# The Demand for Sons or the Demand for Fathers? 

# Understanding the Effects of Child Gender on Divorce Rates 

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#### Abstract

Using data from the Fragile Families and Child Wellbeing Study, this paper examines why married parents of boys are less likely than parents of girls to become separated or divorced. Two prominent theories attribute differential divorce rates to: (1) the fathers' preferences for sons; or (2) the differential needs of boys and girls. The results suggest both theories have merit. First, fathers of newborn sons report greater marital happiness, but mothers do not. This supports the "demand for sons" hypothesis. Second, analysis of divorce rates provides evidence for both causal theories. In particular, I find that when new mothers report having only marginally happy marriages, sons sharply reduce three-year divorce rates. Further analysis of these marginal marriages shows that mothers of sons stay married partly because they believe marital stability is important for their sons' welfare. This supports the differential needs hypothesis. But these mothers also stay married partly because of increases in their marital surplus-apparently due to the father's preference for sons. Mothers of sons report better marital relationships after one year, hold more positive views of their husbands as fathers, and receive more of the fathers' help watching the child. These three factors, in turn, significantly reduce the likelihood of divorce.


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## 1. Introduction

This study explores the underlying causes of an empirical regularity documented in numerous studies-namely, that in the United States married parents of boys are less likely than parents of girls to become separated or divorced. This relationship between child gender and marital stability has been well-documented (Spanier \& Glick, 1981; Morgan et al., 1988; Teachman and Schollaert, 1989; Katzev, et al., 1994; Mott, 1994; Mammen, 2003; Dahl and Moretti, 2004; Bedard and Deschenes, 2005; Ananat and Michaels, 2007; Lundberg, McLanahan, and Rose, 2007). Related studies have also found evidence that unwed mothers of boys are more likely to marry the baby's father (Lundberg and Rose, 2003; Dahl and Moretti, 2004), and that married fathers spend more time with sons than with daughters (Lundberg, 2005b; Lundberg, Pabilonia, and Ward-Batts, 2007). ${ }^{1}$

This set of findings suggests that the benefits of marital stability and of paternal involvement in child-rearing are greater for parents with sons than for parents with daughters. However, the reasons for these differential returns are not well understood. The literature suggests two basic hypotheses. One is that fathers derive greater utility from time spent with sons than time spent with daughters. Because mothers are more likely than fathers to obtain child custody in the case of divorce, this paternal "demand for sons" increases the commitment of fathers to their marriages. An alternate hypothesis holds that boys and girls have differential real or perceived needs-specifically, that boys benefit more from a father's presence and suffer more in the event that their parents get divorced. This theory suggests that male children increase the "demand for fathers," and that mothers of boys have a greater tendency to stay in unhappy marriages out of concern for their child's welfare.

[^0]Further, these two hypotheses have different implications with respect to how divorce affects child well-being. On one hand, if fathers hold a gender bias for sons that is driving differential paternal inputs and divorce rates, this would indicate a persistence of differences in human capital investments in sons and daughters. It thus may help to explain long-term disadvantages faced by women, and may suggest the need for policies that encourage investment in girls to help correct for this differential investment. ${ }^{2}$ If, on the other hand, a perception that boys and girls have differential needs is driving parental investment and marital decisions, this would suggest that parents act altruistically and that their children's welfare is an important factor in divorce decisions. Such behavior would underscore the importance of better understanding both what shapes parental beliefs in this regard and the true differential effects of divorce on boys and girls.

This study uses data from the first three waves of the Fragile Families and Child Wellbeing Study (FFCWS) and it presents new evidence on why child gender affects divorce rates. In particular, it focuses on the "preference for sons" and "differential needs" hypotheses. I test these hypotheses using detailed measures of marriage attitudes, spousal relationship quality, and the father's involvement in child rearing.

My findings support both the "preference for sons" hypothesis and the "differential needs" hypothesis, and suggest that both theories help explain why parents of boys are less likely to divorce. First, I find that among fathers of newborns, those with sons report a stronger preference for staying married. This supports the preferences hypothesis that fathers benefit more from being with their sons.

[^1]Second, analysis of divorce rates provides support for both theories. Consistent with other studies, I find that parents of sons are less likely than parents of girls to be divorced three years after the baby is born. But moreover, this effect is strongest among marriages in which the mother is only marginally happy at the baseline interview; indeed, in these marginal marriages, sons reduce divorce rates by more than 60 percent. ${ }^{3}$ This suggests that sons provide their mothers with some compensation, and induce them to stay in marriages that they might otherwise leave. But do mothers of sons stay in marginally happy marriages out of concern for their sons (differential needs) or because their marital surplus increases due to some transfer from the fathers (preference for sons)?

Further analysis shows, first, that the child gender effect on divorce is stronger among mothers who agree with the view that "when there are children in the family, parents should stay together, even if they do not get along." This finding suggests that mothers are more likely to stay in unhappy marriages for the sake of their child when that child is a boy. This supports the "differential needs" hypothesis that mothers think a father’s presence is especially important for boys. In other words, it suggests that sons increase the maternal "demand for fathers."

However, I also find that the child gender effect on divorce rates is substantial among mothers who do not agree with "staying together for the children." ${ }^{4}$ I therefore conclude that concern for the differential needs of sons is not the only explanation for differential divorce rates, and that mothers of sons must experience some additional gain in marital surplus. To explore the sources of this increase in the mother's marital surplus, I analyze marriages that were marginal at the baseline but still intact after one year. I find that mothers of boys: (1) receive more of the fathers' help watching the child when the mothers most need help ; (2) hold more positive views

[^2]of their husbands as fathers; and (3) report somewhat happier spousal relationships. Taken together, these three factors explain about forty percent of the child gender effect on three-year divorce rates in those marriages. These results suggest that having a son instead of a daughter reduces the probability of divorce partly because it leads to greater transfers of marital surplus from fathers to mothers. Hence they provide further support for the "preference for sons" hypothesis.

