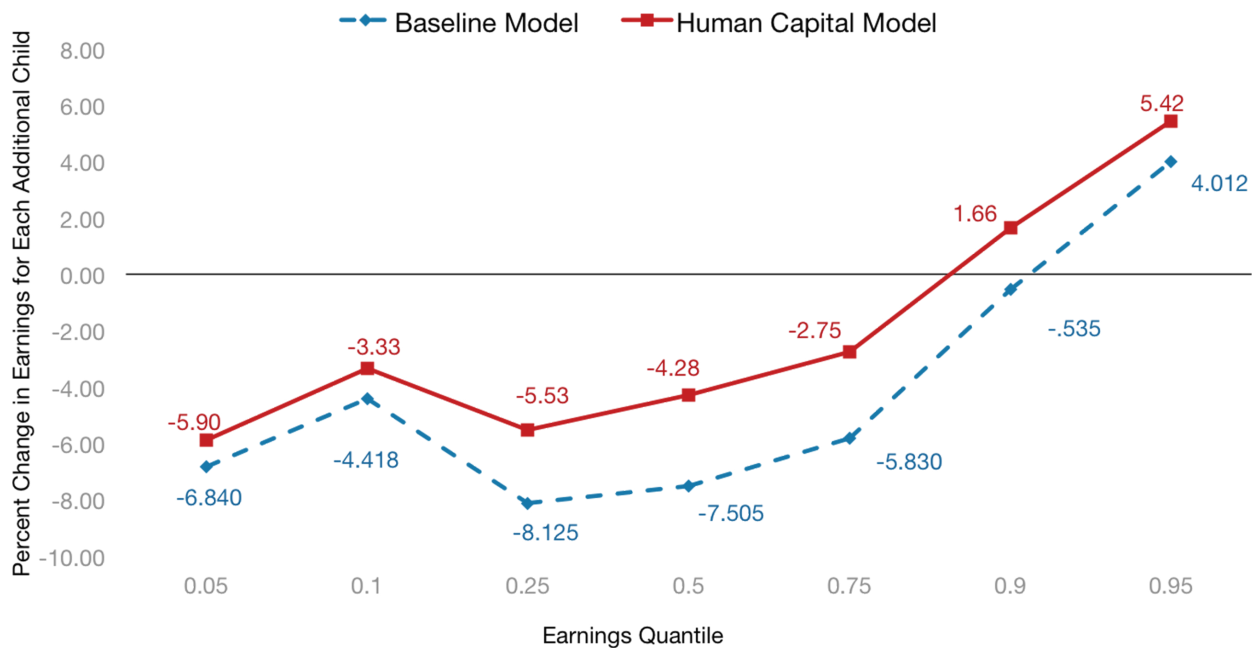
> ## Mothers at the top of the unconditional wage distribution are not penalized.

controlled is roughly 3% per child, which means the typical full-time female worker earned $1,200 less per child (in 2010 dollars).

Results show the largest motherhood wage penalties at the bottom of the unconditional earnings distribution, with percentage effects of -5.9 and -0.057 at the 5.5 and .25 quantiles, respectively. The .10 quantile has a slight blip upward, though still with a significant motherhood penalty. Mothers at the top of the unconditional wage distribution are not penalized. We observe that women at the .90 and .95 quantiles indeed receive a wage bonus for children of 1.7% and 5.4% per child, respectively. This striking finding of a motherhood bonus among the top earners is observed by other scholars: Anderson and colleagues find a motherhood bonus of 10% for one child and 7% for two or more children among college-educated women, and Amuedo-Dorantes and Kimmel find a 4% premium for motherhood among college-educated women, and a 13% premium for delayed motherhood among the college educated.[19] Among very high earners, mothers may earn enough to make a diverse array of domestic services –nannies, chefs, restaurants, cleaning services, etc.—affordable and allowing them to specialize more at work. The cost of such arrangements might motivate highly-paid mothers to earn ever higher wages, possibly

producing the child bonus we observe. It is also possible that high-performing women receive favorable treatment from employers for having children, similar to the way men receive favorable treatment and a wage bonus for fatherhood.[20] We find no evidence that these rare motherhood premiums are attributable to having less-employed spouses; if anything, it appears that high earning women with fully employed husbands are the most likely to receive a motherhood premium. Beyond these instances of motherhood premiums for very high-earning married women, our analyses generally show motherhood penalties for all women, but consistently smaller proportionate motherhood penalties for the highest-paid workers. Taken together, these findings suggest that high-income women and all men are less likely to experience the negative earnings impacts that children have on comparatively lower wage female workers.

