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PARENTS' PREFERENCES FOR MIXED-SEX CHILDREN:  
MOTIVATIONS, FERTILITY BEHAVIOR, AND PSYCHOLOGICAL WELL-BEING

by

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Deborah Carr, Ph.D.

and approved by

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## ABSTRACT OF THE DISSERTATION

Parents' Preferences for Mixed-Sex Children:

Motivations, Fertility Behavior, and Psychological Well-Being

By COLLEEN NICOLE NUGENT

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This dissertation uses nationally representative data from the National Survey of Families and Households to address the overarching question: “For what reasons and with what consequences do people incorporate a preference for ‘at least one boy and one girl’ into family formation ideals?” In the first analysis, I evaluate three potential psychosocial frameworks motivating the mixed-sex ideal. Results support a “separate spheres” ideology, through which parents may view the interests, traits, skills, and roles of boys and girls in families as very different. Second, results support a rational choice orientation, whereby achieving this goal maximizes having a variety of one’s needs met in old age. Third, it may be motivated by its symbolic capital as a status marker, representing the image of a “balanced,” ideal family. Based on beliefs about the non-substitutability of boys and girls, this ideal represents a form of gender inequality that persists in families. In the second analysis, I use discrete-time event history to associate individuals’ statements about valuing a mixed-sex composition with odds of having a third child, accounting for within-couple differences on this preference. Couples with

same-sex children did not have higher odds of a third birth than those with mixed-sex children. Furthermore, the degree to which couples valued having a mixed-sex composition did not matter more for those with same-sex children. Although couples with the strongest subscription to the mixed-sex ideal had significantly higher odds of a third birth than those with the lowest among couples with two boys, the effect of this pattern is too small to play a significant role in determining third births. In the third analysis, I examine whether unfulfilled ideals for a mixed-sex composition are associated with negative psychological consequences among mothers. Results show that the sex composition of children was not associated with psychological well-being. Furthermore, women who valued a mixed-sex composition but did not obtain it did not report more depressive symptoms, poorer life satisfaction, or less satisfaction with family life than those who did not value the mixed-sex ideal. I discuss implications of findings for gender, families, psychological health, and ethical debates about sex-selection technologies.

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## Chapter 1. Introduction

### *Cultural Emphasis on Fetal Sex and Mixed-Sex Compositions*

Before the routine use of ultrasounds in prenatal care in the 1990s, postnatal birth announcements were popularly headlined by the declaration “It’s a boy!” or “It’s a girl!” More recently, a desire to know the sex of a fetus is the most common reason for wanting a prenatal ultrasound (Stephens, Montefalcon, and Lane 2000), and today, some variant of “Do you know what you are having?” is thought to be the second most popular question asked of pregnant women after “When are you due?” (Buchanan 2005). Now, a new trend of “gender reveal parties” broadcasts this information to parents and groups of invested friends and family months before the birth (O’Connor 2012). Methods of knowing and/or controlling the sex of a fetus have preoccupied popular and scientific wisdom both old and new, from superstitions about “carrying low” to recent research finding that a mother’s diet may influence the outcome (Mathews, Johnson, and Neil 2008). The process of childbirth, it seems, is intricately and inseparably tied to sexing a fetus or a newborn. Such pervasive and enduring cultural evidence for the need to do so suggests that sex matters. However, gaps remain in what is known about why it matters, as well as how it influences fertility-related behavior and psychological well-being of parents when ideals are not achieved. These are the questions addressed by this project.

The concept of sex preferences often sparks thoughts of non-Western countries such as India and China, where a desire for boys remains intense and widespread (Das Gupta et al. 2003; Hvistendahl 2011). Yet, even in contemporary U.S. society parents have strong preferences for the sex of a newborn or pending arrival. Books, websites,

and discussion forums offer support to those who are disappointed with the news of their baby's sex (Barrett 2009; Whittaker 2011). On the flip-side, YouTube videos of gender reveal parties are filled with positive emotions including hugs, tears, and screams of joy (O'Connor 2012). Despite powerful preferences for having either a boy or a girl at a *particular* birth, in terms of overall sex composition, parents in the U.S. and other Western nations tend to want at least one son and one daughter (Hank 2007). Same-sex compositions are unpopular with Americans, preferred by less than 10% (Coombs 1977; Dahl et al. 2006b). It is this particular preference—wanting at least one boy and one girl—on which this dissertation focuses.