## 2. Theory and Empirical Evidence

In the previous studies literature child gender and parental behavior, theories of the effect of child gender on marital stability and father involvement fall roughly into two categories-one emphasizing preferences and the other emphasizing constraints. ${ }^{5}$ The "preferences" hypothesis posits that fathers have a gender bias in their preferences for spending time with their children, and that this bias causes both fathers and mothers of sons to derive more utility from marriage. If fathers derive greater utility from spending time with sons, and if fathers tend to lose contact with their children in the case of separation or divorce, then having a son causes the value of marriage for the father to increase relative to the value of divorce. As a result, in the context of an intra-household bargaining model with transferable utility (e.g., Manser and Brown, 1980; McElroy and Horney, 1981; Lundberg and Pollack, 1994), mothers of sons also benefit indirectly from having sons and derive more utility from marriage. This is because fathers of sons have lower threat points and hence less bargaining power vis-à-vis the mother. In short, fathers of sons transfer greater shares of household resources to their wives in order to preserve their marriages and thereby preserve contact with their sons.

[^3]The alternate hypothesis, emphasizing gender differences in constraints, argues that the production functions for child quality differ for boys and girls. Two specific variants of this hypothesis argue that (1) boys have a greater need for a father's presence (e.g. as a role model) and (2) that boys may generally require greater care. Either variation implies that boys should suffer more than girls if their parents get divorced. ${ }^{6}$ In turn, if parents believe (for either reason) that divorce is more detrimental for boys than for girls, and if parents are altruistic toward their children, then parents of sons will be less likely to divorce.

The general hypothesis of differential needs implies that the effects of child gender on marital stability and father involvement are driven by the parents' concern for their children's well-being, and parents of sons will tend to stay married even if they would be happier divorced. In contrast to the gender bias hypothesis, the "differential needs" hypothesis suggests that mothers tend to be worse off with sons because they give up marital surplus in order to retain the father's presence or because they stay in unhappy marriages.

A few previous studies have attempted to distinguish among possible explanations for the observed child gender effects on marital stability. Although a few studies have provided evidence favoring the "preference for sons" hypothesis, none has directly shown a link from such preferences to lower divorce rates. Moreover, one recent study finds evidence that is arguably more consistent with the "differential needs" hypothesis than with the "preference for sons."

Dahl and Moretti (2004) present two pieces of evidence to support their conclusion that their estimated child gender effects on marital status and marital stability are driven by fathers' "demand for sons." First, they show that parents with a first-born girl are more likely than parents of a first-born boy to have an additional child. They argue that when combined with the

[^4]result that sons reduce divorce rates, this finding of differential fertility suggests that parents’ demand for sons is stronger than their demand for daughters. Second, they also present evidence, using stated preferences from the General Social Survey, that it is fathers-not mothers-who prefer sons over daughters. However, they do not show directly that these preferences are the mechanism by which sons affect marital status or martial stability.

A handful of studies, by Lundberg and Rose (1999), Lundberg and Rose (2002) and Lundberg, Pabilonia and Ward-Batts (2007), has tried to distinguish empirically between the "preference for sons" hypothesis and the "differential needs" hypothesis by testing the prediction that mothers of sons have more intra-household bargaining power under the first scenario. Together, these studies find that married fathers of sons work more hours and spend more time with their children, and consume less own-leisure time, but that child gender is not correlated with either the work time or leisure time of married mothers. Both papers argue that their results are more consistent with the "preference for sons/bargaining" model than with the "differential needs" model, because their results suggest that fathers of sons contribute more to household production, but mothers of sons do not. ${ }^{7}$ But, again, these papers face the limitation that they cannot directly link their findings to the probability of divorce.

Finally, a recent study by Lundberg and Rose (2007) finds evidence that they argue is more consistent with the "differential needs" hypothesis than with a "preference for sons." Using the first two waves of the Fragile Families and Child Wellbeing Study (FFCWS), they find that among children whose parents were married at the time of their birth, sons are more likely than daughters to be living with their fathers one year later; but among children of unwed mothers, there is no relationship between child gender and either living arrangements or father

[^5]involvement. ${ }^{8}$ The authors argue that this finding is consistent with a belief that fathers are more productive at raising sons than daughters, because in this case, a father's return to investing in his son should be increasing in the amount of time and control he expects to have in the childrearing process. In other words, the "differential needs" hypothesis is consistent with a more pronounced effect of child gender among married couples. In contrast, they argue that if fathers prefer spending time with sons, then the child gender effect on paternal involvement should depend less on initial marital status.

## 3. Data

The FFCWS collected data on a cohort of 4,898 children born in the U.S. between 1998 and 2000. Surveys were conducted in 75 hospitals in 16 large cities, and the weighted sample is representative of births in large U.S. cities with populations of 200,000 or more. ${ }^{9}$ Baseline surveys of both biological parents were conducted shortly after childbirth, and follow-up interviews were conducted when the children reached one year of age and again at age three.

### 3.1. Estimation Sample

I analyze data from the baseline surveys of both parents and from the mother's interviews at the one-year and three-year follow-ups. ${ }^{10}$ Our analysis focuses on mothers who were part of the national sample, who were married to the baby's father at the time of the baby's birth, and who were interviewed at the one-year and three-year follow-ups. With these restrictions, our

[^6]study sample consists of 708 mothers, and baseline father interviews are available for roughly 93 percent of this sample. ${ }^{11}$ Roughly 65 percent of the children in our sample are the mother's first born. In sensitivity analysis, I find that restricting our estimation sample to first-born children generally reduced the precision of our estimates without significantly changing their sign or magnitude (see section 5, below). Hence the results I report below are based on the unrestricted sample. ${ }^{12}$

### 3.2. Measures of Marital Surplus, Marital Attitudes and Paternal Involvement

Because it is designed to facilitate research on union formation and dissolution, the FFCWS provides a rich set of questions that can be used to analyze why parents divorceincluding their reported happiness with the marriage, their attitudes on the importance of marriage for children, and several measures of their interactions with their child. ${ }^{13}$ Table 1 presents summary statistics of the main explanatory variables used in this study.

