A Reconsideration of the Fatherhood Premium: Marriage, Coresidence, Biology, and Fathers' Wages

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Abstract

Past research that asserts a fatherhood wage premium often ignores the heterogeneity of fathering contexts. I expect fatherhood to produce wage gains for men if it prompts them to alter their behavior in ways that increase labor-market productivity. Identity theory predicts a larger productivity-based fatherhood premium when ties of biology, coresidence with the child, and marriage to the child's mother reinforce one another, making fatherhood, and the role of financial provider in particular, salient, high in commitment, and clear. Employer discrimination against fathers in less normative family structures may also contribute to variation in the fatherhood premium. Using fixed-effects models and data from the 1979 cohort of the National Longitudinal Survey of Youth (NLSY79), I find that married, residential, biological fatherhood is associated with wage gains of about 4 percent, but unmarried residential fathers, nonresidential fathers, and stepfathers do not receive a fatherhood premium. Married residential fathers also receive no statistically significant wage premium when their wives work full-time. About 15 percent of the wage premium for married residential fathers can be explained by changes in human capital and job traits.

Keywords

earnings, family, marriage, parenthood, working parents

On average, fatherhood in the United States is associated with moderate wage increases. Fixed-effects estimates of the fatherhood premium usually range from 3 to 10 percent, with some variation according to the population considered and specification of the model (Glauber 2008; Hersch and Stratton 2000; Hodges and Budig 2010; Lundberg and Rose 2000, 2002). Yet the possibility of variation in the fatherhood premium across married fathers, cohabiting fathers, single fathers, nonresidential fathers, and stepfathers has received little attention, despite the fact that less than 60 percent of U.S. children live with married biological parents (Kreider and Ellis 2011). Documenting variation in the fatherhood premium across fatherhood contexts provides insight into how family context influences individual behaviors (Percheski and Wildeman 2008). Differences by family

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structure in the fatherhood premium may also have implications for men's income inequality and the financial resources available to children.

Prior studies have found that the fatherhood premium is larger for married than for unmarried fathers (Glauber 2008; Hodges and Budig 2010). Significant questions remain, however. First, distinctions among unmarried fathers, such as nonresidential fathers, cohabiting fathers, and single fathers have received little attention. It is thus not possible to determine the unique effects of marriage, partnership more broadly, or coresidence with children in producing the fatherhood premium. This is important given increases in births to cohabiting parents (Bumpass and Lu 2000). Furthermore, in the fatherhood premium literature, fatherhood is typically conceptualized only as biological paternity. In this study, I test for variation in the premium among fathers who differ according to whether they are married to the child's mother, live with the child, and are a biological or social father. I study the experiences of married residential fathers, unmarried residential fathers (including unpartnered and cohabiting fathers), nonresidential fathers, and stepfathers, and I disentangle the moderating influences of marriage, biology, and coresidence on the fatherhood premium.

Furthermore, I examine whether observed variation in the fatherhood premium is consistent with predictions of identity theory (Stryker 1968). When fatherhood, specifically the provider role, is salient, clear, and high in commitment, fathers are expected to change their behavior in ways that enhance wages. Scholars have recently used identity theory to theorize and examine variation in men's engagement with their children (Adamsons 2010; Fox and Bruce 2001; Henley and Pasley 2005; Rane and McBride 2000), yet implications for the fatherhood wage premium have not been explored. Given the dominant position of financial providership in men's conceptions of fatherhood (Forste, Bartkowski, and Jackson 2009; Townsend 2002), this omission limits our understanding

of how men construct the intersection of worker and father statuses.

THEORETICAL FRAMEWORK

Fatherhood may be associated with wage changes because men alter their behavior in ways that affect wage-earning or because employers discriminate on the basis of fatherhood. I discuss these two causal explanations for the fatherhood premium in this section and discuss the possibility for a spurious relationship between fatherhood and wages following the presentation of the main results.

Fatherhood and Productivity: Beyond Specialization

Causal explanations for the fatherhood premium often invoke the division of labor between different-sex parents, with parenthood typically increasing the share of household labor done by the female partner (Glauber 2008; Hodges and Budig 2010; Lundberg and Rose 2002). However, compared to when they are childless, fathers do not reduce unpaid labor time (Hersch and Stratton 2000; Pollmann-Schult 2011; Sanchez and Thomson 1997). Household specialization thus cannot explain the wage gains fathers receive compared to childless men. Specialization might explain variation in the fatherhood premium among fathers, yet men who spend the *most* time looking after their children earn the largest fatherhood premiums (Koslowski 2011), and decreases in men's housework and childcare time are not associated with significant wage gains (Hersch and Stratton 2000; Pollmann-Schult 2011). These results, too, are contrary to predictions of household specialization.

An alternative productivity-based approach to the fatherhood premium is to understand fatherhood through the lens of identity theory (for a review, see Stryker and Burke 2000). In this framework, individuals hold social positions (statuses), each of which is associated with various behavioral expectations (roles). Through interactions with others, individuals

interpret and internalize these roles, constructing identities (Stryker 1968). Throughout this article, my use of the term "identity" reflects this understanding, rather than how the term is sometimes used in other theoretical perspectives. With roots in symbolic interactionism, identity theory allows both individual meaning-making efforts and external influences to shape identities; not all fathers will understand fatherhood the same way (Rane and McBride 2000). An identity's *saliency* indicates the likelihood that an individual invokes it in a given situation. *Commitment* measures the extent to which other valued relationships depend on the identity, not the individual's personal dedication to the identity (Stryker 1968). Because individuals hold multiple identities and expectations of these identities may sometimes conflict, an individual's behavior is more likely to correspond to a particular identity (as constructed and understood by that individual) when the identity is salient and involves intensive commitment.

Fatherhood is an example of a status with associated roles (Ihinger-Tallman, Pasley, and Buehler 1993). Men's labor-market responses to fatherhood will be informed by their identity as fathers, including the saliency of fatherhood compared to other statuses (e.g., friend), and the relative saliency of the provider role, as compared to other roles associated with fatherhood (e.g., teacher or caregiver). When fatherhood is linked to other identities, such as husband or partner, men's commitment to fatherhood will be higher, inducing behavior consistent with a father identity. Men's efforts to fulfill expectations of fatherhood also depend on their certainty about these expectations. When fatherhood is a more ambiguous status and less institutionalized, fathers lack clear cultural scripts that indicate expected behavior (Cherlin 1978; Hamer 2001; Hofferth and Anderson 2003), potentially reducing involvement with children (Berger and Langton 2011).

Finally, fathers' behaviors should reflect their own beliefs about what it means to be a "good father"—that is, what fatherhood roles they embrace (Ihinger-Tallman et al. 1993).

Identity theory does not suggest one rigid set of roles for all fathers, but allows for variation among fathers in their constructions of the father identity. For many fathers, including low-income fathers, providing financially for their children is a central aspect of fatherhood (Forste et al. 2009; Townsend 2002). Provider is not the only fatherhood role, however. Americans may be increasingly likely to believe that mothers and fathers should share caregiving responsibilities equally. Although practice lags behind the ideal, married fathers' time spent in childcare has increased in recent decades (Bianchi, Robinson, and Milkie 2006). The fatherhood premium should therefore be larger when not only fatherhood, but the provider role in particular, is salient, high in commitment, and low in ambiguity.

Fathers may change their behavior in several ways that promote wage-earning. First, fatherhood can be a transformative process that increases feelings of responsibility and motivates men to desist from crime and drug use and increase social integration and institutional involvement (Augustine, Nelson, and Edin 2009; Knoester and Eggebeen 2006; Townsend 2002). Percheski and Wildeman (2008:487) refer to this as "the fatherhood as motivator perspective." High saliency of and commitment to fatherhood may therefore lead to wage increases for men, regardless of which roles are embraced, if men associate the father identity with responsible and pro-social behavior that is also associated with wage increases.