Some fertility clinics have contributed to negative perceptions of families with either all boys or all girls. A need for 'gender variety' has become a problem that can be medically addressed by such facilities, as many are now marketing new sex-selection reproductive technologies under the label of 'family balancing' services (Whittaker 2011). The potential for development of such sex-selective reproductive technology spurred a flurry of academic research on sex preferences in the 1970s. Yet questions still remain and techniques that were at the time only distant possibilities are now a reality. The introduction of these technologies has revived old ethical discussions that emerged in the 1970s, as whether and how to regulate sex selection has become a legislative agenda item especially among anti-abortion activist groups (Hvistendahl 2011). Therefore, given the current climate of newly emerging sex selection technologies and their associated ethical debates, which I review next, it is important to study sex composition preferences and their determinants and consequences.

### *The Current Landscape of Sex-Selective Reproductive Technologies*

Historically, infanticide and neglect have been the only available methods of sex selection, typically practiced against females (Hvistendahl 2011). After the 1970s and until recently, the only way to truly select the sex of a child *prior* to birth was rather a process of de-selection, whereby abortion could be used to terminate a pregnancy when knowledge of fetal sex had been learned prenatally. Two methods of providing this information—amniocentesis and chorionic villus sampling (CVS)—are typically performed late in the first trimester or early in the second trimester, only among mothers with higher risk of chromosomal abnormality or when there is a family history of sex-linked genetic disorders. Ultrasound, though, is now a routine part of most pregnancies, and ever since the 1990s expectant parents have been regularly offered the opportunity to learn fetal sex after 18 weeks into the pregnancy. In addition, in the past few years, tests involving screening mothers' blood for fetal DNA have entered the commercial market and can purportedly detect the sex of the fetus with higher accuracy, lower cost, less invasive procedures, and less risk to fetal development as early as five to seven weeks' gestation (Belluck 2011). However, a 2006 class action suit and the offending company's subsequent bankruptcy suggest the tests on the market have not yet been able to live up to their accuracy claims (Hvistendahl 2011).

New technological developments have taken us even beyond “knowing” to actually “selecting” fetal sex, where parental gender preferences can be virtually guaranteed through various procedures. One technique, preimplantation genetic diagnosis (PGD), is a part of the in vitro fertilization (IVF) process that couples experiencing fertility difficulty may use. PGD screens embryos that have been fertilized

in a lab for signs of genetic diseases, often with couples having a family history of sex-linked genetic diseases, although since 2003 it has been advertised for selecting the sex for non-medical reasons, as well (Hvistendahl 2011). Through the screening process, the sex of the embryo can be determined and parents can choose to have only an embryo of a particular sex implanted in the mother's womb. A second but less accurate technique called MicroSort is a process of sperm sorting that separates sperm cells bearing an X chromosome from sperm cells bearing a Y chromosome based on the fact that they differ in size and weight. The sorted sperm can then be used with either IVF to fertilize embryos outside the body, or with intra-uterine insemination.

The 2010 International Federation of Fertility Societies Surveillance report found that 26 of 105 countries surveyed practice one or both methods of pre-implantation sex-selection, although this survey did not determine whether they are performed to prevent sex-linked disorders, for non-medical reasons, or both in those countries (Jones et al. 2011). Although sperm sorting has been used by thousands of couples in clinical trials in the U.S., as of March 2012 it failed to gain FDA approval here. Therefore, PGD remains the only available pre-implantation selection method accessible in the U.S. One study of 53 IVF centers across the U.S. notes that only 11.4% of patients using PGD requested sex selection, but only 10.9% of those—all PGD cases using sex selection—are doing so for medical reasons (Colls et al. 2009).

This procedure carries a high price tag at \$10,000 to 20,000 (Stein 2004), and currently only nine states have mandates that require insurance companies to cover IVF procedures (American Society for Reproductive Medicine 2012). IVF is typically only covered for infertility reasons, and it is unknown whether that coverage includes PGD for

sex selection. Consequently, these technologies are used primarily by those in higher income categories, but they could become more widely used as they become cheaper and more accessible (Hvistendahl 2011). In addition to the cost, IVF involves invasive procedures of injecting hormones, harvesting eggs, and implanting embryos, making it an unattractive option for some couples.