A key variable in our analysis is the measure of marital happiness perceived by both the mother and the father at the time of the baby's birth. To construct this measure, I use responses to the following question, asked in the baseline survey of each parent: "Please tell me how you think your life might be different if you were not married to [BABY'S FATHER/MOTHER] now. Would you say that your overall happiness would be: [much worse, somewhat worse, the same, somewhat better, much better, don’t know]." Table 1a shows the matrix of responses to this question. Roughly 73 percent of mothers and 68 percent of fathers responded that their happiness would be either "somewhat worse" or "much worse" if they were not married,

[^7]indicating that they preferred staying married over getting divorced. Roughly 20 percent of mothers and 19 percent of fathers replied that their happiness would be "the same." The remainder said they would be happier not married (4.6 percent of mothers and 4.2 percent of fathers), were uncertain, or did not respond. ${ }^{14}$ Table 1a also reveals that couples often had different perceptions of their marriage. Thus, for example, while 73 percent of mothers and 68 percent of fathers indicated that they were happier married, only 55 percent of all couples agreed that they were happier married.

As explained further below, I use this marital happiness variable to examine whether sons increase the benefits of marriage directly or indirectly, and to examine how the benefits are distributed between mother and father. I also use it to increase the precision of our analysis by focusing on the "marginal" marriages, where a small change in marital happiness is most likely to affect the probability of divorce.

The differential needs hypothesis suggests that parents of sons are more likely to stay together because they think marital stability is important for the child's well-being. To examine this hypothesis, I employ a variable constructed from the mother's baseline survey that assesses her inclination to stay in an unhappy marriage for the sake of her child. Specifically, the survey asks: "Do you strongly agree, agree, disagree, or strongly disagree with the following statement: 'When there are children in the family, parents should stay together even if they do not get along.'" Roughly 38 percent of mothers replied that they agree or strongly agree with the statement (Table 1b). To facilitate the interpretation of our estimates, our analysis employs an indicator variable that is equal to one if the mother agrees or strongly agrees with the statement and zero otherwise.

[^8]The preference for sons hypothesis suggests that fathers of sons transfer some of their increased marital surplus to their wives in order to preserve their marriages. If this is so, mothers of sons should report having better relationships with the father. I might also expect mothers of sons to receive more support from their husbands in the form of improved or increased child care. I test these predictions using several variables based on the one-year follow-up survey of mothers who are still married to the baby's father after one year.

To assess the quality of the mother's relationship with the baby's father one year after the baby's birth, the mother is asked: "In general, would you say that your relationship with [BABY's FATHER] is excellent, very good, good, fair, or poor?" The responses to this question are tabulated in Table 1c. I use these responses to construct a relationship quality index in which the values range from 1 (poor) to 5 (excellent).

To assess the mother's general view of her husband as the father of her child, the mother is asked: "How often [always, sometimes, rarely], when with the child, does [BABY'S FATHER] act like the father you want for your child?" The reply "always" was given by 83.5 percent of mothers, and "rarely" by only 1.9 percent (Table 1d). Because of the small number of responses in the "rarely" category, and to facilitate interpretation of our results, our analysis employs an indicator variable that is equal to one if the mother's response is "always" and zero otherwise.

Mothers are also asked several questions regarding the father's involvement with the child at one year. In particular, one question focuses on his provision of general childcare when she needs help. Specifically, the mother is asked: ""How often [often, sometimes, rarely, never] does [BABY'S FATHER] watch [CHILD] when you need to do things?" About 78 percent of mothers responded "often" to this question, 16 percent replied "sometimes" and 5.6 percent replied "rarely" or "never" (Table 1e). Again, because of the small number of "rarely" or
"never" responses, our analysis employs an indicator variable that is equal to one if the mother's response is "often" and zero otherwise.

Other questions regarding father involvement focus on specific child-rearing activities. The mother is asked how many days a week the father (a) plays inside with the child (e.g. blocks or Legos), (b) reads stories to the child, and (c) feeds or gives a bottle to the child. ${ }^{15}$ Responses to these three questions range from zero to seven. I summarize these variables in Table 5 and discuss them further below.

## 4. Main Findings

A key distinction between the preference hypothesis and the differential needs hypothesis is that only the former implies a direct effect of child gender on marital happiness. Specifically, it implies that fathers of sons are relatively happier staying married because they enjoy spending time with their sons. I therefore begin our analysis by examining the relationship between parents' reports on how much happiness they derive from their marriage and the gender of their newborn baby.

Table 2 summarizes, by child gender, the marital happiness of each parent at the time of their baby's birth. Specifically it summarizes separately for parents of boys and parents of girls the proportions of mothers (fathers) whose baseline interviews indicate that they are happier married than they would be if not married. ${ }^{16}$ Strikingly, the mothers' responses do not vary at all with the gender of the baby, but the fathers' responses differ significantly. On average, fathers of boys are 8.3 percentage points (or 12 percent) more likely to report being happier married. Moreover, the dependence of the father's happiness on child gender is even stronger, with a

[^9]difference of 17.4 percentage points or nearly 40 percent, if I focus attention on marriages where the mother would be as happy or happier not married.

The differential in the father's marital happiness supports the hypothesis that fathers benefit (or anticipate benefitting) directly from being with their sons, and that they would expect to have less contact with their sons if they were not married to the baby's mother. ${ }^{17}$ Conversely, the lack of a differential in the mother's marital happiness suggests either that there is no gender bias in the mother's preferences for spending time with her children, or that the mother's bias does not affect the happiness she derives from staying married because she anticipates receiving custody of the child if divorced. Hence, the pattern seen in Table 2 suggests that the birth of a son might immediately reduce a father's inclination to divorce by increasing his desire to be with his child. However, it also suggests that if sons reduce their mother's inclination to divorce as well, they must do so through a different channel. Indeed, the findings reported in Table 2 do not guarantee that the birth of a son results in lower divorce rates compared to the birth of a daughter.

The next step in our analysis, therefore, is to examine how child gender affects divorce rates, and also to examine the role of parents' marital happiness reported at childbirth. Table 3 reports the effect of child gender on the probability that the parents divorce within three years after childbirth. Compared to parents of girls, parents of newborn boys are on average 3.1 percentage points less likely to divorce (column 1). This estimate is fairly large-corresponding

[^10]to a 24 percent reduction in the divorce rate-but it is statistically insignificant due to the relatively large standard error.