Other behavioral changes may be more explicitly related to employment. Millimet (2000) found that fatherhood is associated with greater job tenure, which may contribute to the fatherhood premium. Alternatively, some fathers may move to higher-paying jobs (but see Pollmann-Schult 2011). These changes need not occur immediately after entry into fatherhood, but may lead to higher average wages in the period after becoming fathers than while childless. Fathers may also work more productively or invest more in human and social capital that are rewarded in the labor market. In cross-sectional data, Kmec (2011) found little evidence that fathers

report greater pro-work behavior than do childless men, but fathers were more likely than childless men to report that providing for what is needed at home makes them work harder at their job. Although self-reported pro-work behaviors should be interpreted with caution, the results suggest that fathers, on average, perceive their family responsibilities as motivating increased work effort.

Fathers' work effort is conceptually distinct from their employment hours. Especially for married fathers, there is little evidence that transitions to fatherhood increase time in the labor market (Astone et al. 2010; Percheski and Wildeman 2008), although the effect appears to vary by gender role attitudes (Kaufman and Uhlenberg 2000), division of labor in the household (Lundberg and Rose 2000), and race and ethnicity (Glauber 2008). This does not imply that married fathers do not increase their labor market effort. Married fathers, who are more likely already to be fully employed (Percheski and Wildeman 2008), may be especially likely to seek to enhance their financial well-being through increased wages while maintaining or reducing their employment hours.[1] This is consistent with Koslowski's (2011) finding that fathers who spend the most time looking after their children earn the largest fatherhood wage premium but *reduce* their employment hours the most.

Implications for Heterogeneity in the Fatherhood Premium

To examine the association between fatherhood and wages, I consider three dimensions of fatherhood: marriage to the child's mother, coresidence with the child, and biological paternity. To isolate the importance of each dimension in determining the fatherhood premium, I compare fathers who share two of the three dimensions but differ on one. I draw on identity theory to generate hypotheses about variation in the fatherhood premium across these dimensions.

Marriage. To identify the effect of marriage on the fatherhood premium, it is appropriate to compare biological residential fathers who differ by marital status. Unmarried fathers may be cohabiting or unpartnered. Comparing married residential fathers to cohabiting and unpartnered residential fathers, rather than to all unmarried fathers, avoids confounding the effects of marriage and coresidence with the child.

For fathers partnered to the child's mother, identities of father and partner reinforce each other, heightening commitment (Ihinger-Tallman et al. 1993). Compared to marriage, cohabitation is less socially institutionalized (Nock 1995), suggesting that fatherhood may have greater ambiguity for cohabiting than for married fathers. Cohabiting couples also divide household labor more evenly than do married couples (South and Spitze 1994), which may lead married fathers to place a greater emphasis on the provider role than cohabiting fathers do. In summary, fatherhood should be less ambiguous and more focused on providership for married fathers than for cohabiting fathers: I expect a greater premium for married residential fathers than for cohabiting fathers.

Unpartnered residential fathers spend more time engaged with their children than do partnered fathers (Cooksey and Fondell 1996). This suggests that for these fathers the provider role may be relatively less important, and the caregiver role more important, as compared to partnered fathers. Additionally, romantic partners may be a source of social support in times of stress (Cutrona 1996). Lack of a cohabiting partner or spouse to provide social support may diminish unpartnered fathers' well-being and reduce their efforts or success in wage-earning. I therefore expect a lower fatherhood premium for unpartnered residential fathers than for married residential fathers.

Coresidence. The importance of coresidence with children for the fatherhood premium can be assessed by comparing biological fathers of the same union status, who either do or do not coreside with their children. Knoester and Eggebeen (2006) argued that the salience of fatherhood is likely

diminished for nonresidential fathers and they found support for this hypothesis: transitions to fatherhood are associated with increases in participation in service organizations for residential fathers but not for nonresidential fathers, and transitions to nonresidential fatherhood increase depression and time in social activities. Similarly, Minton and Pasley (1996) found that divorced nonresidential fathers report giving up fewer other relationships for fathering responsibilities than do residential married fathers, implying diminished salience of fatherhood. Commitment to fatherhood should be lower for nonresidential than residential fathers, because men's understandings of fatherhood and involvement with children are often deeply tied to their relationship with the child's mother (Seltzer 1994; Tach, Mincy, and Edin 2010; Townsend 2002).

Furthermore, traditional norms of fatherhood provide little guidance for nonresidential fathers' behavior (Hamer 2001; Seltzer 1991), forcing some nonresidential fathers to devote substantial effort to creating fatherhood identities "from scratch" (Roy 2006:46–47). This ambiguity may be amplified when children live with other father figures, as suggested by the fact that mothers' re-partnering has a stronger negative association with father involvement than does fathers' own re-partnering (Tach et al. 2010). Furthermore, for some nonresidential fathers the provider role, while not absent from conceptualizations of fatherhood, is not central (Hamer 2001). Due to reduced salience and commitment and higher ambiguity of fatherhood and the financial provider role specifically, I expect a smaller wage premium for nonresidential than residential fathers.

Biology. The role of biology in determining the fatherhood premium is best assessed by comparing the fatherhood premium for residential biological fathers to that of stepfathers of the same union status (either married or cohabiting). Both are fathers partnered to the mother of a child they live with, but they differ on whether they are biological or social fathers.

Compared to biological fathers, stepfathers are less likely to report that they think of themselves as a (step)parent and rate the (step)parent identity as less important to them (Thoits 1992). Furthermore, remarriage is often conceptualized as an incomplete family institution, with vague norms about behavior for its members, especially in the presence of stepchildren (Cherlin 1978). As suggested by Hofferth and Anderson (2003), ambiguity may be further heightened if the biological father remains involved in the child's life. Stepfatherhood is thus associated with lower salience and heightened ambiguity.

Ambiguity may be pronounced for the provider role in addition to the stepfather status more generally. One third of stepfathers at least somewhat agree that they are more like a friend than a parent to their stepchildren (Marsiglio 1992). Parents are expected to provide for their children financially, but the expectation is less obvious for friends. Negotiating stepfamily relationships in the absence of these guidelines may also reduce men's time and effort available for wage-earning. Because of the lower salience and greater ambiguity of stepfatherhood, and in particular the provider role, I expect a higher fatherhood premium for married, residential, biological fathers than for stepfathers.

Although men's fatherhood identity should influence their responses to fatherhood, it clearly will not explain all of the variation in the fatherhood premium. Other demographic characteristics may also shape men's behavioral responses to fatherhood. In my analysis, I test for variation in the fatherhood premium by race and education, to distinguish whether variation in the fatherhood premium among men in different fatherhood types is truly due to the heterogeneity of fatherhood contexts, or is a byproduct of the association between fatherhood and other demographic characteristics.

Discrimination

Men's wages may change when they become fathers for reasons other than their own behavior. If employers have biased perceptions of

fathers, perhaps perceiving them as more responsible, then discrimination will augment the fatherhood premium. In a laboratory experiment, Correll, Benard, and Paik (2007) found that, when evaluating equally qualified married fathers and married childless men, undergraduates rated fathers more favorably in terms of their anticipated commitment to the job and recommended a higher starting salary.

This suggests discrimination in favor of fathers, but it is unclear whether discrimination would apply equally to fathers with varying ties of marriage, coresidence, and biology to their children. Hodges and Budig (2010) argue that fathers should receive larger premiums when their traits are consistent with hegemonic masculinity as it is institutionalized in the workplace, including marriage and traditional household specialization. In this case, a larger fatherhood premium for married fathers, and especially for married fathers with wives specializing in unpaid labor, may be due to employer discrimination, rather than fathers' own behaviors.

By contrast, Percheski and Wildeman (2008) note that employers may stigmatize unmarried and nonresidential fathers if these characteristics are perceived as a signal of irresponsibility. Stigmatization is less likely for stepfathers and unpartnered fathers, because both exceed normative expectations for fathers: stepfathers assume a fathering relationship to children not biologically related to them, and unpartnered fathers assume caretaking responsibility without a female co-parent.

Employer discrimination may also lead to variation by race in the fatherhood premium. Just as employers stereotype African American women as single mothers (Kennelly 1999), they may also stereotype African American men as nonresidential fathers. If so, true variation in fatherhood type should be associated with smaller wage differences for African American men than for White men. On the other hand, because stereotypes are more likely to be activated when the individual under consideration has multiple traits consistent with the stereotyped group (Quillian and Pager 2001), African American men may experience greater wage losses (or

smaller gains) when they become nonresidential fathers than do White nonresidential fathers. This possibility provides further motivation to test for variation by race in the fatherhood premium.