Pre-implantation sex-selection techniques are generally practiced only in more affluent nations (Jones et al. 2011), so sex selection through abortion of unwanted fetuses is still more widely used in non-Western countries, made possible by the availability of cheap ultrasound machines and doctors willing to perform sex-selective abortions even in nations where it is illegal to do so (Hvistendahl 2011). One hospital administrator interviewed by journalist Mara Hvistendahl (2011) noted that among Indian gynecologists who do female sex-selective abortions, 90% of their income comes from such procedures. Even in the U.S., online forums reveal that some people consider terminating pregnancies based on the sex of the fetus (Barrett 2009), and a recent study of immigrant Indian women in the U.S. found that 26 of 65 participants (40%) had undergone one to four sex-selective terminations in the past. Twenty-four of 27 women carrying a female fetus in their most recent pregnancy ended the pregnancy via abortion (Puri et al. 2011). In addition, an examination of U.S. Census data from 2000 revealed a higher than normal sex ratio among U.S.-born children of Chinese, Korean, and Asian Indian parents, especially among those with three children. Among third children, boys outnumbered girls by 50% if there were no previous sons, which authors conclude is suggestive of prenatal sex selection (Almond and Edlund 2008).

### *Sex Selection and Ethical Considerations*

Sex selection techniques are highly controversial, sparking an ethical debate about reproductive freedom similar to that which has surrounded issues such as abortion and surrogacy. Proponents of sex selection have argued that banning the use of such technologies eliminates our basic human right choose how, when, and why we go about building a family—an argument which has managed to divide abortion rights activists down the middle (Hvistendahl 2011). Meanwhile, anti-abortion activists have adopted sex selection as another reason to justify beliefs that all abortions should be illegal (Hvistendahl 2011). Others have joined the debate about reproductive freedom but choose to focus on newer sex selection technologies such as PGD and sperm sorting because the act of selecting sex takes place prior to pregnancy and is not attached to abortion processes. Therefore, some consider such techniques more ethically acceptable, and the claim has even been made that increased availability of such techniques may help avoid or reduce sex-selective abortions by giving parents what they want right from the start (Whittaker 2011).

Another aspect of ethical debates surrounding sex selection involves its potential effects on three demographic outcomes: Birth order, family size, and sex ratio. Research has typically documented that a majority of Americans prefer to have a boy first and a girl second (Fidell, Hoffman, and Keith-Spiegel 1979; Markle and Nam 1971), and recent surveys confirm that although more parents express “no preference” for birth order, those with a preference still want a son first (Dahl et al. 2006b). The concern among scholars is that because some research finds first-born children tend to be achievement-oriented and second-borns are more likely to seek approval and have greater needs for affiliation,

that a pattern of overachieving men and passive, accommodating women could reinforce current sex stereotypes (see Fidell, Hoffman, and Keith-Spiegel 1979; Kippen, Evans, and Gray 2007; Powledge 1983; Westoff and Rindfuss 1974 for a discussion).

Sex selection also has the potential to increase or decrease fertility. In Western countries with a two-child norm, researchers note that rates of having a third child are higher among those with same-sex children compared to those with one boy and one girl (Kippen, Evans, and Gray 2007; McDougall, DeWit, and Ebanks 1999; Mills and Begall 2010; Pollard and Morgan 2002). In such countries new technologies could raise fertility in the short term because it would allow couples who already have two children of the same sex and would otherwise stop at two to be guaranteed they would obtain a child of the opposite sex by having a third child. In the long term, sex selection would decrease family sizes because it allows couples who have not yet had children to select the sex composition of their children from the very beginning (Kippen, Evans, and Gray 2007; McClelland 1983). Long term declines in family size—even though researchers speculate that they would be small—may have implications for countries in which fertility rates are already below replacement level.

