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Mate Availability and Unmarried Parent Relationships

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Abstract

Theoretically, a shortage of males in a local marriage market may influence the formation, quality, and trajectory of unmarried parent relationships. To test these hypotheses, I combine city-level sex ratio data from the U.S. Census with microdata on unmarried couples who recently had a child from the Fragile Families study. A shortage of men in a marriage market is associated with lower relationship quality for unmarried parents. Male shortages are associated with lower rates of marriage following a nonmarital birth, and this is in part because of the mediating influence of relationship quality. A shortage of men is not significantly related to the economic quality of male, nonmarital childbearing partners.

Keywords

Shortage of males, Marriage market, US Census, Unmarried couples, Fragile Families study, Nonmarital birth

Disciplines

Demography, Population, and Ecology | Family, Life Course, and Society | Social and Behavioral Sciences | Sociology

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Mate Availability and Unmarried Parent Relationships

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Abstract: Theoretically, a shortage of males in a local marriage market may influence the formation, quality, and trajectory of unmarried parent relationships. To test these hypotheses, I combine city-level sex ratio data from the U.S. Census with microdata on unmarried couples who recently had a child from the Fragile Families study. A shortage of men in a marriage market is associated with lower relationship quality for unmarried parents. Male shortages are associated with lower rates of marriage following a nonmarital birth, and this is in part because of the mediating influence of relationship quality. A shortage of men is not significantly related to the economic quality of male, nonmarital childbearing partners.

Mate Availability and Unmarried Parent Relationships

In many U.S. cities, single women in their twenties and thirties outnumber men. These sex ratio imbalances come about in part because men experience higher rates of mortality than women in childhood and young adulthood (Case and Paxson 2005). Sex ratio imbalances have been exacerbated in recent decades by an exponential increase in incarceration, which has disproportionately affected young and African-American men (Pettit and Western 2004). Sex ratios for different race/ethnic groups vary widely across localities, offering the opportunity to examine the influence of sex ratio imbalances on social demographic outcomes.

Research has shown that a shortage of men relative to women in a local marriage market is associated with lower rates of ever marrying and higher rates of nonmarital childbearing and divorce (Fossett and Kiecolt 1993; Lichter et al. 1992; Lichter, LeClere and McLaughlin 1991; South, Trent and Shen 2001; South and Lloyd 1992). This paper considers some potential consequences of male shortages that have not been examined previously: Do women have children with less economically desirable men in marriage markets where men are in short supply? Do unmarried parents have lower quality relationships in contexts where men are in short supply? Connecting these analyses with prior research on ever marrying, I also consider whether male shortages inhibit marriage following the birth of a child *because* they are associated with lower quality childbearing partners (in economic terms) and lower quality relationships.

If marriage markets affect the economic quality of childbearing partners, the quality of parent relationships, and marital transitions after a birth, these processes have implications for child wellbeing. In recent years, over one-third of children have been

born outside of marriage in the U.S. (Sutton and Matthews 2004). If women have children with economically undesirable men in places where men are in short supply, children are more likely to grow up in economically insecure households. If parent relationships are low quality when men are in short supply, then fathers in these contexts may be less involved with their children (Erel and Burman 1995) and child well-being may be compromised (Howes and Markman 1989). If male shortages inhibit transitions to marriage, then children in these contexts will be less likely to be raised by two parents. Therefore, in marriage markets that are unfavorable for women, children born to unmarried parents may be particularly prone to the disadvantages associated with single-parent families and father disengagement (Amato and Gilbreth 1999; McLanahan and Sandefur 1994).¹

To examine the influence of marriage markets on partner economic quality, relationship quality, and transitions to marriage, I combine marriage market data from the U.S. Census with data from the Fragile Families and Child Wellbeing study on unmarried parents. The study includes twenty cities that vary widely in their marriage market characteristics, offering the opportunity to test theoretical predictions about how marriage markets influence mate selection and union formation processes.

Theory and Prior Research

Theoretical Expectations

Individuals search for romantic partners in particular marriage market contexts that may be relatively more or less favorable. Research typically assumes that marriage

¹ In discussing the favorability of the marriage market, this paper takes the perspective of the mother unless otherwise specified.

markets are segmented by race/ethnic group, age group, and geographic area and that individuals search for partners within these boundaries.² Consequently, some men and women will face favorable marriage markets, in which they have a relatively large number of partners to choose from and relatively little competition for these partners, and others will face unfavorable markets, in which partners are in short supply and competition for these partners is stiff.³

Marriage Markets and Partner Quality. Many authors have drawn parallels between job search and marital search processes (Becker 1981; England and Farkas 1986; Hutchens 1979; Oppenheimer 1988). The strength of the labor market influences the job one can get and one's minimum standards for a job. Along these lines, we can predict that marriage markets will influence the quality of the partner that one can attract and the minimum quality partner that one will accept. Similar to the search for a job in a particular labor market, the search for a romantic partner involves gathering information about the distribution of opportunities and choosing the best available opportunity given one's own qualifications and attractiveness. In an unfavorable marriage market, an individual may be unable to attract a high quality partner and may lower his or her standards for a partner. The process of lowering standards when faced with an unfavorable marriage market is similar to lowering one's reservation wage in an unfavorable labor market. In theory, we can expect women to have less economically desirable childbearing partners when faced with a shortage of potential partners and more

² These assumptions about marriage markets are an oversimplification. More refined measures of marriage markets have been proposed based on observed patterns of assortative mating in marriage (Goldman, Westoff and Hammerslough 1984), but crude sex ratios have been found to be more strongly predictive of social demographic outcomes than these more refined measures (Fossett and Kiecolt 1991; Lampard 1993).