DATA AND METHODS

I identify the fatherhood premium using fixed-effects models to compare a man's average wage in the years prior to and after becoming a father, netting out unobserved but time-invariant individual traits that are potentially correlated with both fatherhood and wages. For each fatherhood type, I estimate a separate wage premium. Using these estimates, I make the three key comparisons described in the previous section:

> Marriage: Do *married,* residential, biological fathers earn a larger premium than *unmarried,* residential, biological fathers?

> Coresidence: Do *residential,* biological fathers earn a larger premium than *nonresidential,* biological fathers, holding union status constant?

> Biology: Do married, residential, *biological fathers* earn a larger premium than married, residential, *stepfathers*?

By including men of all fatherhood types in a single model and allowing interactions with union status, my approach differs substantially from that of Glauber (2008), who estimates separate models for men of each marital status. Estimates from her models reflect the fatherhood premium for men who change their number of children *without* changing their marital status. For previously married men, this means the fatherhood premium is estimated only for men who father additional children after divorce and without remarrying. This does not answer the question of whether the large group of divorced men who father children while married maintain a fatherhood premium after they divorce. My analysis allows a more flexible relationship between union status and fatherhood, acknowledging

that changes in these dimensions of family structure may occur simultaneously.

I use a sample of men in the 1979 cohort of the National Longitudinal Survey of Youth (NLSY79) (Bureau of Labor Statistics 2008). Men age 14 to 22 years in 1979 were sampled and re-interviewed annually through 1994 and biannually thereafter. The most recent available data come from the 2008 survey, at which point respondents were 43 to 51 years and most union formations and parenthood transitions had been completed. After excluding subsamples who were not re-interviewed over the entire period, the sample includes 4,837 men and 97,464 observations. Excluding men who became fathers before age 18, because they lack adequate pre-fatherhood wage observations, reduces the sample to 4,694 men and 94,514 observations. I also excluded observations that occurred when individuals were under age 18 (5,758), currently enrolled in school (9,807), in the active armed forces (2,737), self-employed (5,943), or working a job not for pay (334) because wages during these periods may be poor indicators of long-term earnings potential or, in the case of self-employment, because wages alone (without business income) are a poor measure of the individual's total financial rewards for market work. I excluded observations that occurred after the respondent's oldest biological child reached age 18 (5,791), because fathers whose adult children do not live with them are not properly considered nonresidential fathers. I excluded 126 observations in which the respondent was a widower due to insufficient observations to analyze this group as a separate union status.

Wages

The dependent variable is the log of the respondent's hourly wage rate in his current or most recent regular job since the last interview, as constructed by the NLSY79, adjusted to 2008 dollars. I recoded the top and bottom 1 percent of reported wages to values at the 99th and 1st percentiles of the wage distribution of the sample, respectively, to avoid unduly influential outliers.

Union Status, Coresidence, and Biology

I assigned men to one of four mutually exclusive union statuses: never-married living singly (single), cohabiting, married, or divorced. Men's marital status is self-reported in each wave. Cohabitors are defined as unmarried men with a partner listed in their household roster. Men who are divorced and cohabiting are considered to be cohabiting.

Based on respondents' annual reports of their household composition and residence of their biological children, I created a binary variable for each fatherhood type—(biological) residential fatherhood, (biological) nonresidential fatherhood, and stepfatherhood—and set it equal to one if a man has any children of this type. Childless men are the excluded group. Together, these three variables identify two dimensions of fatherhood: biology and coresidence. Part A of the online supplement discusses construction of the fatherhood measures in detail (http://asr.sagepub.com/supplemental).

By interacting the three fatherhood variables with the union status variables, all possible combinations of marriage, biology, and coresidence are identified. I included a separate binary variable for the small group of men with biological children who live neither with the father nor with others who act as parents. This group includes, for example, fathers of children who are away at school or in long-term care institutions.

The NLSY79 data have several limitations. First, men's reports of their fertility are incomplete. The NLSY79 undercounts births to men age 24 years and younger by about 11 percent, and underreporting is more pronounced for nonmarital births (Joyner et al. 2012). Men who are unaware of the children they father will not be included, and men may disproportionately fail to report children with whom they are least involved. As a result, the group of nonresidential fathers observed in the NLSY79 may be biased in favor of men

who are more involved in fatherhood, leading to an overestimate of the nonresidential fatherhood premium.

Second, it is not possible to distinguish stepchildren from adopted children. Nationally, only 1.2 percent of children live with an adoptive mother and father, compared to 5.7 percent who live with a biological mother and stepfather or adoptive father (Kreider and Ellis 2011). Finally, because cohabiting stepfathers are difficult to identify prior to 1993, I consider only married men eligible to be stepfathers.

Control Variables

To adjust for the association between age and wages, all models include a quadratic for potential labor market experience. Potential experience is constructed as age minus years of education, minus five, because individuals start schooling around age 5 years. Potential labor market experience adjusts for the life-cycle pattern of wages but, unlike actual labor market experience, is exogenous to fatherhood transitions. Controlling for potential labor market experience will therefore not obscure the total relationship between fatherhood and wages.

Because returns to experience vary by education (Heckman, Lochner, and Todd 2003), the quadratic in potential experience is interacted with a man's educational attainment, measured in four categories based on his highest completed level of schooling: less than grade 12, 12th grade, one to three years of college, and at least four years of college. Likewise, men's potential experience is interacted with a measure of cognitive achievement—the quartile of their score on the Armed Forces Qualification Test (AFQT), with a separate category for respondents with no score (4.2 percent of the sample). Additional control variables include an indicator for whether a man reports a health limitation in the amount or kind of work he can perform, a series of indicators for region of residence (Northeast, North Central, South, West, missing), and a series of year indicators.

In the main analysis, I exclude controls for potentially mediating variables such as labor market experience and occupation. This is appropriate because, for example, if fatherhood is associated with wage gains because it prompts men to transition to higher-paying occupations, this is a real wage premium due to behavioral changes associated with fatherhood; it merely operates through another observed variable. Loughran and Zissimopoulos (2009) and Lundberg and Rose (2002) similarly argue for the exclusion of endogenous covariates in estimation of the association between family and wages.

Exploratory Analyses

Explanations for the fatherhood premium based on either productivity or discrimination suggest that married, residential, biological fathers will receive the largest fatherhood premium. In general, it is challenging to identify the mechanisms that relate individuals' family characteristics to their wages, because productivity and discrimination are rarely directly observed (Budig and England 2001). I propose four exploratory analyses that will help to distinguish the predictions of productivity-based wage gains from those of discrimination, if indeed married, residential, biological fathers are found to have the largest fatherhood premium. However, each analysis provides only indirect evidence of whether the fatherhood premium and its variation among fathers are due to productivity changes or employer discrimination. Therefore, we cannot draw firm conclusions about the source of the fatherhood premium.

Job traits and human capital. If the larger wage premium for married, residential, biological fathers than for other fathers is due to greater increases in labor market productivity, then productivity gains should be at least partially reflected in changes in these fathers' job traits and human capital. Controlling for these variables should reduce the fatherhood premium for married, residential, biological fathers. I measured job traits with a series of indicators for the occupation (38 categories) and industry (19 categories) of a respondent's main job and whether his employer is the

government. I also included controls for whether a respondent works part-time (fewer than 35 hours per week), a quadratic in weekly work hours above 35 if he works full-time, and quadratics in both his total labor market experience to date and the duration of his tenure with his current employer, both measured in years. A year of labor market experience is defined to be 2,000 hours. For each measure, I included a dummy variable set equal to one if data were missing for that variable in the current year.[2]

Specialization. Married, residential, biological fathers may receive a larger fatherhood premium because the birth of a child induces preferences for a more specialized division of labor in the household. If married fathers with employed wives receive a smaller fatherhood premium, it suggests that some variation in the fatherhood premium is due to men's behavioral responses to fatherhood. Hodges and Budig (2010) suggest that employers may discriminate in favor of men with nonworking wives, but this requires that employers are aware of the employment status of their employees' spouses. I measured wives' employment status in three categories: full-time year-round (at least 30 hours per week and at least 50 weeks per year), less than full-time, and missing.