Perhaps the most attention in ethical discussions of sex selection has been devoted to concerns about its effects on the aggregate sex ratio. Typically 105 boys are born to every 100 girls, with the difference being a natural balancing mechanism that accounts for the fact that boys are more likely to die young due primarily to cardiopulmonary weaknesses. In Asian and Eastern European countries where a strong preference for boys exists, skewed sex ratios have emerged that include a much higher number of boys born compared to girls (Hvistendahl 2011). In China, where law limits parents to having only

one child, this result is particularly dramatic—there were approximately 121 boys born for every 100 girls in 2007. In Asia alone, it has been calculated that over 160 million females have been lost to the combination of ultrasound and sex-selective abortion (Hvistendahl 2011). The side-effects of a male-dominated sex ratio are many, ranging from a shortage of available women for partnering, which has led to bride-trafficking and forced marriages across national borders, to increases in violence and crime (Hvistendahl 2011). Despite clear effects of sex selection on sex ratios in other parts of the world, researchers in Western countries have concluded that because most couples in those nations prefer a mixed-sex composition rather than boys over girls, fears of a sex-ratio imbalance overall are unwarranted (Dahl et al. 2006a; Dahl et al. 2006b).

Still others question the ethical principles behind sex selection, including the inappropriate use of limited medical resources, the commodification of offspring, and controlling nonessential characteristics of children, which could lead to a “slippery slope” of creating “designer babies” (Davis 2001; Stein 2004). Others argue that it is irrelevant whether sex selection decisions are motivated by beliefs in the superiority of one sex over another or even whether selection happens prior to or during pregnancy (Whittaker 2011). The very act of sex selection promotes decision-making that is based on cultural expectations associating particular behaviors with one sex or the other, or upon stereotyped constructions of sex and gender, therefore perpetuating sexism (Powledge 1983; Whittaker 2011). This could result in possible psychological harm of sex-selected children if they do not conform to parents’ gender-typed expectations or if they are one of the ‘errors’ of imperfect sex selection procedures like sperm sorting. Furthermore, ethicists argue that any type of concern with screening for sex “seems incompatible with

the attitude of virtually unconditional acceptance that developmental psychologists have found to be essential to successful parenting” (President’s Commission for the Study of Ethical Problems in Medicine and Biomedical and Behavioral Research 1983).

### *Purpose and Outline of the Dissertation*

My purpose in this dissertation is to address the overarching question: “For what reasons and with what consequences do people incorporate a preference for a mixed-sex composition of children into their family formation ideals?” I am interested in the trajectory of this compositional ideal before, during, and after childbearing has taken place. I therefore explore three aspects of the preference for at least one boy and one girl that is popular in the U.S. and other Western countries: 1) How does it emerge—what psychosocial factors motivate this preference?; 2) What influence does it exert in the process of childbearing?; and 3) What role does it play in later psychological well-being when it is idealized but ultimately not achieved?

In the first set of analyses (Chapter 2) I attempt to understand what drives a parental preference for at least one boy and one girl in the U.S., a country which has made great advances in the relative equality for men and women over the past half century. In countries that prefer sons over daughters, the status of women relative to men tends to be lower (Mills and Begall 2010; Williamson 1976). Yet some theory proposes that even a desire for at least one boy and one girl is a reflection of gender inequality. It suggests a belief that sons and daughters are fundamentally different—rather than fully substitutable—and are therefore not equivalent (Pollard and Morgan 2002). I evaluate three psychosocial frameworks that may motivate subscription to a mixed-sex ideal, all based on notions that boys and girls are not substitutable: 1) separate spheres beliefs

about the family and work roles of men and women, 2) a rational choice desire to be taken care of in old age, and 3) attitudes supporting the superiority and symbolic capital of the “ideal” family image. Answering this question may help inform ethical discussions about whether the very act of sex selection—even if it is to achieve a mixed-sex composition—should be considered an act of sexism.

In turn, sex composition preferences are thought to influence fertility. Research finds that parents with two same-sex children are more likely to have a third child or intend to have an additional child than parents with one son and one daughter in a variety of Western countries, including the U.S. (Sloane and Lee 1983; Wood and Bean 1977; Yamaguchi and Ferguson 1995), although there is some evidence for declines in this effect between 1986 and 1994 (Pollard and Morgan 2002). Scholars conclude that these higher rates of intended or actual third births are motivated by a desire for mixed-sex children. However, such conclusions are problematic because other preferences may be operating and these studies do not actually measure a stated desire for ‘at least one boy and one girl’ for each individual and each couple. In Chapter 3, I address this gap by examining whether actual statements about valuing a mixed-sex composition have any effect on third births for couples with two boys or two girls. Answering this question may also help inform ethical discussions, specifically pertaining to the potential effects of sex selection on overall family size.