³ This paper focuses on heterosexual relationships, because they are the modal relationship type and the most common relationship type for producing children. The presence of gay and lesbian populations is a source of imprecision in standard measures of heterosexual marriage markets including the crude sex ratio.

economically desirable partners when potential partners are in relative abundance. In any marriage market context, one's own characteristics affect the quality of partner one can attract. Predictions about the influence of marriage markets on partner quality assume that one's own characteristics are held constant.

In the case of a job, one's salary, hours, and working conditions contribute to quality. Although the quality of a childbearing partner is more subjective, prior research gives us some indication of the attributes that are in demand on the marriage market. Research has consistently shown that men's earnings and earning potential are positively related to marriage and marital stability (Lichter et al. 1991; Sweeney 2002; Xie et al. 2003). All else equal, we can expect men who are employed and have more earning power and education to be more desirable partners. These are by no means the only measures of childbearing partner quality, but these attributes can be used to test theoretical predictions about marriage markets and partner quality.

The formation of a relationship requires the cooperation of both parties. Notably, taking the male or female perspective yields the same predictions about marriage market influences on partner quality. In an unfavorable marriage market, women may be more willing to have a child with a man who is unemployed or earns a low wage and may have a harder time attracting an economically desirable man because of the stiff competition for this type of partner. Meanwhile, in this context, economically desirable men may perceive that many opportunities for romantic partners are available to them and consequently may be less willing to commit to fatherhood or marriage.

To summarize, theory predicts that a shortage of males may lead to partnerships between women and economically unattractive male partners. Alternatively, the local

supply of partners may have no effect on the economic quality of male childbearing partners. Women may prolong their search and postpone childbearing until they find a partner who meets their standards (Oppenheimer 1988). Some women may expand their search by going outside of their local marriage market to find a suitable partner. Other women may forego childbearing if they never find an adequate partner (Heaton, Jacobson and Holland 1999). Therefore, an alternative hypothesis is the null hypothesis that marriage market conditions will not influence the economic desirability of male childbearing partners.

Marriage Markets and Relationship Quality. In addition to influencing the economic quality of male partners, marriage markets may influence the quality of couple relationships. Theoretically, the sex in short supply will have more bargaining power in their relationships, because alternative romantic partners are relatively easy to come by (Guttentag and Secord 1983). Household bargaining models suggest that the pool of alternative partners influences relationship quality. If one partner perceives that their utility would be higher outside the relationship given other available partners, this can lead to a non-cooperative equilibrium within the relationship, reflected by lower relationship quality (Lundberg and Pollak 1996). England and Folbre (2002) argue that children tip the bargaining scales in men's favor. Women's greater attachment to children and their custodial responsibility for children decreases women's utility outside of marriage and makes women's investments in their relationship relatively insensitive to marriage market conditions. Qualitative research supports the asymmetry in bargaining power in relationships when children are involved. Anderson's (1989) ethnographic account of young, inner-city adults describes women's aspirations for a middle class

nuclear family and men's desires for casual sex and to avoid responsibility for children. Therefore, we can predict that relationship quality will be better in marriage markets that favor women.

Relationship quality is multifaceted and has been measured in many ways in prior research (Norton 1983). Recent research using the Fragile Families study has used perceptions that your partner is fair, loving, supportive, and not often critical to derive a supportiveness scale (Carlson, McLanahan and England 2004; Carlson and McLanahan 2006). This same research has operationalized low relationship quality as frequent conflicts in common areas of disagreement in couples: time, money, sex, substance abuse, the pregnancy, and faithfulness. In this paper, a father's presence at the hospital during or after baby's birth is also taken as an indicator of some amount of commitment to the mother and child. A final, indirect indicator of relationship quality is father's multipartnered fertility. Prior quantitative research suggests that father's children from prior relationships detract from the time and resources he can devote to his new family (Cooksey and Craig 1998; Manning and Smock 1999, 2000). Prior qualitative research suggests that father's children from prior relationships creates tension in his relationship with the mother of his most recent child (Monte 2007). Marriage markets that favor women are expected to be associated with better relationship quality on each of these measures.

Marriage Markets and Transitions to Marriage. Marriage markets in which men are in short supply are theoretically expected to inhibit marriage. The literature on male shortages and rates of marriage generally focuses on two explanations. First, a numeric shortage of men will constrain women's ability to marry because there are too few men to

go around (Wilson 1987). This mechanism is not relevant for the current paper, because all women in the sample have found men with whom to have children. Instead, this paper focuses on the quality and trajectory of the parent relationships. Second, shortages of men are expected to affect marriage via bargaining power and commitment in relationships (Guttentag and Secord 1983; Lundberg and Pollak 1996). Men are expected to be less committed to their female partners and less likely to marry when they perceive that available alternative dating opportunities are plentiful (Willis 1999; Wilson 1996). This mechanism is examined below in the analysis of marriage markets and relationship quality. A third possibility that has received less attention in the literature is that women are more likely to form relationships with low quality men in unfavorable marriage markets. In unfavorable marriage markets, women may have children with men whom they do not deem marriageable (Edin and Kefalas 2005) and with men who are unwilling to commit to marriage (Anderson 1989). This third mechanism is examined below in the analyses of the economic quality of male partners and of transitions to marriage.