Small employer. Because small firms contain fewer employees in structurally equivalent positions, discrimination on the basis of fatherhood may be less perceptible. In this case, the fatherhood premium for married residential fathers should be larger when men are employed in small firms. I defined employer size in three categories, based on the number of employees at a respondent's location: 40 or fewer employees, more than 40 employees, or missing. Forty is the sample median. Because employer size was not ascertained from 1981 to 1985, I excluded these years from this analysis.

Multiple children. If employers discriminate in favor of married residential fathers, I expect they do so primarily by distinguishing

men who have any children from those who have none, so the largest wage gain should be associated with the birth of the first child. Subsequent children, however, may induce men to make additional changes to their work behaviors as their financial needs increase, especially if household specialization continues to increase. A fatherhood premium that increases with the number of children is therefore consistent with a productivity-based explanation of the wage premium for these fathers. An indicator variable measures whether married residential fathers live with more than one biological child.

Missing Data

I dropped observations because of missing data only if a respondent reported an educational attainment and age that implies negative potential experience (three observations), did not report sufficient union status or fatherhood information (53 observations), or never provided education data, making it impossible to assign the individual to an education-specific age–wage profile (19 observations). This eliminates .1 percent of the sample.

In the remaining unweighted sample, 10.8 percent of observations (6,929) did not include wage data, almost always because the respondent did not report any regular employment since the last interview. I excluded these observations in the main analyses, consistent with past research (Glauber 2008; Loughran and Zissimopoulos 2009; Lundberg and Rose 2000, 2002). As a result, the fatherhood premium is measured for employed men only. Part B of the online supplement demonstrates the robustness of the results to alternative methods of handling observations with missing wages. Although 43 percent of men in the sample have at least one year in which they reported no employment since the last interview, the average number of years in which a man is observed with no regular employment is only 1.1. Average deviation from continuous employment is thus modest.

The final analytic sample includes 57,014 observations from 4,566 men. I used custom

Table 1. Descriptive Statistics for Individuals and Person-Years

	Mean (SD)
Individuals	
Ever marry	.81
Age at first marriage	25.34 (5.37)
Cohabit before marriage	.24
Ever divorce	.44
Ever father	.75
Age at entry to fatherhood	26.73 (5.53)
Race	
White	.80
African American	.14
Hispanic	.06
Person-Years	
Hourly wage	$19.06 ($12.07)
Age	30.06 (7.19)
Education	
Did not complete 12th grade	.13
Completed 12th grade and no college	.48
Completed 1 to 3 years of college	.18
Completed at least 4 years of college	.21
Health Limitation	.03
Region	
Northeast	.20
North Central	.30
South	.33
West	.18

Note: N individuals = 4,566; *N* person-years = 57,014. Standard deviations are not presented for discrete variables, as the full distribution of responses is shown.

weights from the NLSY79 for all analyses. All continuous variables are top-coded at the 99th percentile of the weighted sample distribution. All standard errors are clustered at the individual level. I used a standard of significance at the 5 percent level throughout.

RESULTS

Table 1 shows weighted descriptive statistics of individuals and observations in the sample. Of the men in the sample, 81 percent marry at some point during the observation period, of whom 24 percent cohabited before marriage and 44 percent divorced. Seventy-five percent of men became fathers of some kind. These results and all subsequent results are affected by sample attrition. Men who left the sample are younger at the time of exit and therefore less likely to have completed transitions to marriage and fatherhood.

Table 2 shows weighted percentages of the sample by union status and fatherhood type. In a given period, a man belongs to one of the four union statuses, which are mutually exclusive by construction. Being married is most common (49 percent); being single is next most common (36 percent). Cohabitation and divorce are relatively uncommon—7 and 8 percent, respectively. Men with more than one child may belong to more than one of the three fatherhood types, although only 5 percent of the sample does. It is most common to be exclusively a residential father (32 percent of the total sample), followed by exclusively a nonresidential father (9 percent), followed by both a residential father and a stepfather (3 percent). Just three groups—single childless men, married childless men, and married men with residential children (and without non-residential children or stepchildren)—comprise 75 percent of the sample.

These results reveal the tension between flexibility and parsimony in modeling men's union status and fatherhood type. When fatherhood types and union statuses are fully interacted, men fall into 20 distinct groups. Although it is desirable to capture as much variation as possible, some combinations of fatherhood type and union status are rare, and a few categories account for most observations. It may therefore be desirable to collapse some categories to gain statistical power.

Balancing these competing goals, I first estimated the most flexible model, fully interacting all fatherhood types with each other and with union status (see Table S2 in the online supplement). One reason to test for interactions by fatherhood type is that existing children may moderate the effect of subsequent fatherhood transitions on men's wages. For example, blended families may

Table 2. Union Status and Fatherhood Types, Weighted Percentages

Fatherhood Types	Union Status				*Total*	Unweighted Count
	Single	Cohabiting	Married	Divorced		
Childless	33.1	3.5	12.8	3.1	52.5	28,339
R only	.3	1.4	29.2	.8	31.7	17,340
N only	2.7	1.2	1.3	4.0	9.1	7,126
S only	N/A	N/A	1.5	N/A	1.5	829
R and N	.1	.4	1.1	.3	1.8	1,407
R and S	N/A	N/A	2.6	N/A	2.6	1,469
N and S	N/A	N/A	.4	N/A	.4	264
R, N, and S	N/A	N/A	.4	N/A	.4	240
Total	36.2	6.5	49.3	8.1	100	
Unweighted Count	22,002	4,411	25,835	4,766		57,014

Note: R = residential father; N = nonresidential father; S = stepfather. Row and column percentage sums may differ slightly from the total, due to rounding.

face unique challenges in negotiating new family relationships and responsibilities, placing demands on men's time and energy that inhibit wage-earning. I found no evidence of significant interactions between fatherhood types. Therefore, parsimony can be gained without loss of meaningful variation by treating fatherhood types as additive and nonexclusive. For example, cohabiting men with both residential and nonresidential biological children will be treated as both cohabiting residential fathers and cohabiting nonresidential fathers.

Table 3 displays the key coefficients from this simplified model, with full coefficients for all tables in Part D of the online supplement.[3] The main effect of each union status can be interpreted as the wage premium or penalty associated with that status compared to the omitted union status group—single men—for men without children. For childless men, the cohabitation premium is 5.4 percent and the marriage premium is 7.3 percent. Men's wages when divorced are not statistically significantly different from when they are single.

Coefficients on fatherhood types within each union status can be interpreted as the wage premium for fathers of that union status and fatherhood type *beyond* any pure effects

of union status that also affect childless men. In other words, they indicate the premium a father receives compared to a childless man of the same union status.[4]

Marriage. I first tested whether the fatherhood premium is larger for married residential fathers than for unmarried residential fathers. For residential fathers, differences in the fatherhood premium across all four union statuses are statistically significant ($p = .02$). Married residential fathers have a statistically significant wage premium of 3.7 percent compared to married childless men. Unmarried residential fathers have no fatherhood premium, and differences in the fatherhood premium among single, cohabiting, and divorced residential fathers are not statistically significant ($p = .71$). These results support Glauber's (2008) finding: married fathers earn a fatherhood premium and unmarried fathers do not. Partnership alone is not enough to confer a fatherhood premium, as cohabiting fathers do not experience wage gains.[5]

Coresidence. Do coresidential fathers fare better than nonresidential fathers? The answer depends on union status. Among married men, residential fathers earn 5.9 percent

Table 3. Changes in Men's Hourly Wages (ln) Associated with Changes in Union Status and Fatherhood Type, Union Status Interacted with Additive Fatherhood Types