Finally, Chapter 4 extends knowledge of how subscription to the mixed-sex ideal might influence other, non-fertility outcomes. Recent news media and academic scholarship suggest that an unmet desire for at least one son and one daughter may result in serious consequences for mothers’ psychological well-being referred to as ‘gender

disappointment’ (Associated Press 2009; Barrett 2009; Whittaker 2011). Past research finds that depressive symptoms may be a result of having a child of an unwanted sex (Adewuya 2006; Boyce and Hickey 2005; Ekuklu et al. 2004; Kheirabadi et al. 2009; Patel, Rodrigues, and DeSouza 2002), but such studies have focused on preferences for an individual birth rather than an overall compositional preference. In this chapter, I explore whether valuing a mixed-sex composition but not achieving it is associated with poorer psychological well-being among mothers. This study also informs ethical discussions about sex selection technologies by answering whether there are psychological consequences to a belief system where some family compositions are seen as more problematic than others—beliefs that are in part structured by and legitimated through the existence and acceptance of sex selection technologies.

These analyses use nationally representative data from two waves of the National Survey of Families and Households (1987-1994)—the only available survey to inquire about the importance of having ‘at least one boy and one girl.’ These data represent a particularly relevant time period to examine ideas about the sex composition of children. It captures early beginnings of both the third wave of feminism in the 1980s and the post-1985 period in which Pollard and Morgan (2002) note attenuation in the effect of sex-of-previous-children on U.S. fertility. It is a time when a cultural and behavioral norm for stopping at two children that began in the ‘70s fully combines with increasingly egalitarian attitudes about the roles of men and women in work and family life. In fact, women in their childbearing years in the late 1980s were the first to experience growing educational and employment opportunities (Pollard and Morgan 2002). In addition, it captures a time period just prior to that in which ultrasound became widely used by U.S.

patients in prenatal care to determine the sex of the fetus. Therefore, its role in rates of third births and the later psychological well-being of mothers is relatively undiluted by those who may be using this particular sex-selection technology to achieve a desired sex composition and a two-child ideal at the same time.

I use samples of different compositions—and therefore varying sizes—in each chapter for a variety of conceptual reasons in order to best address each research question. In Chapter 2 I examine the psychosocial underpinnings of valuing a mixed-sex composition and therefore want representation from a wide range of people, regardless of age, sex, marital status, or the number and sex of current children. In the next set of analyses, I am interested in the fertility transition of having a third child and whether it is motivated by stated desires for a mixed-sex composition. Having a third child is an outcome that depends on some level of planning and collective decision-making by couples, and births are more likely to be unplanned among parents who are not cohabiting or married (Musick 2002). Therefore, Chapter 3 relies on a sample of cohabiting or married couples with at least two children who both made direct statements related to how strongly they endorse the mixed-sex ideal. Finally, in Chapter 4 I hope to extend past research associating psychological well-being with unmet sex preferences for individual children by examining overall sex composition ideals instead. Because prior studies have used samples of women, and recent attention on ‘gender disappointment’ has focused on women’s experiences (Whittaker 2011), I likewise use a sample of women with at least two children to address the research questions in Chapter 4.

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## **Chapter 2. Wanting Sons and Daughters: Separate Spheres, Rational Choice, and Symbolic Capital Motivations**

### **Abstract**

Substantial research concludes that most Americans want to have “at least one boy and one girl,” yet studies have not explored what drives this preference. I use nationally representative data from the National Survey of Families and Households (n=5,544) and generalized ordered logistic regression to evaluate three potential psychosocial frameworks motivating the mixed-sex ideal using gender and family attitude variables. Results support a “separate spheres” ideology, through which parents may view the interests, traits, skills, and roles of boys and girls in families as very different. Second, results support a rational choice orientation, whereby achieving this goal maximizes having a variety of needs met in old age. Third, it may be motivated by its symbolic capital as a status marker, representing the image of a “balanced,” ideal family. Based on beliefs about the non-substitutability of boys and girls, this ideal represents a form of gender inequality that persists in families.