Prior Empirical Research

An extensive body of research examines the relationship between marriage markets and marriage rates (Fossett and Kiecolt 1993; Kiecolt and Fossett 1995; Lichter et al. 1992; Lichter et al. 1991; South 1996; South and Lloyd 1992). In general, this research finds that shortages of males are associated with lower rates of ever marrying. Most of the research on marriage markets and marriage rates focuses on rates of ever marrying in the aggregate or on individual-level transitions to marriage without taking children into account. In contrast, this paper focuses in particular on parental relationships and transitions to marriage following a birth. One prior study finds

evidence that unfavorable marriage markets inhibit transitions to marriage following a nonmarital birth (Harknett and McLanahan 2004). Although, this study was primarily focused on explaining racial and ethnic differences in marriage, the authors did present some evidence that marriage markets are correlated with partner and relationship quality. The current paper builds upon this earlier work by (1) analyzing these correlations in a multivariate context, controlling for a range of mother characteristics, (2) using an appropriate multilevel modeling approach, and (3) examining the mediating role of partner and relationship quality in the relationship between marriage markets and marriage transitions.

Prior research linking marriage market characteristics to the quality of male partners or the quality of relationships is scarce. The existing research focuses on marital relationships that may or may not include children. Trent and South (2003) combine data from the National Survey of Families and Households with Census data and find no relationship between marriage market conditions and reported marital happiness. Lichter, Anderson, and Hayward (1995) combine data from the National Longitudinal Survey of Youth with Census data and find mixed evidence on the relationship between marriage markets and the quality of marital partners. In unfavorable marriage markets, women were more likely to marry men with relatively low economic status. However, the strength of the marriage market was not related to educational assortative mating; unfavorable marriage markets did not lead more women to marry down in terms of education.

By focusing on unmarried parents who have recently had a child, this paper provides evidence on how marriage markets affect the quality of children's fathers. A

recent book by Edin and Kefalas (2005) analyzes qualitative interviews with 162 unmarried mothers and sheds light on women's marriage and childbearing decisions in an unfavorable marriage market. These authors find that low-income women place a high value on children and are unwilling to forego childbearing in the event that they do not find a marriageable man. Quantitative research also suggests that low-income women are the most likely to have children outside of marriage and that voluntary childlessness is far more common among higher income women (Abma and Martinez 2006; Ellwood and Jencks 2004). Qualitative evidence from the male perspective suggests that men are reluctant to commit to a relationship when alternative partners are relatively numerous (Wilson 1996). Together, this research suggests that women, at least low-income women, may settle for low quality childbearing partners when faced with an unfavorable marriage market, and that male partners in these contexts may be reluctant to marry. This paper focuses on unmarried parent couples in urban areas, a population that tends to be relatively economically disadvantaged.

Based on prior research, this paper tests the follow set of hypotheses:

- (1) Unfavorable marriage markets for women will be associated with less economically desirable male, nonmarital childbearing partners.
- (2) Unfavorable marriage markets for women will be associated with lower relationship quality among unmarried parents.
- (3) In unfavorable marriage markets, unmarried parents will be less likely to marry following a nonmarital birth in part because male partners are less economically desirable and relationships are lower quality.

Data and Methods

This paper uses recent data from the longitudinal Fragile Families and Child Wellbeing study. The study oversampled unmarried parents, and the analysis in this paper is based exclusively on the unmarried sample. I use data from baseline interviews with unmarried mothers and fathers who had just had a baby and from follow-up interviews with mothers 1 year and 30 months after the birth. The baseline interviews were conducted between 1998 and 2000 in 20 large U.S. cities. Response rates to the baseline survey were 87% for unmarried mothers and 75% for unmarried fathers. Of those unmarried mothers included in the baseline survey, 90% responded to the 1-year follow-up survey and 88% responded to the 30-month follow-up survey. Cities were randomly selected for inclusion in the study from among U.S. cities with populations over 200,000, stratified by policy and labor market context. The Fragile Families unmarried sample is representative of nonmarital births in large U.S. cities. For more details on the design of the Fragile Families study see Reichman et al. (2001).

One city in the study, Norfolk, is an outlier on the main independent variable, the crude sex ratio, because a mostly-male military base is located in the city. Therefore, couples in Norfolk (n=74) are excluded from the analysis sample. Parents who were not African American, Hispanic, White, or Asian are excluded from the sample because of small cell sizes or because sex ratio data could not be determined for other ethnicities (n=311). Cases missing data on any dependent variable are excluded (n=944). After these sample restrictions, the analysis is based on 2,382 unmarried couples.

Dependent Variables

Measures of Partner Quality. Fathers' economic quality is measured at baseline by variables indicating that father was employed in the week before the child's birth (0/1), father completed some college (0/1), and fathers' predicted hourly wage. Fathers' predicted hourly wage is based on fathers' self reports of their earnings at their current job or the last time they worked. About one-third of fathers were missing wage data because they were nonrespondents to the baseline survey, did not volunteer wage information, or had never worked. For all fathers, predicted hourly wages were estimated based on a regression of fathers' reported hourly wage (for those with non-missing wage data) on fathers' characteristics such as age, education, race/ethnicity, and city of residence. In this analysis, predicted wages are used for all fathers, even those who had non-missing wage data. The predicted wage measure should be interpreted as an estimate of father's earning potential rather than as a measure of his actual wages.