	Coefficient (SE)
Single (reference group)	
Childless (reference group)	
Residential father	−.031
	(.039)
Nonresidential father	−.009
	(.016)
Cohabiting	.054***
	(.013)
Childless (reference group)	
Residential father	−.002
	(.017)
Nonresidential father	−.036
	(.020)
Married	.073***
	(.010)
Childless (reference group)	
Residential father	.037***
	(.009)
Nonresidential father	−.022
	(.019)
Stepfather	−.053***
	(.015)
Divorced	.016
	(.017)
Childless (reference group)	
Residential father	−.020
	(.027)
Nonresidential father	−.026
	(.021)
Overall R^2	.29
Person-Year Observations	57,014
Individuals	4,566

Note: Results presented are coefficients with clustered standard errors in parentheses. Childless, never-married men living singly are the excluded category. The model controls for a respondent's region of residence, whether his health limits his work, biological children who live in other residential arrangements, the respondent's potential experience, his educational attainment, the interaction between his education and his potential experience, the interaction between his AFQT score and his potential experience, and the year.
*$p < .05$; **$p < .01$; ***$p < .001$ (two-tailed tests).

more than nonresidential fathers, and the difference is statistically significant ($p = .002$). For unmarried fathers, the difference between residential and nonresidential fathers' wages is not statistically significant for any individual union status, nor for single, cohabiting, and divorced fathers jointly ($p = .53$). These results suggest the interaction between marriage and coresidence is crucial: coresidence is positively associated with men's wages only when combined with marriage. Across union statuses, nonresidential fatherhood is associated with slight but not statistically significant wage penalties compared to childless men ($p = .39$).

As discussed earlier, the NLSY79 likely undercounts unmarried and nonresidential fathers, and men who are unaware of their children or have the least involvement or contact with them are most likely to be excluded. Nonresidential and unmarried fathers observed in the survey are therefore likely to be a positively selected subsample, making it unlikely that the lower wage premiums for nonresidential and unmarried fathers compared to married residential fathers are due to selective reporting.

Biology. For men who marry women with children, the marriage premium is in large part offset by the stepfather penalty. When transitioning from single and childless to married with stepchildren, men's wages increase only by a nonsignificant 2.0 percent ($7.3 − 5.3$ percent) ($p = .25$). By comparison, men who marry childless women and then transition to married, biological, residential fatherhood receive a total wage premium of 11.0 percent, and the difference between stepfathers and married residential fathers is statistically significant ($p < .001$).[6] Thus, the fatherhood premium for married men coresiding with children also varies according to whether a man is a biological or social father.[7]

Glauber's (2008) finding of the importance of marriage in determining the fatherhood premium can be modified: married fathers do receive a larger fatherhood premium than other fathers, but only when the children are
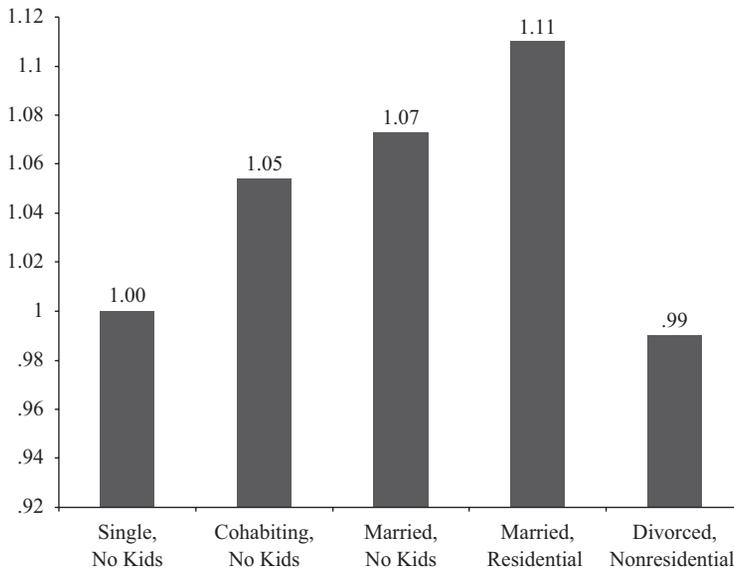
Figure 1. Hypothetical Trajectory of Men's Wages Relative to When Childless, Never-Married, Living Singly
Note: The figure represents the predicted wage changes associated with a possible union and fatherhood trajectory for a hypothetical man. Wages when single and childless are set to one as a baseline, and all other numbers can be interpreted as relative increases or decreases in comparison to the baseline state.

coresidential and biological. Among nonresidential fathers, there is no statistically significant variation by union status in the fatherhood premium ($p = .69$). Married nonresidential fathers do not receive an advantage, perhaps because married men who live apart from their biological children are more likely to be married to someone other than the child's mother. Likewise, coresidence with the child is associated with a wage advantage only for married men with biological children.

Figure 1 presents results from Table 3 graphically, with a possible union and fatherhood trajectory for a hypothetical man. For a never-married childless man, a transition to cohabitation is associated with a predicted wage increase of 5.4 percent, followed by an additional gain of 1.9 percent if he then marries. A subsequent transition to married, biological, residential fatherhood leads to an additional gain of 3.7 percent, for a total gain of 11.0 percent. If the man then divorces and his children no longer live with him, his wages fall 12.0 percent; his wages are now 1.0 percent less than and not statistically significantly different from when he was never-married living singly ($p = .56$). For childless

men, the difference between marriage and divorce is only 5.7 percent ($7.3 - 1.6$ percent), so about half the wage loss for married men with children who divorce and do not reside with their children is due to the transition from being a residential to a nonresidential father. Models that estimate the fatherhood premium separately for men of different union statuses cannot identify this effect.

Glauber (2008) and Hodges and Budig (2010) both find that married African American men receive a slightly smaller fatherhood premium than do White and Hispanic married men. Hodges and Budig (2010) further find a larger fatherhood premium for college graduates. However, I find no statistically significant variation by race or education in the fatherhood premium. Men of all races experience a statistically significant fatherhood premium when they are married residential fathers, but not otherwise. There is no evidence that African American men experience smaller wage gains from married residential fatherhood or larger wage penalties for nonresidential fatherhood than do White men (see Table S4 in the online supplement). The distinctiveness of my results may be due to

Table 4. Changes in Men's Hourly Wages (ln), Exploratory Analyses

	Job Traits + Human Capital	Specialization	Small Employer	Multiple Children
Married Residential Father	.032*** (.008)	.044*** (.012)	.039*** (.010)	.024** (.009)
x Wife works full-time year-round		−.031* (.014)		
x Small employer			.008 (.040)	
Has at least two children				.030*** (.010)
Wife Works Full-Time Year-Round		−.014 (.011)		
Job Traits + Human Capital Included?	Yes	No	No	No
Overall R^2	.41	.29	.26	.29
Person-Year Observations	57,014	57,014	45,021	57,014
Individuals	4,566	4,566	4,466	4,566

Note: Results presented are coefficients with clustered standard errors in parentheses. Models follow the specification used in Table 3, augmented by the covariates and interactions shown in the table above, with the following modifications. The Job Traits + Human Capital model includes controls for a respondent's labor market experience, work hours, and tenure with his current employer, and for the occupation, industry, and sector of his job. The Specialization model also allows the labor supply of the wife to interact with stepfatherhood. In the Small Employer model, employer size is also interacted with union status. Because employer size was not ascertained in 1981 to 1985, the Small Employer model is limited to observations from the years 1979, 1980, and 1986 to 2008.
*$p < .05$; **$p < .01$; ***$p < .001$ (two-tailed tests).

my more flexible covariate structure (particularly the age–wage profile interacted by education) and because I distinguish among fathers by coresidence and biological relationship as well as marital status.

Exploring the Wage Premium for Married, Biological, Residential Fathers

In this section, I discuss results of the exploratory analyses, which focused on the premium for married residential fathers. Because neither employers' behavior nor men's productivity was directly observed, it is not possible to definitively adjudicate between productivity-based and discrimination-based explanations for the fatherhood premium, nor is it possible to rule out that variation is driven by selection. Results in this section are thus best interpreted as exploratory and suggestive.