### **Introduction**

Entertainment news in the past year has buzzed with announcements that celebrity couple Victoria and David Beckham finally had a girl after three boys: “Evidently, the fourth time's the charm” (Thompson 2011). When the sexes of twins for entertainers Mariah Carey and Nick Cannon were revealed, media declared that they “struck lucky” to be having both a boy and a girl (Daily Mail Reporter 2011). Such suggestions that it is desirable to have at least one son and one daughter in the U.S. are supported by surveys over the past several decades—less than 10% of Americans prefer to have sex

compositions that are all boys or all girls (Coombs 1977; Dahl et al. 2006). Surprisingly, little is known about why people value a mixed-sex composition; this is the question addressed by this paper.

A prominent preference for sons cross-culturally is long-lived and well-documented, typically motivated by the economic assistance sons provide to a family, especially aging parents, and also for their ability to pass on a family name, receive inheritance, and perform funeral rituals for parents (for reviews see Hank 2007; Marleau and Saucier 2002; Williamson 1976). In some non-Western countries, such as India and China, son preference is manifested through extreme practices such as sex-selective abortion and infanticide, and excessively high female child mortality rates due to neglect (Das Gupta et al. 2003; Hvistendahl 2011). Even in the contemporary U.S., a recent Gallup poll finds that people say they would prefer to have a boy if they were only able to have one child (Newport 2011). In terms of overall sex composition, though, researchers conclude that parents in the U.S. and other Western nations exhibit a desire to have at least one son and one daughter (Hank 2007).

A decline over time in the preference for boys signals a shift in the gender order toward egalitarianism, as a preference for sons over daughters is more likely to occur in countries where the status of women relative to men is lower (Mills and Begall 2010; Williamson 1976). Although it may seem a logical extension to conclude that a preference for at least one boy and one girl is based on egalitarian attitudes and gender neutrality, I argue that such a preference is evidence of continuing gender inequality despite many advances toward equality made during and since the second wave of feminism from the 1960s through the '80s. It suggests a belief that sons and daughters

are fundamentally different—rather than fully substitutable—and are therefore not equivalent (Pollard and Morgan 2002). Gender theorists argue that the creation and recognition of difference is the foundation on which inequality rests (Lorber 1994; Risman 1998). Therefore, the hope for at least one son and one daughter can be conceptualized as one manifestation of a social structural and cultural force helping to sustain gender inequality.

Surprisingly, we know very little about the beliefs underlying the mixed-sex ideal. In this paper, I attempt to assess the psychosocial underpinnings of the wish to have at least one son and one daughter—a desire that researchers agree is prevalent in the U.S. population. Using nationally representative data from the National Survey of Families and Households (NSFH; 1987-88), I employ multivariate generalized ordered logistic regression to examine possible motivations behind desires for a mixed-sex composition. Utilizing gender and family attitude variables, I evaluate three complementary psychosocial frameworks that potentially motivate the mixed-sex ideal, net of sociodemographics: (a) separate spheres beliefs about the family and work roles of men and women, (b) a rational choice desire to be taken care of in old age, and (c) attitudes supporting the superiority and symbolic capital of the “ideal” family image. Such a study is important because a compositional preference for at least one son and one daughter is regarded as the key mechanism for higher birth rates among those with same-sex children compared to those with mixed-sex compositions. Therefore, examining the motivations behind the mixed-sex ideal can expand our knowledge about why particular family sizes and sex compositions may evolve the way they do.

## **Background**

### *Boys, Girls, or One of Each: An Overview of Sex Preferences Research*

U.S. studies of parental sex preference in social scientific research have taken several different approaches: Documenting preferences for boys versus girls, measuring stated desires for overall sex compositions, and inferring compositional preferences from fertility-related attitudes and/or behavior. Early studies documenting a son preference in the U.S. found that the male: female sex ratio of the last child born in families was higher than the sex ratio of children overall, suggesting that couples continued having children until they had a boy (Clare and Kiser 1951; Winston 1932). Later survey interviews between the 1950s and 1970s confirmed that boys were typically preferred over girls for a first child, an only child, and when an odd number was desired (Dinitz, Dynes, and Clarke 1954; Fidell, Hoffman, and Keith-Spiegel 1979; Markle 1974). In contrast, more recent surveys over the last two decades have found a stated preference to have a girl among both lesbian and heterosexual pre-adoptive parents (Baccara et al. 2010; Goldberg 2009; Jones 2008) and first-time pregnant married women (Marleau and Saucier 2002).