Father quality is also measured relative to mother's characteristics at baseline. The two measures of relative quality are the ratio of father's to mother's predicted hourly wages, and father has as much or more education as the mother (0/1). For the wage ratio measure, mothers' predicted hourly wages are estimated in the same way as fathers' as explained above. The relative education variable is based on 4 levels of educational attainment: less than a high school degree, high school degree only, some college, and college degree or higher. If a father and mother fell into the same educational category or the father had a higher level of educational attainment than the mother, father was coded as having as much or more education as the mother. Table 1 presents descriptive information on the economic quality of unmarried fathers. Most fathers are employed and have as much or more education than their female partners. Only about 1/4 of fathers

have any college education. The average father in the sample could earn about \$11 per hour if employed and father's predicted wages exceeded mother's by about one-third.

Measures of Relationship Quality. Following Carlson, McLanahan, and England (2004), relationship quality is measured using a scale that combines mother and father reports of whether the other parent is fair, loving, helpful, and critical based on the following questions:

Thinking about your relationship with [BABY'S FATHER/MOTHER], how often would you say that:

S/he is fair and willing to compromise when you have a disagreement?

S/he expresses affection or love for you?

S/he encourages or helps you to do things that are important to you?

S/he insults or criticizes you or your ideas?

Parents answered these questions on scale of 1 to 3 representing "never," "sometimes," or "often," respectively. The scale for each parent represents the average response to these four questions with responses to the insults or criticizes question reverse coded.

Therefore, higher values on the scale represent higher relationship quality. In this paper, relationship quality is treated as a characteristic of the relationship rather than a characteristic of an individual mother or father; therefore, mother and father's reports of relationship supportiveness are averaged together. When fathers did not respond to surveys, mother reports of relationship supportiveness are used in place of their average report. The scale has a Cronbach's alpha reliability of .65. Although mother and father reports of relationship quality do not always agree, analyzing mother and father's reports

of relationship quality separately yields results consistent with the average reports presented below.

I include an additional scale measuring conflict in relationships. This scale sums the number of areas in which the parents have frequent disagreements among the following areas: time, money, faithfulness, the pregnancy, sex, and drugs. Mother and father reports are averaged together. The alpha reliability for this scale is .77.

As shown in Table 1, reported relationship supportiveness is high (2.6 / 3 on the scale) and relationship conflict is low (0.6 / 6 on the scale). These measures of relationship quality were collected soon after the baby's birth, a time when parents may have been unusually positive about their relationships. The interest in this paper is not in the level of relationship quality, but in the comparison of relationship quality across marriage markets. The unique time of data collection may have minimized variation in reports of relationship quality. If so, this analysis may underestimate the difference in relationship quality across marriage markets.

A third measure of relationship quality is a dummy variable indicating whether father visited the mother in the hospital during or after the birth of their child. The Fragile Families sample was drawn from births in hospitals, so all mothers gave birth in a hospital. Table 1 shows that 83 percent of fathers visited the hospital.

A final measure of relationship quality is a variable indicating that the father does *not* have a child with a previous partner (0/1). The measure of father's children from previous partner corresponds to children present at baseline, although the measure is based on data collected in the 1-year follow-up survey. For fathers who were nonrespondents to the survey, mother reports of father characteristics were used. Table 1

shows that 58 percent of fathers did not have any children with previous partners, meaning that a large minority of fathers (42 percent) did have children from prior relationships.

Transitions to Marriage. Marriage is measured in the mother's 30-month follow-up survey and is defined as marriage to the baby's father. Only 2 percent of mothers were married to someone other than the father at the 30-month follow-up, and they are coded as not married to baby's father. Table 1 shows that 15 percent of unmarried parents were married by the 30-month follow-up interview.

Independent Variable.

Measuring Marriage Markets. I use crude sex ratios to measure the supply of males relative to females in a local marriage market. Consistent with prior research, I make the simplifying assumption that marriage markets are segmented by age, city, and race/ethnicity (Fossett and Kiecolt 1991). Crude sex ratios are defined as the ratio of 18-34 year old men to women by city and race/ethnic group. In this sample, 92% of mothers and fathers fell in this age range at the time of their baby's birth. The analysis includes 19 cities and 4 race/ethnic groups, yielding 76 (19 x 4) possible marriage markets. Because some cities did not have any Hispanic or Asian parents in this sample, the analysis includes 64 marriage markets after excluding these empty cells.

Crude sex ratio data come from the 2000 U.S. Census. As shown in Table 1, sex ratios vary widely across cities in the analysis sample: from .73 (Milwaukee, WI) to 1.12 (San Jose, CA) for African Americans, from .96 (Corpus Christi, TX) to 1.65

(Indianapolis, IN) for Hispanics, from .92 (Oakland, CA) to 1.14 (Newark, NJ) for Whites, and from .78 (Richmond, VA) to 1.30 (Austin, TX) for Asians.

All marriage market research in the U.S. that relies on Census estimates of mate availability faces the problem of the differential undercount. African-American men are more likely to be undercounted in the Census than men in other race/ethnic groups or than African-American women (Robinson et al. 1993). Some authors argue that those not counted in Census enumeration are likely to be excluded from the marriage market because they belong to marginalized subpopulations such as the homeless (Spanier and Glick 1980; South and Lloyd 1992). The Census remains the best source of data on mate availability, but potential bias from the differential undercount should be kept in mind when interpreting results.