Job traits and human capital. The first column of Table 4 demonstrates that when the mediating variables of job traits and human capital are added to the model presented in Table 3, the wage advantage for married, residential, biological fathers falls from 3.7 to 3.2 percent, a decline of about 15 percent. Married residential fatherhood thus appears to be associated with wage gains for men in part due to greater human capital or placement in jobs with wage-enhancing characteristics. There is again no evidence that White men or men with college degrees earn a larger married residential fatherhood premium.

Specialization. Results in the second column of Table 4 show a significant and negative interaction between a married residential father's wage premium and his wife's full-time year-round employment. Married fathers with wives who do not work full-time, year-round earn a fatherhood premium of 4.4 percent, but the wage premium for married fathers with wives who work full-time is only 1.3 percent and not statistically significant ($p = .24$).[8]

Small employer. As the third column of Table 4 shows, there is no significant interaction between employer size and the premium for married, residential, biological fathers. If discrimination is responsible for the premium for married residential fathers, there is no evidence that it is stronger among smaller employers.

Multiple children. The fourth column of Table 4 shows that the wage advantage for married residential fathers with one child is 2.4 percent, and married fathers with more than one coresidential biological child receive an additional and statistically significant wage premium of 3.0 percent.[9] The fatherhood premium therefore grows with subsequent births.

Selection Concerns

The fixed-effects models used in the main analysis address concerns that selection into fatherhood is correlated with unobserved time-invariant individual-level traits that are also correlated with wages. In this section, I extend prior research by presenting a more complete documentation of the robustness of the fixed-effects estimates to corrections for a variety of forms of selection beyond those addressed by standard fixed effects. All results described in this section are available from the author upon request.

Loughran and Zissimopoulos (2009) raise the concern that the timing of men's transitions to marriage and parenthood may be correlated with their potential for wage growth, leading to biased estimates of the marriage and fatherhood premiums. For example, imagine two men who are identical on measures observable to the researcher, such as education and age, but the first man is substantially more charming and conscientious than the second—traits not observed by the researcher. Early in the life course, the first man may earn a wage premium of 5 percent over the second. This advantage may compound throughout his career, leading to a 20 percent advantage at middle-age. The first man's traits are not only positively associated

with wage *levels,* but positively associated with wage *growth*. If men with unmeasured traits conducive to above-average wage growth are more likely to be married and to be fathers—by marrying and having children at younger ages—estimates of wage premiums for marriage and fatherhood will be biased upward.

To address this concern, I replicated the model from Table 3 but allowed a more flexible specification of the age–wage profile by interacting each man's potential experience with one of four alternative measures: (1) the quartile of the distribution that his age at marriage falls into, plus a category for men who never marry, (2) the quartile of the distribution that his age at entry into fatherhood falls into, plus a category for men who never become fathers, (3) the total number of survey waves in which the man is married, and (4) the total number of survey waves in which he is a married residential father. In these four alternative models, married residential fatherhood is always associated with statistically significant wage gains of at least 1.9 percent, and no other fatherhood form is ever associated with wage gains of any size.[10]

Another possibility is that men may choose to enter fatherhood because of recent wage changes. Among low-income noncustodial fathers, men who at least somewhat intended their paternity were more likely to report that things were going well financially at the time of conception (Augustine et al. 2009). This suggests that fatherhood may follow improvements in financial circumstances. In this case, men's wages will be higher, on average, after becoming a father, but it is wage changes that lead to fatherhood, not the other way around. Selection of this form may also affect the type of fatherhood men enter. Low-income fathers (and mothers) report wanting to delay marriage until they have achieved sufficient financial resources (Gibson-Davis, Edin, and McLanahan 2005), suggesting that married fatherhood may be especially likely to follow wage increases. To test this possibility, I included nine dummy variables set equal to one only in the year immediately prior to the

transition to each fatherhood type (four union statuses each of residential fatherhood and nonresidential fatherhood, plus stepfatherhood). There is no evidence that the married residential father premium begins prior to fatherhood.

Finally, men may also select into different forms of fatherhood on traits that are correlated with the extent that their wages will change if they become fathers. For example, suppose that two men are identical in their wage trajectories, provided they remain childless, but the first man will not change his labor-market behavior when he becomes a father, no matter what kind of father he becomes, while the second will substantially alter his behavior to increase his wages after becoming a father, no matter what type of fatherhood he enters. If women are more likely to marry men whom they perceive as likely to be the second type, married fathers will experience the largest wage premium, but not because this fatherhood form induces greater wage changes. Likewise, if men vary in their ability to alter their behavior to generate wage gains, due to limited labor market opportunities, for example, and this variation is correlated with the type of fathers that men become, this may explain heterogeneity in the fatherhood premium.

This possibility is difficult to test. Hofferth and Anderson (2003) argue for negative selection into stepfatherhood, because stepfathers who also have biological children are less engaged with their biological children than are other biological fathers. This suggests that stepfathers' lesser time spent with children, as compared to biological fathers, may not be because men prefer to spend time with biological children over stepchildren, but because stepfathers are negatively selected on the basis of their preferences for spending time with children, regardless of whether the children are biological or stepchildren. The analogue in the fatherhood premium context would be if stepfathers experience a smaller wage gain when they become married residential fathers than do men who are not stepfathers and become married residential

fathers. More generally, we would expect to see significant interactions between fatherhood types. As previously discussed, however, such interactions are not statistically significant. Furthermore, given the lack of variation by educational attainment in the fatherhood premium, there is little evidence that married residential fathers receive the highest fatherhood premium because they are more advantaged in the labor market and therefore have greater capacity to increase their wages. Taken together, results in this section provide little evidence that variation in the fatherhood premium shown in Table 3 is driven by selection.

CONCLUSIONS

Married men who become residential fathers receive wage gains of around 4 percent, above and beyond the marriage premium of 7 percent. Results are robust to tests for multiple forms of selection, including selection into fatherhood on the basis of unobserved traits associated with wage levels, wage growth, magnitude of the fatherhood premium, and recent wage changes. I also considered selection into employment. Although selection cannot be conclusively ruled out as a source of the observed variation in the fatherhood premium, the selection tests presented here go far beyond traditional fixed-effects models.

Results are consistent with predictions of identity theory. Married residential fatherhood is uniquely high in saliency and commitment and low in ambiguity, and it emphasizes the provider role. Marriage itself does not appear to be responsible for the fatherhood premium. Rather, the embeddedness of the father and husband statuses are the important factors: married men who live apart from their biological children (and likely are not married to the child's mother) and married men who are stepfathers do not receive a fatherhood premium. This is consistent with commitment to fatherhood—the dependence of other valued relationships on the father identity—shaping the fatherhood premium.

Also supportive of a productivity-based interpretation of the fatherhood premium is the fact that about 15 percent of the premium for married residential fathers is explained by changes in these men's labor market experience and wage-relevant job traits, including occupation and industry. This suggests that at least some of the fatherhood premium is due to productivity-related differences in men's behavior, and more detailed measures of men's labor-market productivity will likely explain a greater share of variation in the fatherhood premium.

Furthermore, only men married to women working less than full-time receive a statistically significant fatherhood premium. This may indicate that married fathers benefit from diminished household responsibilities when their wives specialize in unpaid labor, but the fact that men do not appear to trade-off unpaid labor and wages (Hersch and Stratton 1997; Koslowski 2011) should give one pause in accepting this explanation. It is also possible that fathers increase their work effort to facilitate a reduction in their wives' paid work hours (Townsend 2002), or that employers discriminate on the basis of the wife's labor force status, as suggested by Hodges and Budig (2010).

If variation in the fatherhood premium is due to differences in men's responses to fatherhood, we cannot determine whether this is because fatherhood is higher in salience and commitment and lower in ambiguity for married residential fathers, or whether it is an emphasis on fatherhood's provider role, as compared to other roles, such as caregiver, that distinguishes this group. The positive association between time caring for children and the fatherhood premium (Koslowski 2011) may suggest that married residential fathers embrace not only the provider role but other roles associated with fatherhood as well. This is consistent with the fact that non-residential fathers and stepfathers are less engaged with their children than are residential biological fathers (Castillo, Welch, and Sarver 2011; Cooksey and Fondell 1996; Hofferth and Anderson 2003; Minton and

Pasley 1996). Although conclusions must remain speculative, the results are not entirely consistent with a model of fatherhood in which men simply trade-off whether to invest time or money in their children.