The next two columns add controls for each parent's perceived marital happiness at childbirth. The mother's marital happiness is a significant predictor of divorce. However, because the mother's baseline happiness is not correlated with the baby's gender, controlling for it does not affect the coefficient on the "baby is boy" indicator (column 2). Marital unhappiness on the part of the father also raises the probability of divorce, although the father's reported happiness has a much smaller impact than the mother's and is statistically insignificant (column 3). The estimated effect of the child's gender is reduced slightly in column 3, suggesting that the lower divorce rates among parents of boys may be due partly to the increased happiness that the fathers attribute to being married. However, because the estimated coefficient is reduced only slightly, and because the estimates in columns 1-3 all lack precision, this evidence is merely suggestive.

The estimates in columns 3 are small and lack precision partly because they are based on the full sample of marriages. It is unlikely that happy marriages dissolve simply because the mother gives birth to a girl instead of a boy; likewise, the birth of a son is unlikely to preserve very unhappy marriages. Hence, the child gender effect should be found primarily in marriages where small changes in marital surplus could determine whether or not the marriage ends in divorce. In other words, child gender should affect divorce rates only at the margin.

Column 4 adds the interactions of child gender and the marital happiness indicators to our estimation equation. The results indicate that indeed, the negative coefficient on "baby is boy" is driven predominantly by "marginal" marriages-specifically, by marriages in which the mother indicated that she would be equally happy if not married to the baby's father. This suggests that
boys reduce divorce rates by increasing marital surplus in a way that compensates mothers for marginally happy marriages. The remainder of our analysis therefore focuses on the subset of marriages in which the mother is marginally happy at the baseline (henceforth termed "marginal marriages"), and examines mechanisms through which boys might increase the mother's marital surplus.

### 4.1. The Role of Maternal Concern for Child Welfare

Estimation results based on the sub-sample of "marginal marriages" are presented in Table 4, column 1. The estimated coefficient on "baby is boy" is now quite large, indicating that sons reduce divorce rates by 21 percentage points. This corresponds to a reduction of about 65 percent relative to the 32 percent divorce rate of parents with daughters. This estimate is also much more precise than the full-sample estimate, with a p-value of .011 .

Focusing on these marginal marriages, I examine the mechanisms through which boys might increase the mother's marital surplus. One possibility, implied by the "preference for sons" hypothesis, is that over time, mothers of sons reap some of the benefits of the father's greater marital happiness. Another possibility, implied by the "differential needs" hypothesis, is that mothers of sons are more likely to stay in marginally happy marriages because they view marital stability as important for their child's welfare.

To distinguish between these hypotheses, I begin by examining the role of the mother's inclination to stay in an unhappy marriage for the sake of her child's welfare. As explained above, I employ an indicator that is equal to one if the mother's baseline interview indicates agreement or strong agreement with the statement that "when there are children in the family, parents should stay together, even if they do not get along." If sons reduce divorce rates primarily because of the mother's concern for her child's welfare, then one should expect to see
a much stronger effect among mothers who agree with the general principle that even unhappy marriages should be kept together for the sake of the children.

Column 2 of Table 4 includes the "agreement" indicator and its interaction with the "baby is boy" indicator in the estimation equation. The results suggest that indeed, sons have a larger negative effect on divorce rates among mothers who agree with the principle of staying together for the children. Although the difference is not statistically significant, the estimate suggests that the effect of sons on divorce is twice as large for the "agreement" group. This finding therefore suggests that at least part of the explanation for the lower divorce rates of parents with sons has to do with a belief in the importance of marital stability for sons. As such, it provides some support for the "differential needs" hypothesis.

However, our results also show that there is a substantial effect of child gender on divorce rates (an estimated difference of 14.6 percentage points) even among mothers who do not agree with "staying together for the children." Hence, I conclude that concern for the differential needs of sons is not the only explanation for the differential divorce rates that I find. Rather, it must be true that mother of sons experience some additional gain in marital surplus.

### 4.2. The Preference for Sons and the Redistribution of Marital Surplus

Next, I investigate possible sources of this increase in marital surplus, which induces mothers of sons to stay in marriages where they were only marginally happy at the time of the baby's birth. In particular, I examine whether mothers of boys (1) have better relationships with the baby's father one year after childbirth, (2) hold more positive views of their husbands as fathers, and (3) receive more help from them in caring for the child. I then ask, in turn, whether correlations between these year-one variables and the baby's gender can help explain the effect
of child gender on divorce rates. ${ }^{18}$
Table 5 summarizes the year-one marital surplus variables separately for mothers of boys and for mothers of girls and reports the estimated differences between these two groups. The summary statistics in the top panel are based on the full sample of marriages that are intact after one year, and the bottom panel restricts attention further to those marriages in which the mother was marginal happy as of the baseline interview. In both samples, the relationship quality index for the mother's relationship with the baby's father is somewhat higher among mothers of boys. The difference is larger in the marginal marriage sample, where the index is about 8 percent higher for mothers of boys. In both samples, the mother has a more positive view of her husband as a father. In particular, mothers of boys are 7-8 percent more likely to say that when with the child, he always acts like the father she wants for her child. The difference is statistically significant only in the full sample, but is similar in magnitude in the marginal marriage sample.

The most dramatic difference is found in mothers' on their husbands' propensity to watch the child when they need help. I find that mothers of boys are significantly more likely to receive help from the father in childrearing, and the difference is especially large among mothers who were marginally happy in their marriages. In the marginal marriage sample, mothers of boys are nearly 40 percent more likely than mothers of girls to report that the father often watches the child when she needs to do things. This is consistent with hypothesis that in marginal marriages, fathers of sons have an incentive to transfer some of their higher marital surplus to the mothers in order to preserve their marriages and thereby preserve contact with their sons.

[^11]I also examine three other dimensions of father child interaction: time spent reading to playing with, and feeding the child. Specifically, I find that fathers of boys play with their children more often (half a day per week) than fathers of girls. In the full sample, fathers of sons do not spend more time reading to or playing with their children. However, in the marginal marriage sample, I find moderate differences in all three measures of father involvement. Though these estimated differences are not statistically significant, they suggest that fathers of boys are more involved not only in playing with their children, but also in reading to them and feeding them. The different patterns of father involvement in the full sample vs. the marginal marriage sample could reflect the fact that in marginal marriages, having a son increases the father's incentive to spend more time on traditional child-rearing activities that may help the mother (e.g., feeding and reading), while in stable marriages, any time differential in father involvement can more safely be spent "playing" with their sons.