For mixed race/ethnic couples (11 percent of the sample), the marriage market definition varies for the mother and father. The assumption that marriage markets are segmented by race/ethnicity does not apply to these couples. For the purposes of the analysis, I make the following assumptions for mixed race/ethnic groups: (1) The supply of partners from the woman's perspective will be related to the economic quality of her childbearing partner. If a woman has many alternative partners, she will choose and be able to attract a male partner who is employed, has relatively more earning power, and relatively more education; (2) The supply of partners from the man's perspective will be related to relationship quality and to marriage transitions following a nonmarital birth. If a man has many alternative partners, he will be less committed in his relationship with the mother, relationship quality will suffer, and the couple will be less likely to marry. The sex ratio variable for mixed race/ethnic couples is defined accordingly in the

analyses that follow. In particular, marriage markets are defined according to mother's race/ethnicity in analyses of father's economic characteristics and according to father's race/ethnicity in analyses of relationship quality and transitions to marriage. The choice of mother or father's race/ethnic group in defining the marriage market for mixed race/ethnic couples does not alter the pattern of results.

In this analysis, most incarcerated men are excluded, de facto, from crude sex ratios, because the sample is exclusively urban and prisons are almost exclusively located in non-urban areas. Explicitly excluding incarcerated men and women has very little effect on the sex ratio for this sample. In separate analyses, I tested several alternative measures of the marriage market. Substituting the non-incarcerated male/female ratio, the employed male/female ratio, or the unmarried male/female ratio for the crude sex ratio yielded the same pattern of results presented. Using different age cutpoints (20-34, 20-29, or 20-39 years) for the sex ratio definition also yielded the same pattern of results.

Control variables

In most models I control for the following characteristics of mothers measured at baseline: age in years, race/ethnicity (Black; Hispanic; with White, Non-Hispanic and Asian, Non-Hispanic as the reference cell)⁴, immigrant (0/1), predicted hourly wage (\$), education (high school diploma, some college, with less than high school as the reference cell), received welfare or food stamps in the prior year (0/1), and self-reported fair or poor health (0/1). I also control for the presence of mother's children from prior partners (0/1) measured at the 1-year follow-up survey. In models predicting the relative quality

⁴ White and Asian groups were combined in the reference cell, because the Asian sample size is small and White and Asian groups are similar in their means on outcomes and predictors.

of male partners (father's predicted wages or level of education relative to the mother's), I omit controls for mother's wages and education, which are encompassed by the relative quality dependent variables. Regression estimates were used to predict missing values on control variables, and a dummy variable is included in regression models to indicate that data were imputed. No more than 4 percent of cases were missing on any one variable. Table 1 presents the mean values for individual-level control variables.

As a test of robustness, I included controls for contextual variables that may be correlated with sex ratios and outcomes including the local divorce rate, nonmarital childbearing rate, unemployment rate, and an estimate of the Census undercount in the city. These data were derived from the Census and from vital statistics. Table 1 summarizes these contextual variables for the 19 cities included in the analysis. Including these contextual control variables does not alter the pattern of results presented. The results from these robustness checks are discussed in the text but are not presented in tables.

Multi-Level Modeling Approach

The analytic models that follow combine data measured at the marriage market and the individual levels; therefore, I use multilevel regression models. I use the Stata `xtmixed` procedure to estimate multilevel linear models for continuous outcomes, and the Stata `xtmelogit` procedure to estimate multilevel logistic regression models for dichotomous outcomes. I use the Stata `xtmepoisson` command for the relationship conflict variable, because this is a left-skewed count variable. Each of these models is specified with a random intercept and fixed slopes.

An advantage of multilevel models is that they provide estimates of the level-2 variance in dependent variables, in this case the variance across marriage markets. The null, random-intercept model shows that all of the dependent variables vary significantly across marriage markets. When the crude sex ratio is added as a predictor, the across-marriage market variation in relationship quality is no longer significant. Crude sex ratios also account for most of the variation across marriage markets in transitions to marriage after a nonmarital birth. In contrast, father's economic characteristics continue to vary significantly across marriage markets even after controlling for crude sex ratios. The subsequent tables and results focus on the relationships between crude sex ratios and dependent variables.

Results

Table 2 summarizes the relationship between sex ratios and 5 measures of the economic desirability of male, nonmarital childbearing partners. Sex ratios are expected to be positively associated with each of these measures. For each of the 5 measures of the economic desirability of male partners, sex ratios have the expected positive sign, but for only 1 outcome measure is the relationship statistically significant.

In favorable marriage markets, women are more likely to have a child with a male partner who has at least as much education as they do and are less likely to partner down in terms of education. In a favorable marriage market, a woman is no more likely to have a child with a man who is employed, has higher predicted wages, has higher predicted wages relative to her own, or has some college education than she is in an unfavorable

marriage market. Separate analyses show that the local unemployment rate is also not related to the economic or educational characteristics of fathers.

The economic quality of a male partner has much more to do with mother's own characteristics than it does with the marriage market or local economy. Mothers' predicted hourly wage and education are positively correlated with fathers' employment, predicted wages, and education. Older and immigrant mothers also tend to have partners who are more economically desirable. In contrast, Black and Hispanic mothers and mothers who crossed race/ethnic lines in their relationships have partners with lower predicted wages and who are less likely to be employed. Mothers' welfare receipt is also associated with less economically desirable partners. Perhaps surprisingly, mothers who had children with previous partners are more likely to partner up in terms of predicted wages and to partner with a man with as much or more education. This finding is consistent with research from the Fragile Families study showing that women who repartner in the study do so with higher quality men (Bzostek, Carlson and McLanahan 2007).

Table 3 shows the relationship between sex ratios and 4 measures of relationship quality. Favorable marriage markets are associated with better quality relationships by all 4 measures. Marriage markets that favor women are associated with significantly more supportive relationships and less relationship conflict. Additionally, in marriage markets that favor women, fathers are more likely to demonstrate some level of commitment to the mother and baby by visiting the hospital during or after the baby's birth. Finally, in marriage markets that favor women, fathers are less likely to have children with a previous partner, a correlate of poor relationship quality.