We considered whether larger penalties among the lowest-paid might be due to their attempts to keep wages low enough to receive social welfare. However, in supplemental analyses we found that receipt of AFDC and TANF payments is not linked with variation in the size of the motherhood penalty. It is well-documented that women located on the lower end of the earnings distribution experience difficulty combining work and family obligations. These jobs typically entail the fewest benefits (health, life, and sick time), the closest supervision, and the least autonomy in setting the pace and intensity of work. Indeed, when we analyze penalties by age of the child, we see that the penalty per preschoolers is almost five times as great at the lowest quantile of earnings, compared to higher quantiles. Yet the same pattern does not appear for older child penalties (children aged 6 and to 18 years). This again speaks to the difficulty of combining intensive family responsibilities with work responsibilities in low-paid jobs: When physical care demands for children are greatest during the preschool years, low-earning mothers incur the largest penalties. Also supporting this argument is that we see that work effort accounts for significantly more of the motherhood penalty at the lowest quantile, indicating women with low-wage jobs are more likely to reduce work hours or experience job turnover to accommodate motherhood.

Employer changes induced by work-family conflict may account for some of the unexplained penalty at the lowest quintiles. One solution to work-family conflict for low-income mothers without access to family leave or subsidized daycare may be simply quit their jobs with the intent of starting over when family crises abate. The job-quit

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solution to resolve child care crises is likely more common among low-wage workers due to the high costs of formal childcare and their greater reliance on unpaid relatives and friends as caregivers. These friends and relatives of low-wage workers are likely to be facing their own financial and personal challenges, resulting in inconsistent care availability. Moreover, childcare tends to be least available in poor communities, where low-wage women more likely live. Whatever the source, it is clear that, according to our results, the women who least can afford it pay the largest proportionate penalty for motherhood.

Might employer discrimination lie behind the motherhood penalty that is unexplained by measurable characteristics of workers and jobs? It is difficult to obtain data on discrimination. However, evidence from experimental and audit studies support arguments of employer discrimination against mothers in callbacks for job applications, hiring decisions, wage offers, and promotions. As previously mentioned, Stanford sociologist Shelley Correll's experimental research shows that, after reviewing resumes that differed only in noting parental status (simply by stating membership in a Parent-Teacher Association), applicant evaluators in an experiment systematically rated childless women and fathers significantly higher than mothers on competency, work commitment, promote-ability, and recommendations for hire. Most telling, applicant raters gave mothers the lowest wage offers, averaging $11,000 lower than wage offers for childless women and $13,000 lower than wage offers for fathers. In their audit study, Correll and colleagues found evidence that mothers may suffer worse job-site evaluations, being scored as less committed to their jobs, less dependable, and less authoritative than non-mothers. [21]

While Correll's work focused on highly-paid professional employment, it could also be that among low-wage workers employers view family responsibilities among female employees as a source of instability and fail to hire or promote them to a greater extent than employers of higher-paid workers. What is important to note about Correll's research is that her experimental and audit studies showed disadvantage for mothers and advantage for fathers relative to childless persons even in the absence of evidence of differential performance or commitment by the job applicants. Why would potential employers review equivalent resumes in such disparate ways? Stereotypical gender expectations for fathers and mothers in relation to caring for others and focusing on paid work offer a potential explanation. Ideas of what make a "good mother," a "good father," and an "ideal worker" matter. If mothers

are supposed to focus on caring for children over career ambitions, they will be suspect on the job and even criticized if viewed as overly focusing on work. Correll et al found that mothers face discrimination even when they demonstrate competence and commitment. Evaluators viewed highly successful (on the job) mothers as less likeable, less warm, and more interpersonally hostile than non-mothers. Even when mothers break the stereotype of prioritizing family over work, they face discrimination in the workplace. The opposite is true for fathers. Correll's research finds that fathers are given more breaks or opportunities despite poor performance compared with non-fathers, as discussed above. Moreover, my research shows that these discriminatory processes may be linked to wage inequalities.