To what extent can the correlations between child gender and the measures of mother's marital surplus at one year account for the estimated effect of child gender on divorce rates after three years? This question is addressed by the estimation results shown in Table 6. These estimates are based on the sample of marriages in which the mother was marginally happy at the baseline interview and which are still intact a year after the baby was born. The estimate in column 1 indicates that for this sample, having a boy reduces the probability of divorce between the first and third year by 14.9 percentage points, or about 62 percent compared to the 24 percent divorce rate among parents of girls. ${ }^{19}$

[^12]The remaining columns control for one or more of the year-one variables summarized in Table 5 above. Mothers' reports of having higher quality spousal relationship and more positive views of their husbands as fathers both help to explain the lower divorce rate among parents with sons. However, the largest reduction in the estimated effect of having a son is found when I control for the father's propensity to watch the child when the mother needs to do things. Here, the coefficient falls by 37.6 percent, from 14.9 to 9.3 . Interestingly, while the divorce probability is reduced substantially by an increase in the father's propensity to watch the child when the mother needs help, I find no significant relationship between any of the other three measures of father involvement and the probability of divorce. Finally, when I control for all three measures of marital the mother's surplus (as in columns 2 through 4), the estimated effect of "baby is boy" is reduced to from .149 to .091 (column 6). Hence the difference in martial surplus, as measured by these three variables taken together, explains roughly 40 percent of the effect of child gender on divorce rates in my sample.

In sum, the results suggest that mothers of sons do receive greater transfers of marital surplus from the fathers, and that these transfers do, in turn, reduce the probability of divorce. Part of the increase in the mother's marital surplus is reflected in an overall improvement in the quality of her relationship with her husband. With respect to paternal involvement in child rearing, the results suggest that divorce rates are not correlated with the frequency of the father's engagement in specific child-rearing activities such as playing with, reading to, or feeding the child. However, the way that the father spends his time with the child is important. In particular, the likelihood of divorce is significantly reduced if the father's behavior conforms to the mother's wishes-i.e. if he acts like the father she wants for her child, and if he helps watch the necessary to drop several observations with missing responses to one or more of the year-one variables.
child when she needs help. Hence, while fathers may generally spend more time with sons than with daughters, is it the fact that they also spend more of that time the way the mothers' want them to that reduces the probability of divorce.

## V. Conclusion

Recent empirical evidence based on U.S. data has demonstrated a consistent relationship between child gender and parents' propensity to divorce: parents of sons are significantly less likely to divorce relative to couples with daughters. But the motivation behind the lower divorce rates remains unclear. Using detailed measures of spousal relationship quality, marriage attitudes and father involvement in childrearing available in the Fragile Families and Child Wellbeing Survey, this study provides new evidence on the underlying mechanisms through which child gender affects divorce rates. In particular, I test two prominent theories that attribute differential divorce rates to (1) the fathers' preferences for sons, and (2) the differential needs of boys and girls.

The results suggest that both theories have merit. First, fathers of newborn sons report greater marital happiness, but mothers do not. This supports the "demand for sons" hypothesis. Second, analysis of divorce rates provides support for both theories. Specifically, I find that sons reduce three-year divorce rates when new mothers report having only marginally happy marriages. Analyzing these marginal marriages, I find mothers of sons stay married partly because they believe marital stability is important for their sons' welfare-supporting the differential needs hypothesis. But these mothers also stay married partly because of increases in their marital surplus-apparently due to the father's preference for sons. Mothers of sons receive more of the father's help watching the child, hold more positive views of their husbands as fathers, and report better marital relationships after one year. These three factors, in turn,
significantly reduce the likelihood of divorce.

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A. Matrix of Mother's and Father's Marital Happiness at Baseline. Responses to: "PLEASE TELL ME HOW YOU THINK YOUR LIFE MIGHT BE DIFFERENT IF YOU WERE NOT MARRIED TO [BABY'S FATHER/MOTHER] NOW. WOULD YOU SAY THAT YOUR OVERALL HAPPINESS WOULD BE: [MUCH WORSE, SOMEWHAT WORSE, THE SAME, SOMEWHAT BETTER, MUCH BETTER, DON'T KNOW]."

| Mother's | Father's Response: |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | (Missing/ "Don't know") | $\begin{aligned} & 1 \\ & \text { "Much } \\ & \text { better" } \end{aligned}$ | 2 <br> "Somewhat better" | 3 <br> "The same" | 4 <br> "Somewhat worse" | 5 <br> "Much worse" | Total |
| (Missing/ "Don't know") | 0.3\% | 0.0\% | 0.0\% | 0.4\% | 0.4\% | 1.1\% | 2.2\% |
| 1 "Much better" | 0.5\% | 0.3\% | 0.0\% | 0.4\% | 0.0\% | 0.2\% | 1.3\% |
| 2 "Somewhat better" | 0.7\% | 0.0\% | 0.4\% | 1.4\% | 0.7\% | 0.1\% | 3.3\% |
| 3 "The same" | 2.3\% | 0.8\% | 0.4\% | 6.1\% | 6.3\% | 4.1\% | 20.1\% |
| 4 "Somewhat worse" | 1.8\% | 0.4\% | 0.4\% | 5.5\% | 12.7\% | 9.3\% | 30.1\% |
| 5 "Much worse" | 3.2\% | 0.7\% | 0.8\% | 5.6\% | 14.2\% | 18.6\% | 43.1\% |
| Total | 8.7\% | 2.2\% | 2.0\% | 19.3\% | 34.3\% | 33.4\% | 100.0\% |

B. Mother's View (at Baseline) of the Statement: "When there are children in the family, PARENTS SHOULD STAY TOGETHER, EVEN IF THEY DON'T GET ALONG"

| Strongly Disagree | 15.1\% |
| :---: | :---: |
| Disagree | 46.9\% |
| Don't Know | 0.4\% |
| Agree | 28.8\% |
| Strongly Agree . | 8.8\% |

C. Mother's Reported Relationship Quality with Father at One-Year Follow-up

| Excellent | 45.2\% |
| :---: | :---: |
| Very Good | 37.4\% |
| Good | 12.2\% |
| Fair | 3.7\% |
| Poor | 1.6\% |