The fatherhood premium and its variation across fatherhood types is also consistent with employer discrimination. Employers may discriminate against men who are perceived to violate the normative expectation that fathers are married to the mother of their children and live with their children. I hypothesized that employer discrimination on the basis of fatherhood status would be stronger for men employed in small firms and for African American and Hispanic men. I further hypothesized that employers would discriminate primarily on the basis of fatherhood status, not number of children. I did not find support for these hypotheses, but employer discrimination may manifest in other ways. Discrimination may affect not only fathers' within-job pay, but also access to high-paying jobs and opportunities for building human capital, neither of which are visible when job traits and human capital are included as control variables.

Results presented here are indirect tests of the mechanisms responsible for the fatherhood premium, as the true mechanisms remain unobserved. This limitation is not unique to the present study, but future research is needed to further explore the mechanisms responsible for variation in the fatherhood wage premium. Laboratory experiments and audit studies could provide support for or against discrimination on the basis of fatherhood type, and observational studies based on employer records that offer more detailed information on fathers' work-related behavior may provide additional evidence of productivity differences. Rather than relying on any single study, future research should make use of a variety of data sources and research designs to construct a deep and robust understanding of the cause of the fatherhood premium.

Regardless of the source, the larger wage premium for married residential fatherhood will tend to advantage demographic groups that

spend more time in this privileged status—notably White men and more educated men who are already advantaged in the labor market. Variation in family structure thus exacerbates patterns of men's income inequality. Furthermore, the context-dependence of the fatherhood premium indicates that, when considering how family structure influences financial well-being and the financial resources available to children, individuals' financial resources cannot be considered fixed entities. Rather, it suggests that men who enter married residential fatherhood may experience a wage benefit *because* of their family form, and this benefit is contingent on remaining married and a residential father.

Results highlight the contingency of the fatherhood premium. Unlike the motherhood wage penalty, which is large for both married and unmarried mothers (Budig and England 2001), the fatherhood premium is fragile. We observe a fatherhood premium only for men for whom all three ties of marriage, coresidence, and biology are mutually reinforcing. Residential biological fathers who are not married receive no fatherhood premium, nor do stepfathers who live with children and are married to the mother. Even among married residential fathers, men married to wives who work full-time do not receive a statistically significant fatherhood premium. Ultimately, there is no clear answer as to whether biological ties to the child, ties of coresidence with the child, or ties of marriage to the mother are most important in producing the fatherhood premium. Instead, results are consistent with strong interactions between marriage, coresidence, and biology. Together, these three ties linking fathers to their children and their children's mother lead to higher wages for fathers than for non-fathers, but absent any one tie the fatherhood premium disappears.

Data Note

The NLSY79 survey is sponsored and directed by the U.S. Bureau of Labor Statistics and conducted by the Center for Human Resource Research at The Ohio State University. Interviews are conducted by the National Opinion Research Center at the University of Chicago.

Notes

1. I find no significant association between fatherhood and the likelihood of full-time work, or likelihood of overwork (50 or more hours per week) for any fatherhood type. There are no significant race differences in the association between fatherhood and work hours.

2. The (unweighted) missing rates are .5 percent for occupation, 1.3 percent for industry, 1.5 percent for sector, .1 percent for work hours, 12.7 percent for cumulative experience, and 1.3 percent for tenure. Region information was missing for .8 percent of observations.

3. Table S3 in the online supplement shows results of a model that allows no interaction between fatherhood and union status.

4. Alternatively, estimates could be presented as a series of main effects and interaction terms. For example, the fatherhood premium for single residential fathers could be defined as the main effect for residential fatherhood, and the marriage premium for childless men as the main effect of marriage. The interaction between marriage and residential fatherhood could then be interpreted as the wage premium for married residential fathers beyond what is expected given their status as residential fathers and married men. This is statistically equivalent to the present model. The current presentation avoids arbitrary assignment of a reference union status and is consistent with the focus of assessing the presence or absence of a fatherhood premium compared to childless men, for men in different fatherhood types. The alternative interpretation can be recovered by manipulating the coefficients in Table 3. For example, to find the interaction term between marriage and residential fatherhood, treating never-married men as the reference group, simply subtract the coefficient on never-married residential fatherhood from the coefficient on married residential fatherhood.

5. Nock (1998) argues that premarital fatherhood depresses men's socioeconomic outcomes in part

by decreasing their subsequent likelihood of marriage. In this analysis, I condition on union status, rather than considering union status as endogenous to fatherhood.

6. The stepfather penalty is not due to a lower premium for remarriage. Also, as Table S3 of the online supplement shows, the difference between stepfathers and biological fathers is statistically significant when all biological fathers are grouped together.

7. If men who become stepfathers have lower premiums associated with marriage or biological fatherhood, the difference between stepfathers' and married biological fathers' wage premiums cannot be interpreted as the wage gain that stepfathers *would* receive, had they married childless women and had biological children. There is no evidence, however, that men who become stepfathers have significantly lower marriage premiums than do other men in the years in which they are married and childless or that they receive lower wage premiums for biological residential fatherhood.

8. The stepfather penalty does not vary by the wife's employment status. Cohabiting partners' work hours are unavailable in most years, so specialization for cohabiting couples cannot be considered. Glauber (2008) finds that the interaction between wife's employment status and the fatherhood premium is significant only for White and Hispanic men, not African American men. Hodges and Budig (2010) find variation in the fatherhood earnings premium by wife's employment status only for Hispanic men. I find no significant differences by race or education in the relationship between wives' employment and the fatherhood premium.

9. There is no significant interaction between fatherhood type and father's total number of children, except that the fatherhood penalty increases with parity for never-married nonresidential fathers.

10. In fixed-effects models with the first difference in wages as the outcome (as in Loughran and Zissimopoulos 2009), I find no significant fatherhood premium. However, the R^2 is less than .01, suggesting that the first difference in wages is a noisy outcome. Furthermore, a Hausman test fails to reject the null hypothesis of random effects, suggesting that the fixed-effects first-difference model is not warranted.

References

Adamsons, Kari. 2010. "Using Identity Theory to Develop a Midrange Model of Parental Gatekeeping and Parenting Behavior." *Journal of Family Theory & Review* 2:137–48.

Astone, Nan Marie, Jacinda K. Dariotis, Freya L. Sonenstein, Joseph H. Pleck, and Kathryn Hynes. 2010. "Men's Work Efforts and the Transition to Fatherhood." *Journal of Family and Economic Issues* 31:3–13.

Augustine, Jennifer March, Timothy Nelson, and Kathryn Edin. 2009. "Why Do Poor Men Have Children? Fertility Intentions among Low-Income Unmarried U.S. Fathers." *ANNALS of the American Academy of Political and Social Science* 624:99–117.

Berger, Lawrence M. and Callie E. Langton. 2011. "Young Disadvantaged Men as Fathers." *ANNALS of the American Academy of Political and Social Science* 635:56–75.

Bianchi, Suzanne M., John P. Robinson, and Melissa A. Milkie. 2006. *Changing Rhythms of American Family Life*. New York: Russell Sage Foundation.

Budig, Michelle J. and Paula England. 2001. "The Wage Penalty for Motherhood." *American Sociological Review* 66:204–225.

Bumpass, Larry and Hsien-Hen Lu. 2000. "Trends in Cohabitation and Implications for Children's Family Contexts in the United States." *Population Studies* 54:29–41.

Bureau of Labor Statistics, U.S. Department of Labor. 2008. *National Longitudinal Survey of Youth 1979 Cohort, 1979–2008* (rounds 1–23) [computer file]. Columbus, OH: Center for Human Resource Research, The Ohio State University.

Castillo, Jason, Greg Welch, and Christian Sarver. 2011. "Fathering: The Relationship between Fathers' Residence, Fathers' Sociodemographic Characteristics, and Father Involvement." *Maternal and Child Health Journal* 15:1342–49.

Cherlin, Andrew. 1978. "Remarriage as an Incomplete Institution." *American Journal of Sociology* 84:634–50.