CONCLUSION

In this report I have identified the persistent gender gap in pay that, despite shrinking during the 1980s and 1990s, reached a woman's 81 cents per man's dollar in 2003 and has stalled there since. In considering the factors that could contribute to this stubborn gap, I've targeted the differential impact of parenthood on women's and men's earnings. Current data on full-time workers shows that the gender pay gap is quite small among childless and unmarried workers (among whom women earn 96 cents to a man's dollar). The gender pay gap is largest among married parents with a minor child in the home. Among full-time workers married mothers earn only 76 cents to a married father's dollar. In reviewing the research on the motherhood wage penalty and the fatherhood bonus, I demonstrate that some of the commonly held explanations for these differential effects hold some water. It is true that women decrease work effort by reducing hours or taking time away from work following the birth of a child, and that this lost experience accounts for roughly one-third of the motherhood penalty. Similarly, fathers do increase work effort following the birth of their first child and this accounts for at most 16% of the fatherhood bonus. Importantly for both women and men, accounting for changes in work behaviors, work effort, and human capital losses/gains associated with parenthood still leaves the vast majority of motherhood penalties and fatherhood bonuses unexplained. The argument that women trade earnings for family-friendly jobs when they have children, and that this accounts for their wage losses is not well supported by the statistical analyses. While there may be some unmeasured changes in the relative productivity of parents compared with childless workers, experimental

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and audit studies suggest that employers treat parents differently than childless workers, to men's advantage and to women's disadvantage.

The fact that having children exacerbates gender inequality is troubling enough, but the analyses indicating that parenthood penalizes lower-wage working women more and does not benefit lower-wage working men at all has profound implications for growing household or family inequality. Sociological research demonstrates that people marry similarly educated people and that education strongly predicts earnings. Thus, it is likely that the highly educated men (who receive the largest daddy bonus) are paired with high earning women (who receive no motherhood penalty). This indicates that parenthood further benefits, or at least doesn't harm, the earnings of high-income families. On the other hand, the large penalties for motherhood experienced by low-wage female workers and the absence of a fatherhood bonus for less educated men suggests that parenthood is likely creating significant earnings losses for families least positioned to absorb them.

Simply framing parenthood as a "choice" and one for which parents alone must accept the consequences is an inadequate dismissal of the effects of gendered parenthood on earnings. Increasingly American women are "opting out" of parenthood, but not of work. Twenty-four percent of American women aged 40 to 44 in the 2006-2010 period were childless, and this number is still higher if one looks at college graduates.[22] While American fertility remains high relative to other developed nations, raising the next generation of productive worker-citizens is key to any country or economy's survival. Increasingly this work is being done by families with fewer resources. Thus, this research underscores the importance of supporting low-wage families with children. While there are few transfers to low-income families in the United States, the Earned Income Tax Credit (EITC) currently reduces the tax burden of qualifying families by roughly $3,000 for one child to just under $5,000 for two or more children. The qualifying limits for these modest credits are quite low: Only families falling within 145% of the poverty line can fully claim this credit (my calculations from 2008 Census Bureau data). Expanding the EITC to more families and increasing the tax credit would both reduce child poverty and reduce the inequality among families generated by sizeable motherhood penalties and absence of fatherhood bonuses among less skilled and low-income workers.