D. Mother's Response at One-Year Follow-Up to: "How often, when with the child, DOES THE FATHER ACT LIKE THE FATHER YOU WANT FOR YOUR CHILD?"

| Always | 83.5\% |
| :---: | :---: |
| Sometimes. | 14.6\% |
| Rarely . . . . . . . . . . . . . . . . . | 1.9\% |

E. Mother's Response at One-Year Follow-Up to: "How often does the father WATCH THE CHILD WHEN YOU NEED TO DO THINGS?"

| Often | 78.2\% |
| :---: | :---: |
| Sometimes. | 16.2\% |
| Rarely | 4.8\% |
| Never | 0.8\% |

Notes: All statistics are weighted by national sampling weights. Sample size is $\mathrm{N}=695$ for Tables 1a and 1b, which are based on the baseline surveys, and $N=587$ for Tables $1 c, 1 d$, and 1 e , which are based on the oneyear follow-up surveys and include only mothers who are still married to the baby's father after one year and who have non-missing responses to one-year follow-up questions.

Table 2. Marital Happiness at Baseline, by Child Gender

| Variable (and sample restriction) | Baby's Gender |  |  |  | $\underset{(\text { prob }>F)}{\mathrm{F}}$ |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | N | Boy | Girl | Diff |  |
| Mother is happier married to baby's father (Sample: Mother's response not missing) | 682 | $\begin{aligned} & 74.7 \\ & (2.7) \end{aligned}$ | $\begin{aligned} & \overline{74.7} \\ & (2.9) \end{aligned}$ | $\begin{gathered} \overline{0.0} \\ (4.0) \end{gathered}$ | $\begin{gathered} 0.00 \\ (0.993) \end{gathered}$ |
| Mother is happier married to baby's father (Sample: Both parents' responses not missing) | 615 | $\begin{aligned} & 76.2 \\ & (2.8) \end{aligned}$ | $\begin{aligned} & 76.4 \\ & (3.2) \end{aligned}$ | $\begin{aligned} & -0.2 \\ & (4.1) \end{aligned}$ | $\begin{gathered} 0.00 \\ (0.953) \end{gathered}$ |
| Father is happier married to baby's mother (Sample: Both parents' responses not missing) | 615 | $\begin{aligned} & 77.7 \\ & (2.7) \end{aligned}$ | $\begin{aligned} & 69.4 \\ & (3.5) \end{aligned}$ | $\begin{aligned} & 8.3^{*} \\ & (4.4) \end{aligned}$ | $\begin{gathered} 3.53 \\ (0.061) \end{gathered}$ |
| Father is happier married to baby's mother; (Sample: parents' responses not missing; and mother would be as happy or happier not married ) | 139 | $\begin{aligned} & 61.4 \\ & (6.6) \end{aligned}$ | $\begin{aligned} & 44.0 \\ & (7.3) \end{aligned}$ | $\begin{gathered} 17.4^{\star} \\ (9.8) \end{gathered}$ | $\begin{gathered} 3.14 \\ (0.079) \end{gathered}$ |

Notes: Estimation sample includes mothers who are married at baby's birth, who have single births, and who are interviewed in both the one-year and three-year follow-up surveys ( $\mathrm{N}=695$ ), with additional restrictions as noted in table. All figures weighted by national sampling weights. Columns (2) and (3) report estimated percentages and standard errors (in parentheses); column (4) reports the difference between column (2) and column (3); column (5) reports Wald test of the hypothesis that this difference is zero. * Significant at 10\%; ** significant at 5\%; *** significant at $10 \%$.

Table 3. Probability of Divorce within Three Years, by Martial Happiness \& Child Gender

|  | (1) | (2) | (3) | (4) |
| :---: | :---: | :---: | :---: | :---: |
| Baby is boy | $\begin{aligned} & -0.031 \\ & (0.029) \end{aligned}$ | $\begin{aligned} & -0.031 \\ & (0.028) \end{aligned}$ | $\begin{aligned} & -0.028 \\ & (0.028) \end{aligned}$ | $\begin{aligned} & 0.021 \\ & (0.032) \end{aligned}$ |
| Mother would be equally happy if not married to baby's father |  | $\begin{aligned} & 0.121^{* * *} \\ & (0.042) \end{aligned}$ | $\begin{aligned} & 0.105^{* *} \\ & (0.041) \end{aligned}$ | $\begin{aligned} & 0.212^{\star * *} \\ & (0.070) \end{aligned}$ |
| Mother would be happier if not married to baby's father |  | $\begin{aligned} & 0.251^{* *} \\ & (0.102) \end{aligned}$ | $\begin{aligned} & 0.207^{* *} \\ & (0.096) \end{aligned}$ | $\begin{aligned} & 0.105 \\ & (0.109) \end{aligned}$ |
| Father would be equally happy if not married to baby's mother |  |  | $\begin{aligned} & 0.045 \\ & (0.039) \end{aligned}$ | $\begin{aligned} & 0.060 \\ & (0.062) \end{aligned}$ |
| Father would be happier if not married to baby's mother |  |  | $\begin{aligned} & 0.051 \\ & (0.082) \end{aligned}$ | $\begin{aligned} & 0.099 \\ & (0.151) \end{aligned}$ |
| Mother would be equally happy if not married to baby's father $X$ boy |  |  |  | $\begin{aligned} & -0.188^{* *} \\ & (0.084) \end{aligned}$ |
| Mother would be happier if not married to baby's father X boy |  |  |  | $\begin{aligned} & 0.228 \\ & (0.179) \end{aligned}$ |
| Father would be equally happy if not married to baby's mother $X$ boy |  |  |  | $\begin{aligned} & -0.019 \\ & (0.079) \end{aligned}$ |
| Father would be happier if not married to baby's mother $X$ boy |  |  |  | $\begin{aligned} & -0.109 \\ & (0.172) \end{aligned}$ |
| Constant | $\begin{aligned} & 0.130^{* * *} \\ & (0.022) \end{aligned}$ | $\begin{aligned} & 0.094^{* * *} \\ & (0.021) \\ & \hline \end{aligned}$ | $\begin{aligned} & 0.074^{\star * *} \\ & (0.022) \end{aligned}$ | $\begin{aligned} & 0.047^{* *} \\ & (0.024) \end{aligned}$ |
| R-squared | 0.00 | 0.05 | 0.07 | 0.09 |