In addition to marriage markets, some mother characteristics are also predictive of relationship quality. Immigrant mothers have more supportive relationships and less relationship conflict than non-immigrant mothers. Older mothers, mixed race couples, and mothers in poor health have more relationship conflict than their counterparts. As reported in prior research, older mothers and black mothers are more likely to have children with men who have children from previous partners (Carlson and Furstenberg 2006). Also, mothers with children from a previous relationship are more likely to partner with fathers who also have children from a previous relationship. Black mothers are less likely than other mothers to be visited in the hospital by fathers at the time of the birth.

Table 3 focuses on local sex ratios but other features of the local context such as the unemployment rate or the prevalence of divorce and out of wedlock childbearing may be correlated with sex ratios and the quality of unmarried parents' relationships. Depressed labor markets may lead to male shortages and to low relationship quality. However, in separate analyses (not shown), I find that controlling for the city unemployment rate does not alter the reported relationship between sex ratios and relationship quality. High rates of divorce and out-of-wedlock childbearing may lead to a normative climate of low commitment and less investment in relationships. Controlling for the local divorce rate and the nonmarital birth rate does not alter the positive and significant relationship between sex ratios and better quality relationships. Controlling for the estimated Census undercount in a city, which may bias estimated sex ratios, has no effect on the relationship between sex ratios and relationship quality.

Table 4 examines transitions to marriage after a nonmarital birth. Model 1 estimates the relationship between sex ratios and marriage after controlling for mother characteristics. Higher sex ratios are positively associated with marriage following a nonmarital birth. Holding mother characteristics constant, moving from a context in which men are in large shortage (sex ratio = .80) to a context in which men are in large surplus (sex ratio = 1.20) increases the predicted probability of marriage from .12 to .20 based on the Model 1 regression estimates. Mother characteristics are related to transitions to marriage in the expected manner: black mothers, mixed race/ethnic couples, and welfare recipients are less likely to marry whereas mothers with at least a high school education and mothers who are immigrants are more likely to marry.

Model 2 shows that relationship quality and father's economic characteristics are associated with marriage. Father's predicted hourly wage is positively associated with marriage, but his employment status, education, and wages and education relative to the mother are not. Couples with more supportive relationships were more likely to marry, but the extent of relationship conflict was not related to marriage. Couples were more likely to marry if fathers visited the hospital at the time of their baby's birth, and when fathers had not had children with a previous partner.

Model 3 includes sex ratios, father quality, and relationship quality measures as predictors. The relationship between sex ratios and marriage is still positive and statistically significant but smaller in magnitude after controlling for the quality of partners and the quality of relationships. Controlling for other characteristics of localities – divorce, nonmarital childbearing, and unemployment – and for estimates of the Census undercount does not alter the reported relationship between sex ratios and marriage.

Returning to the hypotheses proposed earlier in the paper, the results from Tables 2 to 4 can be summarized as follows: (1) marriage markets are not associated with the economic desirability of male childbearing partners, (2) marriage markets that favor women are associated with better relationship quality among unmarried parents, (3) unfavorable marriage markets are associated with a lower probability of marriage following a nonmarital birth, and (4) unfavorable marriage markets are associated with a lower probability of marriage following a nonmarital birth in part because of the lower quality of unmarried parents' relationships in these contexts.

Discussion

Marriage markets have been linked in prior research to marriage, divorce, and nonmarital childbearing. Marriage markets may also influence unmarried parent relationships in a number of ways. This paper considers whether local marriage markets affect the economic quality of male childbearing partners, the quality of unmarried parent relationships, and the chance that unmarried parents will marry after a birth. The results in this paper are generalizable to unmarried parents in large cities.

In marriage markets that favor women, unmarried parents' relationships seem to be of better quality. As predicted by Guttentag and Secord (1983), parents' relationship quality seems to suffer when men have many alternative partners and seems to improve when women have many alternative partners. This gender asymmetry in marriage market dynamics suggests that men and women exercise their marriage market advantage very differently: men invest less in the relationship with the mother and women strengthen the relationship with the father. Norms of maternal attachment and maternal custody may

make investments in the parental relationship a higher priority for mothers than for fathers (England and Folbre 2002). These findings are also consistent with research showing that the presence of children weakens women's position in the remarriage market (Qian, Lichter and Mellott 2005). Because my analysis measures relationship quality at one point in time, I cannot determine whether unmarried parent relationships are lower quality from their inception in the context of male shortages (a selection effect) or whether unmarried parent relationships deteriorate over time in these contexts (a household bargaining effect).

The measures of relationship quality in this paper have important implications for families and children but are not comprehensive. This paper measures relationship quality in terms of relationship supportiveness, relationship conflict, father visiting mother in the hospital, and father having no children from previous relationships. These measures of relationship quality could be broadened to include direct measures of relationship satisfaction. Also, relationship quality is not static, and it would be useful to incorporate repeated measures of relationship quality in future research.

This paper found that marriage markets were not related to the economic quality of male childbearing partners. The paper measures the quality of male, nonmarital childbearing partners in terms of fathers' predicted wages, employment, and education and fathers' predicted wages and education relative to mothers. In future research, the quality of male partners could be broadened beyond economic status to include measures such as how helpful men are with housework and child care.