The motherhood wage penalty and fatherhood bonus are not unique to American workers, but are found among a number of westernized

countries.[23] Notably, these parenthood effects vary across countries ranging from very large effects in gender conservative countries such as Austria and Germany, to very small effects in social democratic countries, such as Sweden. In considering the role of nationalized work-family policies and the motherhood penalty, our research indicates that publicly funded childcare, particularly for children aged 0 to 2 years, is associated with smaller penalties, while extended parental leaves (up to 3 years in Germany), are associated with larger wage penalties for mothers.[24] Clearly, public policy related to work-family issues can impact earnings disparities for parenthood. What these policies may entail in the American context is an important debate American policymakers must address.

APPENDIX: METHODS AND MODELS

Fatherhood Wage Bonus

To determine what factors can account for the impact of fatherhood on men's wages, we take a nested modeling approach. With this approach we estimate a baseline model that shows the total effect of fatherhood on earnings (with minimal controls) and then add sets of theoretically relevant factors in successive models to investigate how the effect of fatherhood on earnings changes with additional controls. In this analysis we estimate a baseline model using Ordinary Least Squares regression (OLS) and then higher-order models that use a technique called fixed effects regression, which examines change within a man's own wage trajectory over time (1979-2006), and estimates how much of that change is due to the birth of a first child, net of other factors. Fixed effects models control for time invariant selection, while OLS models do not. The importance of reducing selection bias is explained in the next section.

Nested models are sequential and each higher-order model includes the variables of the lower-order model, while adding additional control variables. We first fit five nested models to examine the mechanisms thought to explain the fatherhood premium. The baseline model uses OLS regression and includes controls for time (year of interview), fatherhood status, age, and demographic controls (urban/rural status). The second model re-estimates the baseline model with fixed-effects regression. The third model adds human capital measures (education, current school enrollment, seniority (years of experience with current employer), and years of total work experience. The fourth model adds measures for work effort (respondent's usual weekly hours, usual

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hours squared, annual weeks worked, and total number of jobs ever held). Model 5 controls for marital status. After examining the additive effects of these explanatory mechanisms, we investigate statistical interactions between fatherhood and a number of other factors, including household division of labor, educational attainment, professional/managerial status, and occupational cognitive demands. These interactions show under what conditions the fatherhood bonus is amplified or diminished.

Motherhood Wage Penalty

Models presented in figure 5: Parallel to the fatherhood bonus analysis, we run a series of nested models to examine whether competing explanations can account for the motherhood penalty. The OLS model utilizes robust standard errors and includes respondents' age and year of interview, each in linear, squared, and cubed form. The baseline fixed effects model includes person and year fixed effects. The marital status model adds marital status to the FE model. The human capital model additionally includes education, years of seniority, years of experience, current school enrollment, and number of employment breaks. The family-friendly job characteristics model adds part-time status; percent female of respondents' occupation and industry; occupational characteristics including reported work-effort required, percent of downtime (waiting or goofing off), hazardous job conditions, strength requirements, cognitive demands, specific vocational training requirements, and authority; and dichotomous measures for unionization, public sector job, self-employed, child-care occupation, and industrial sector.

Models presented in figure 6: In recent publications (Budig and Hodges 2010; Budig and Hodges forthcoming) using NLSY79 data covering the 1979-2004 period, Melissa Hodges and I show how the motherhood wage penalty varies across women with different levels of earnings. To do this, we again estimate fixed effects models at a baseline (with predictors for number of children, age of respondent, region of country, and population density) and a full model (with additional controls for current marital status, spouse's annual earnings, spouse's work hours, usual weekly hours, annual weeks worked, highest grade completed, years of experience, years of seniority, enrollment status, and a dummy variable for changing employers). To understand how the impact of children is different among women with different levels of earnings, we use a method called unconditional quantile regression. While regression models typically estimate an "average" effect of children on hourly wage, quantile regression allows for the estimation of effects of children for women at specific percentiles in the distribution of women's hourly wages.

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18 Notes: The Baseline Model includes number of children, age of respondent, region of country, and population density. The Human Capital Model adds controls for current marital status, spouse's annual earnings, spouse's work hours, usual weekly hours, annual weeks worked, highest grade completed, years of experience, years of seniority, enrollment status, and a dummy variable for changing employers.

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