[^13]Table 4. Role of Mother's Belief in Staying Married for the Children

|  | $(1)$ | $(2)$ |
| :--- | :--- | :--- |
| Baby is boy | $-0.210^{* *}$ | -0.146 |
|  | $(0.081)$ | $(0.104)$ |
| Mother agrees that "When there are children in the family, |  | 0.041 |
| parents should stay together, even if they don't get along" |  | $(0.147)$ |
| Mother agrees that "When there are children in the family, |  | -0.154 |
| parents should stay together ..." X Baby is boy |  | $(0.167)$ |
| Constant | $0.318^{* * *}$ | $0.302^{* * *}$ |
|  | $(0.069)$ | $(0.081)$ |
| R-squared | 0.07 | 0.08 |

Notes: Table reports coefficients from linear probability models predicting the probability that the parents are divorced three years after the baby's birth. Sample is restricted to "marginal" marriages-i.e. those in which the mother's baseline report indicates that she would be equally happy married or not married to the baby's father ( $\mathrm{N}=138$ ). Regressions are weighted by national sampling weights. Standard errors are in parentheses.

* Significant at $10 \%$; ** significant at $5 \%$; *** significant at $1 \%$.

Table 5. Relationship Quality and Father Involvement at Year 1, by Child Gender


[^14]Table 6. Effect of Child Gender on Divorce: The Role of Relationship Quality and Father Involvement at One Year

|  | (1) | (2) | (3) | (4) | (5) | (6) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Baby is boy | $\begin{aligned} & -0.149^{*} \\ & (0.088) \end{aligned}$ | $\begin{aligned} & -0.111 \\ & (0.081) \end{aligned}$ | $\begin{aligned} & -0.132 \\ & (0.081) \end{aligned}$ | $\begin{aligned} & -0.093 \\ & (0.076) \end{aligned}$ | $\begin{aligned} & -0.152^{*} \\ & (0.083) \end{aligned}$ | $\begin{aligned} & -0.091 \\ & (0.071) \end{aligned}$ |
| Mother's reported quality of relationship with father (1=poor to 5=excellent) |  | $\begin{gathered} -0.135 * * * \\ (0.046) \end{gathered}$ |  |  |  | $\begin{aligned} & -0.065 \\ & (0.047) \end{aligned}$ |
| Mother says father always acts like the father she wants for her child |  |  | $\begin{gathered} -0.339^{* *} \\ (0.130) \end{gathered}$ |  |  | $\begin{aligned} & -0.200 \\ & (0.130) \end{aligned}$ |
| Mother says father often looks after child when she needs to do things |  |  |  | $\begin{gathered} -0.251^{* *} \\ (0.097) \end{gathered}$ |  | $\begin{aligned} & -0.130 \\ & (0.108) \end{aligned}$ |
| Days/week father plays with child |  |  |  |  | $\begin{aligned} & -0.023 \\ & (0.015) \end{aligned}$ |  |
| Days/week father reads to child |  |  |  |  | $\begin{gathered} 0.001 \\ (0.017) \end{gathered}$ |  |
| Days/week father feeds child |  |  |  |  | $\begin{aligned} & 0.017 \\ & (0.016) \end{aligned}$ |  |
| Constant | $\begin{gathered} 0.241^{* * *} \\ (0.075) \end{gathered}$ | $\begin{gathered} 0.747^{* * *} \\ (0.194) \end{gathered}$ | $\begin{aligned} & 0.502^{* * *} \\ & (0.132) \end{aligned}$ | $\begin{gathered} 0.384^{* * *} \\ (0.108) \end{gathered}$ | $\begin{aligned} & 0.252^{* *} \\ & (0.125) \end{aligned}$ | $\begin{gathered} 0.714^{\star * *} \\ (0.181) \end{gathered}$ |
| R -squared | 0.04 | 0.18 | 0.18 | 0.14 | 0.07 | 0.24 |

[^15]Appendix Table 1a. Child Gender and Divorce Probabilities at First Year vs. Third Year

|  | (1) Divorced between baseline and $3^{\text {rd }}$ Year | (2) Divorced between baseline and $1^{\text {st }}$ Year | $\begin{aligned} & \text { (3) Divorced between } \\ & 1^{\text {st }} \text { and } 3^{\text {rd }} \text { Years } \end{aligned}$ |
| :---: | :---: | :---: | :---: |
| Baby is boy | $\begin{aligned} & \hline-0.210^{* *} \\ & (0.081) \end{aligned}$ | $\begin{aligned} & \hline-0.117^{* *} \\ & (0.059) \end{aligned}$ | $\begin{aligned} & -0.149^{*} \\ & (0.083) \end{aligned}$ |
| Constant | $\begin{aligned} & 0.318^{* * *} \\ & (0.069) \end{aligned}$ | $\begin{aligned} & 0.169^{* * *} \\ & (0.052) \end{aligned}$ | $\begin{aligned} & 0.230^{* * *} \\ & (0.072) \\ & \hline \end{aligned}$ |
| R-squared | 0.07 | 0.04 | 0.04 |
| Notes: Table reports coefficients from linear probability models predicting the probability that the parents are divorced three years after the baby's birth (columns 1 \& 3) or one year after baby's birth (col. 2). In all columns, the sample is restricted to "marginal" marriages-i.e. those in which the mother's baseline report indicates that she would be equally happy married or not married to the baby's father. The sample also excludes mothers who are not interviewed at the one-year follow-up ( $\mathrm{N}=138$ ). Further, the estimation sample for col. 3 excludes parents who were already divorced after one year ( $\mathrm{N}=121$ ). Regressions are weighted by national sampling weights. Standard errors are in parentheses. * significant at 10\%; ** significant at 5\%; *** significant at $1 \%$ |  |  |  |


[^0]:    ${ }^{1}$ Gender bias in parental investments and its implications on child wellbeing has been consistently documented for developing countries (e,g, Lundberg, 2005a; Strauss and Thomas, 1995).