This research on unmarried parents finds a different pattern of results from research on married couples. Whereas Lichter et al. (1995) found that marriage markets

that favor women led to marriages with more economically desirable men, I find that marriage markets are not associated with the economic characteristics of unmarried fathers. Whereas Trent and South (2003) found that marriage markets were not associated with marital happiness, I find that marriage markets are associated with the quality of unmarried parent relationships. A key difference between this paper and the studies referenced above is that I analyze unmarried parents and these studies analyze married couples who may or may not have had children. Our differing results suggest that either marital status, parental status, or both are important moderators of marriage market effects.

This paper also examined whether the economic quality of male partners or relationship quality may be the mechanisms through which marriage markets inhibit transitions to marriage. I find evidence consistent with a theoretical model in which unfavorable marriage markets lead to lower quality relationships, which, in turn, inhibit marriage. Nevertheless, only 15 percent of unmarried parents in this sample were married at the 30-month follow-up in spite of high average reports of relationship quality. The low rates of marriage in the overall sample cannot be understood simply in terms of marriage markets or the parent and relationship characteristics measured in this paper. Unfavorable marriage markets and low relationship quality explain only a small portion of non-marriage in this study.

Because of my focus on new parents, the findings have direct implications for children's living arrangements and childrearing. My findings show that marriage markets appear to influence the characteristics of unmarried parent relationships and the transitions to marriage following a nonmarital birth. From these observations, we can

speculate that children with unmarried parents will face disadvantages in unfavorable marriage markets: their parents' relationships are lower quality and their parents are less likely to get married after their birth. Based on this research, we can predict that children born to unmarried parents in marriage markets that favor women will fare relatively better than their counterparts in marriage markets that favor men, a proposition that can be empirically tested in future research.

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Table 1. Individual and City-Level Descriptives

	Mean or %	SD	
Individual-Level Variables (n=2382)			
Married at 30-month follow-up (%)	15.0		
Father predicted hourly wage (\$)	10.8	(3.4)	
Father employed (%)	72.8		
Father has some college education (%)	24.2		
Father/mother predicted hourly wage ratio	1.34	(0.4)	
Father has at least as much education as mother (%)	73.3		
Relationship supportiveness scale (1-3)	2.6	(0.33)	
Relationship conflict scale (0-6)	0.7	(0.88)	
Father visited mother in hospital (%)	83.2		
Father no children with previous partner (%)	58.4		
Mother's age (years)	23.7	(5.5)	
Mother is Black (%)	58.4		
Mother is Hispanic (%)	25.1		
Mother is Asian (%)	1.0		
Mother is an immigrant (%)	10.8		
Mother and father are different race/ethnicity (%)	10.9		
Mother's predicted hourly wage (\$)	8.4	(2.7)	
Mother has some college education (%)	27.0		
Mother has high school diploma (%)	29.8		
Mother received welfare or food stamps last year (%)	44.6		
Mother reports poor or fair health (%)	7.9		
Mother has child with previous partner (%)	41.5		
	Mean or %	SD	Range
City-Level Variables (n=19)			
White, non-Hispanic 18-34 year old male/female ratio ^a	1.03	(0.06)	0.92 to 1.14
Black 18-34 year old male/female ratio ^a	0.86	(0.10)	0.73 to 1.12
Hispanic 18-34 year old male/female ratio ^a	1.24	(0.27)	0.96 to 1.92
Asian 18-34 year old male/female ratio ^a	1.03	(0.13)	0.86 to 1.25
Unemployment rate ^b	3.8	(1.28)	2.3 to 6.5
Percent of births to unmarried mothers in 1998 ^c	32.4	(2.63)	26.1 to 36.6
Percent divorced or separated among 20-34 year olds ^a	7.0	(2.46)	2.5 to 11.4
Estimated percent under or overcounted in 2000 Census ^a	0.061	(0.78)	-1.20 to 1.59

Note: Individual-level data come from the unmarried parent sample in the Fragile Families and Child Wellbeing study. City-level data come from ^athe 2000 U.S. Census, ^bthe Bureau of Labor Statistics, and ^cVital Statistics.

Table 2. Economic Characteristics of Male, Nonmarital Childbearing Partners as a Function of Sex Ratios and Mother Characteristics; OLS and Logit Coefficients from Multilevel Regression Models

	Male Partner Absolute Quality			Male Partner Relative Quality	
	Predicted hourly wage (\$)	Employed (0/1)	Father has some college education (0/1)	Father/mother hourly wage	Father as much or more educ as mother (0/1)
	<i>Regression Type:</i> OLS	Logit	Logit	OLS	Logit
Male/female sex ratio	0.850 (1.602)	0.930 (0.669)	0.401 (0.742)	0.278 (0.160)	1.496 * (0.605)
Mother's age	0.150 ** (0.014)	0.044 ** (0.014)	0.013 (0.013)	-0.013 ** (0.001)	-0.050 ** (0.009)
Mother is black	-2.728 ** (0.547)	-0.736 ** (0.215)	-0.204 (0.225)	-0.109 * (0.053)	0.365 * (0.184)
Mother is Hispanic	-2.465 ** (0.582)	-0.141 (0.211)	-0.437 * (0.220)	-0.077 (0.056)	0.056 (0.169)
Mother is an immigrant	0.532 ** (0.204)	0.560 * (0.224)	0.093 (0.196)	0.180 ** (0.026)	0.432 * (0.189)
Mother/father different race/ethnicity	-0.660 ** (0.173)	-0.498 ** (0.170)	0.323 * (0.164)	-0.078 ** (0.022)	-0.041 (0.161)
Mother predicted hourly wage	0.280 ** (0.037)	-0.027 (0.035)	0.095 ** (0.031)	---	---
Mother has some college	0.833 ** (0.164)	0.838 ** (0.161)	1.376 ** (0.157)	---	---
Mother has high school diploma	0.397 ** (0.122)	0.384 ** (0.115)	0.769 ** (0.138)	---	---
Mother received welfare last year	-0.315 ** (0.107)	-0.353 ** (0.102)	-0.258 * (0.113)	0.008 (0.013)	0.245 * (0.100)
Mother reports poor or fair health	0.211 (0.188)	0.036 (0.182)	-0.256 (0.217)	0.181 ** (0.024)	0.725 ** (0.211)
Mother has child with previous partner	0.016 (0.114)	0.119 (0.111)	-0.057 (0.121)	0.043 ** (0.015)	0.241 * (0.108)