Cooksey, Elizabeth C. and Michelle M. Fondell. 1996. "Spending Time with His Kids: Effects of Family Structure on Fathers' and Children's Lives." *Journal of Marriage and the Family* 58:693–707.

Correll, Shelley J., Stephen Benard, and In Paik. 2007. "Getting a Job: Is There a Motherhood Penalty?" *American Journal of Sociology* 112:1297–1338.

Cutrona, Carolyn E. 1996. *Social Support in Couples: Marriage as a Resource in Times of Stress*. Thousand Oaks, CA: Sage.

Forste, Renata, John P. Bartkowski, and Rebecca Allen Jackson. 2009. "'Just Be There for Them': Perceptions of Fathering among Single, Low-Income Men." *Fathering* 7:49–69.

Fox, Greer Litton and Carol Bruce. 2001. "Conditional Fatherhood: Identity Theory and Parental Investment Theory as Alternative Sources of Explanation of Fathering." *Journal of Marriage and Family* 63:394–403.

Gibson-Davis, Christina M., Kathryn Edin, and Sara McLanahan. 2005. "High Hopes but Even Higher Expectations: The Retreat from Marriage among Low-Income Couples." *Journal of Marriage and Family* 67:1301–1312.

Glauber, Rebecca. 2008. "Race and Gender in Families and at Work: The Fatherhood Wage Premium." *Gender & Society* 22:8–30.

Hamer, Jennifer. 2001. *What It Means to Be Daddy: Fatherhood for Black Men Living Away From Their Children*. New York: Columbia University Press.

Heckman, James J., Lance J. Lochner, and Petra E. Todd. 2003. "Fifty Years of Mincer Earnings Regressions." NBER Working Paper 9732.

Henley, Kari and Kay Pasley. 2005. "Conditions Affecting the Association between Father Identity and Father Involvement." *Fathering* 3:59–80.

Hersch, Joni and Leslie S. Stratton. 1997. "Housework, Fixed Effects, and Wages of Married Workers." *Journal of Human Resources* 32:285–307.

Hersch, Joni and Leslie S. Stratton. 2000. "Household Specialization and the Male Marriage Wage Premium." *Industrial and Labor Relations Review* 54:78–94.

Hodges, Melissa J. and Michelle J. Budig. 2010. "Who Gets the Daddy Bonus? Organizational Hegemonic Masculinity and the Impact of Fatherhood on Earnings." *Gender & Society* 24:717–45.

Hofferth, Sandra L. and Kermyt G. Anderson. 2003. "Are All Dads Equal? Biology versus Marriage as a Basis for Paternal Investment." *Journal of Marriage and Family* 65:213–32.

Ihinger-Tallman, Marilyn, Kay Pasley, and Cheryl Buehler. 1993. "Developing a Middle-Range Theory of Father Involvement Postdivorce." *Journal of Family Issues* 14:550–71.

Joyner, Kara, H. Elizabeth Peters, Kathryn Hynes, Asia Sikora, Jamie Rubenstein Taber, and Michael S. Rendall. 2012. "The Quality of Male Fertility Data in Major U.S. Surveys." *Demography* 49:101–124.

Kaufman, Gayle and Peter Uhlenberg. 2000. "The Influence of Parenthood on the Work Effort of Married Men and Women." *Social Forces* 78:931–47.

Kennelly, Ivy. 1999. "'That Single-Mother Element': How White Employers Typify Black Women." *Gender & Society* 13:168–92.

Kmec, Julie A. 2011. "Are Motherhood Penalties and Fatherhood Bonuses Warranted? Comparing Pro-work Behaviors and Conditions of Mothers, Fathers, and Non-parents." *Social Science Research* 40:444–59.

Knoester, Chris and David J. Eggebeen. 2006. "The Effects of the Transition to Parenthood and Subsequent Children on Men's Well-being and Social Participation." *Journal of Family Issues* 27:1532–60.

Koslowski, Alison Smith. 2011. "Working Fathers in Europe: Earning and Caring." *European Sociological Review* 27:230–45.

Kreider, Rose M. and Renee Ellis. 2011. *Living Arrangements of Children: 2009*. Current Population Reports P70-126. Washington, DC: U.S. Census Bureau. Retrieved July 4, 2012 (http://www.census.gov/prod/2011pubs/p70-126.pdf).

Loughran, David S. and Julie M. Zissimopoulos. 2009. "Why Wait? The Effect of Marriage and Childbearing on the Wages of Men and Women." *Journal of Human Resources* 44:326–49.

Lundberg, Shelly and Elaina Rose. 2000. "Parenthood and the Earnings of Married Men and Women." *Labour Economics* 7:689–710.

Lundberg, Shelly and Elaina Rose. 2002. "The Effects of Sons and Daughters on Men's Labor Supply and Wages." *Review of Economics and Statistics* 84:251–68.

Marsiglio, William. 1992. "Stepfathers with Minor Children Living at Home: Parenting Perceptions and Relationship Quality." *Journal of Family Issues* 13:195–214.

Millimet, Daniel L. 2000. "The Impact of Children on Wages, Job Tenure, and the Division of Household Labor." *The Economic Journal* 110:C139–C157.

Minton, Carmelle and Kay Pasley. 1996. "Fathers' Parenting Role Identity and Father Involvement: A Comparison of Nondivorced and Divorced, Nonresident Fathers." *Journal of Family Issues* 17:26–45.

Nock, Steven L. 1995. "A Comparison of Marriages and Cohabiting Relationships." *Journal of Family Issues* 16:53–76.

Nock, Steven L. 1998. "The Consequences of Premarital Fatherhood." *American Sociological Review* 63:250–63.

Percheski, Christine and Christopher Wildeman. 2008. "Becoming a Dad: Employment Trajectories of Married, Cohabiting, and Nonresident Fathers." *Social Science Quarterly* 89:482–501.

Pollmann-Schult, Matthias. 2011. "Marriage and Earnings: Why Do Married Men Earn More than Single Men?" *European Sociological Review* 27:147–63.

Quillian, Lincoln and Devah Pager. 2001. "Black Neighbors, Higher Crime? The Role of Racial Stereotypes in Evaluations of Neighborhood Crime." *American Journal of Sociology* 107:717–67.

Rane, Thomas R. and Brent A. McBride. 2000. "Identity Theory as a Guide to Understanding Fathers' Involvement with Their Children." *Journal of Family Issues* 21:347–66.

Roy, Kevin M. 2006. "Father Stories: A Life Course Examination of Paternal Identity among Low-Income African American Men." *Journal of Family Issues* 27:31–54.

Sanchez, Laura and Elizabeth Thomson. 1997. "Becoming Mothers and Fathers: Parenthood, Gender, and the Division of Labor." *Gender & Society* 11:747–72.

Seltzer, Judith A. 1991. "Relationships between Fathers and Children Who Live Apart: The Father's Role After Separation." *Journal of Marriage and Family* 53:79–101.

Seltzer, Judith A. 1994. "Consequences of Marital Dissolution for Children." *Annual Review of Sociology* 20:235–66.

South, Scott J. and Glenna Spitze. 1994. "Housework in Marital and Nonmarital Households." *American Sociological Review* 59:327–47.

Stryker, Sheldon. 1968. "Identity Salience and Role Performance: The Relevance of Symbolic Interaction Theory for Family Research." *Journal of Marriage and the Family* 30:558–64.

Stryker, Sheldon and Peter J. Burke. 2000. "The Past, Present, and Future of an Identity Theory." *Social Psychology Quarterly* 63:284–97.

Tach, Laura, Ronald Mincy, and Kathryn Edin. 2010. "Parenting as a 'Package Deal': Relationships, Fertility, and Nonresident Father Involvement among Unmarried Parents." *Demography* 47:181–204.

Thoits, Peggy A. 1992. "Identity Structures and Psychological Well-Being: Gender and Marital Status Comparisons." *Social Psychology Quarterly* 55:236–56.

Townsend, Nicholas W. 2002. *The Package Deal: Marriage, Work and Fatherhood in Men's Lives*. Philadelphia: Temple University Press.

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