[^1]:    ${ }^{2}$ Although women appear to have achieved parity with men in terms of levels of educational attainment (Jacob 2002), gender differences in the type of human capital as reflected through choice of college majors and eventual occupational choice may explain the persistence of a gender wage gap in the U.S. (Blau and Kahn, 2000).

[^2]:    ${ }^{3}$ We henceforth use the term "marginally happy marriages" to refer to those in which the mother reports that her overall happiness would not change were she not married to the baby's father.
    ${ }^{4}$ The effect is smaller for this group than among those who do agree with staying together for the children.

[^3]:    ${ }^{5}$ This discussion largely follows Lundberg (2005a), which also surveys much of the literature on child gender effects with respect to marriage, custody, fertility, time allocation, and parenting. For a similar discussion of alternate hypotheses, see Dahl and Moretti (2005).

[^4]:    ${ }^{6}$ Lamb (1997) surveys the child development literature by psychologists, which generally argues that a father's presence is more important for boys than it is for girls.

[^5]:    ${ }^{7}$ Also consistent with the preferences/bargaining model is the finding by Lundberg and Rose (2004) that households with sons spend more on "female" goods (e.g. spa, hair salon), which suggests transfers from husbands to wives.

[^6]:    ${ }^{8}$ Like Lundberg and Rose (2007), we find that child gender does affect divorce rates in the FFCWS, but that it does not have a significant effect on marriage or cohabitation rates among mothers who are unmarried at the baseline. We should note, however, that our estimates of the child gender effect on divorce rates differ from those of Lundberg and Rose both because we look at three-year probabilities (rather than one-year probabilities) and because we use the national sampling weights to derive our estimates while they do not.
    ${ }^{9}$ Roughly 3,500 of these children are part of the national sample, which, when weighted, is representative of births in large U.S. cities. For the national sample, 16 cities were selected randomly from a stratified sample of 77 cities with populations of 200,000 or more. Four additional cities were later added to the study for other purposes, but respondents from these additional cities were not assigned weights. For a detailed description of sampling methods and study design, see Reichman et al. (2001).
    ${ }^{10}$ We use only the mother's follow-up interviews because of the higher attrition rates among the fathers.

[^7]:    ${ }^{11}$ The survey intentionally over-samples unwed mothers; hence the relatively small number of married mothers. When appropriate, we employ dummy variables to control for missing father responses rather than restricting the sample further to those with non-missing baseline father interviews.
    ${ }^{12}$ Children that are part of a multiple birth ( 13 observations) are excluded from the sample.
    ${ }^{13}$ All interviews were conducted in private, and interviewers took additional measures to ensure that responses were kept confidential.

[^8]:    ${ }^{14}$ Non-responses include fathers who were not interviewed.

[^9]:    ${ }^{15}$ Some mothers are also asked about the frequency of the father's participation in other activities, such as changing the child's diaper and putting the child to bed. We exclude these other activities from the analysis due to the large number of missing values.
    ${ }^{16}$ Respondents are considered to be happier married if they respond that their happiness would be "somewhat worse" or "much worse" if they were not married to their current spouse.

[^10]:    ${ }^{17}$ In our data, fathers' contact with their children is indeed reduced in the case of divorce. In our sample, 94 percent of babies whose parents become divorced within three years live with their mother full time. The other six percent live with the mother half of the time, suggesting that custody is shared with the father. Although we do find that shared custody is more common when the baby is a boy ( 13 percent vs. one percent among girls), shared custody is nevertheless uncommon; and in no case does the father obtain full custody after divorce.
    We should note that these findings stand in contrast to those of Dahl and Moretti (2005), who report that paternal custody rates in the U.S. rose to nearly 25 percent in 2000 . However, the low paternal custody rates in our sample are likely due to the fact that the children are less than three years old at the time of their parents' divorce.

[^11]:    ${ }^{18}$ For this analysis, we restrict attention to marriages in which the mother was marginally happy at the baseline interview, but which are still intact after one year. The dependent variable is the probability that the parents are divorced two years later, at the time of the three-year follow-up interview.

[^12]:    ${ }^{19}$ Restricting the sample to marriages that last at least one year after the baby's birth raises the possibility of sample selection bias in our estimates. If parents of sons are less likely to divorce within the first year after the baby is born, then those marriages that are most susceptible to the child gender effect may be eliminated from the year-one sample, and the effect might be smaller among the surviving marriages. We investigate this possibility in the appendix Table A1 and find little evidence of selection bias. In particular, we find that between the baseline and first year (column 2), sons reduce divorce rates by 11.7 percentage points or 69 percent compared to the 16.9 divorce rate among parents of girls. In proportional terms, the estimated effect is very similar between the first and

[^13]:    Notes: Table reports coefficients from linear probability models predicting the probability that the parents are divorced three years after the baby's birth. Standard errors are in parentheses. Estimation sample includes mothers who are married at baby's birth, who have single births, and who are in both the one-year and three-year follow-up surveys ( $\mathrm{N}=695$ ). Regressions are weighted by national sampling weights. Marital happiness is measured at baseline (just after childbirth). Omitted "marital happiness" category is couples who would both be less happy if not married to one another. Columns (2)(4) also control for dummy variables indicating missing values for marital happiness of the mother and father, as well as the interactions of these missing value indicators with the baby's gender (coefficients not shown). * Significant at 10\%; ** significant at $5 \%$; *** significant at $1 \%$.

[^14]:    Notes: : Sample is restricted to mothers who are still married to the baby's father after one year and who have nonmissing responses to one-year follow-up questions. Father's input measures are based on mother's reports at the yearone follow-up interview. All statistics are estimated using national sampling weights. Standard errors in parentheses.

    * Significant at 10\%; ** significant at 5\%; *** significant at 1\%.

[^15]:    Notes: Table reports coefficients from linear probability models predicting the probability that the parents are divorced three years after the baby's birth. Standard errors are in parentheses. Estimation sample includes parents who were married at baby's birth and who were still married at the one-year follow-up. Sample is further restricted to "marginal" marriages-i.e. those in which the mother's baseline report indicates that she would be equally happy married or not married to the baby's father—and to those with non-missing values for measures of father's parenting inputs ( $\mathrm{N}=112$ ). All regressions are weighted by national sampling weights. Standard errors are in parentheses. * Significant at 10\%; ** significant at 5\%; *** significant at 1\%.