Note: n=2382 unmarried parent couples. Standard errors are in parentheses. Multilevel models include random intercepts and fixed slopes. **p<0.01; * p<0.05.

Table 3. Unmarried Parents' Relationship Quality as a Function of Sex Ratios and Mother Characteristics; OLS, Poisson, and Logit Coefficients from Multilevel Regression Models

	Relationship supportiveness scale	Frequent conflicts scale	Father visited mother in hospital (0/1)	Father has no children with previous partner (0/1)
<i>Regression Type:</i>	<i>OLS</i>	<i>Poisson</i>	<i>Logit</i>	<i>Logit</i>
Male/female sex ratio	0.170 ** (0.063)	-0.597 * (0.254)	1.391 * (0.621)	1.245 ** (0.432)
Mother's age	-0.003 (0.002)	0.016 * (0.007)	0.010 (0.016)	-0.083 ** (0.012)
Mother is black	-0.008 (0.023)	0.038 (0.091)	-0.493 * (0.220)	-0.499 ** (0.157)
Mother is Hispanic	0.017 (0.023)	0.025 (0.093)	0.062 (0.238)	-0.124 (0.166)
Mother is an immigrant	0.049 * (0.025)	-0.549 ** (0.119)	-0.013 (0.238)	0.386 * (0.176)
Mother/father different race/ethnicity	-0.019 (0.023)	0.204 * (0.085)	-0.141 (0.209)	-0.446 ** (0.150)
Mother predicted hourly wage	0.007 (0.004)	-0.053 (0.018)	0.048 (0.039)	0.055 * (0.028)
Mother has some college	0.020 (0.021)	0.092 (0.079)	0.057 (0.175)	0.129 (0.137)
Mother has high school diploma	0.026 (0.016)	-0.018 (0.062)	0.269 (0.137)	0.057 (0.108)
Mother received welfare last year	-0.008 (0.014)	0.100 (0.054)	-0.066 (0.119)	-0.157 (0.094)
Mother reports poor or fair health	-0.046 (0.025)	0.267 ** (0.085)	0.184 (0.217)	-0.095 (0.164)
Mother has child with previous partner	0.003 (0.015)	0.045 (0.058)	-0.236 (0.127)	-0.442 ** (0.098)

Note: n=2382 unmarried parent couples. Standard errors are in parentheses. Multilevel models include random intercepts and fixed slopes. **p<0.01; * p<0.05.

Table 4. Marriage after a Nonmarital Birth as a Function of Sex Ratios, Father's Economic Characteristics, Relationship Quality, and Mother Characteristics; Logit Coefficients from Multilevel Regression Models

	Model 1	Model 2	Model 3
Male/female sex ratio	1.545 ** (0.537)	--	1.264 * (0.521)
Father predicted hourly wage		0.422 * (0.177)	-0.028 (0.054)
Father employed		-0.012 (0.056)	0.406 * (0.176)
Father some college education		0.178 (0.184)	0.209 (0.181)
Father/mother hourly wage ratio		0.416 (0.491)	0.517 (0.480)
Father has as much or more education than mother		0.066 (0.195)	0.067 (0.195)
Relationship supportiveness		0.998 ** (0.244)	0.980 ** (0.243)
Relationship conflict		-0.167 (0.092)	-0.164 (0.092)
Father visited hospital		0.564 * (0.231)	0.558 * (0.231)
Father no children with previous partner		0.275 * (0.138)	0.267 (0.137)
Mother's age	0.002 (0.016)	0.005 (0.017)	0.009 (0.016)
Mother is black	-0.783 ** (0.198)	-0.830 ** (0.191)	-0.596 ** (0.202)
Mother is Hispanic	-0.086 (0.184)	0.048 (0.201)	-0.033 (0.191)
Mother is an immigrant	0.399 * (0.203)	0.323 (0.195)	0.168 (0.193)
Mother/father different race/ethnicity	-0.399 * (0.195)	-0.351 (0.202)	-0.310 (0.195)
Mother predicted hourly wage	0.019 (0.036)	0.045 (0.066)	0.050 (0.066)
Mother has some college	0.576 ** (0.184)	0.464 * (0.233)	0.513 * (0.230)
Mother has high school diploma	0.401 ** (0.153)	0.297 (0.167)	0.327 (0.168)
Mother received welfare last year	-0.308 * (0.132)	-0.231 (0.135)	-0.230 (0.135)
Mother reports poor or fair health	0.049 (0.228)	0.139 (0.234)	0.102 (0.232)
Mother has child with previous partner	0.095 (0.139)	0.121 (0.142)	0.123 (0.142)

Note: n=2382 unmarried parent couples. Standard errors are in parentheses. Multilevel models include random intercepts and fixed slopes. **p<0.01; * p<0.05.