Studies of overall compositional preferences have revealed a preference for “at least one boy and one girl,” yet only one published study has used this exact phrasing directly in a single item measure (Rent and Rent 1977), rather than inferring it from other available choices (e.g., see Dahl et al. 2006). Some studies have utilized systems of forced choice or rank ordering different possible combinations of boys and girls, finding that same-sex compositions have consistently been the least popular (Arnold and Kuo 1984; Coombs 1977; Sensibaugh and Yarab 1997). Other researchers have inferred a mixed-sex compositional preference by combining women’s stated preference for a

hypothetical next child with the sex of any previous children (e.g., those with one or more sons preferred to have a daughter next and vice versa) (Pebley and Westoff 1982; Westoff and Rindfuss 1974).

Another method of inferring compositional preferences has examined the sex composition at different parities (i.e., number of children) and related them to either future fertility intentions, completed fertility, or both. These studies have found a “sex-of-previous-children effect”—parents with same-sex children are more likely to have a third child or intend to have another child than parents with one son and one daughter. Such findings have led to conclusions about a preference for at least one boy and one girl in Australia (Kippen, Evans, and Gray 2007), Canada (McDougall, DeWit, and Ebanks 1999), Denmark, Sweden, Norway, Finland (Andersson et al. 2006), and the U.S. (Sloane and Lee 1983; Wood and Bean 1977; Yamaguchi and Ferguson 1995), although Pollard and Morgan (2002) found a decrease in the sex-of-previous-children effect in the U.S. between 1986 and 1994. They suggest an “emerging gender indifference,” whereby sons and daughters are considered more fully substitutable.

#### *Boys versus Girls: Psychosocial Determinants*

Despite an abundance of research concluding that parents in Western countries hope for a mixed-sex composition, there are surprisingly few studies exploring what motivates preferences. Those that do tend to focus on why people value having boys versus girls, rather than why they want at least one boy and one girl. One reason for wanting boys or girls in the U.S. is a desire for companionship with the child based on sex-typed interests (e.g., crafts or sports) or expectations about special mother-daughter/father-son bonds or father-daughter/mother-son relationships (i.e., “daddy’s

girl” and “mama’s boy”) (Arnold and Fawcett 1975; Goldberg 2009; Hammer and McFerran 1988). In addition, boys and girls have also both been traditionally valued for their practical help around the house and care for other children—sons for contributions to outdoor chores and for “protecting” sisters, and daughters for their assistance with cooking, cleaning, and “taking care of” other siblings (Arnold and Fawcett 1975). Although it is not known whether boys and girls would be similarly valued for such contributions today in an era when gendered roles are converging, relatively recent research finds that household chores continue to be differentially allocated to sons and daughters in sex-typed ways (see Raley and Bianchi 2006 for a review).

U.S. parents have also continued to prefer sons or daughters based on abstract and desirable behavioral characteristics or traits typically associated with a particular sex (e.g., cuteness for girls) (Arnold and Fawcett 1975; Goldberg 2009). Interestingly, certain qualities can be cited by some as perceived traits of boys and by others as traits of girls, such as ease of raising or fun (Goldberg 2009). In addition, sons have continued to be regarded as the ones who can carry on a surname (Arnold and Fawcett 1975; Arnold and Kuo 1984; Fidell, Hoffman, and Keith-Spiegel 1979; Goldberg 2009). Finally, parents have described wanting a son or daughter because of a greater comfort or sense of preparedness for raising either boys or girls based on one’s own knowledge of body parts, socialization, and experience as a man or a woman (Goldberg 2009).

Although the latter reason was articulated primarily by gay and lesbian couples, in the context of a mixed-sex ideal, this and many of the other reasons outlined highlight the heteronormativity embedded in the desire for at least one boy and one girl. For example, if the hope for at least one of each is based on companionship or special cross-sex/same-

sex relationships, it presumes two opposite-sex partners. Motivations also demonstrate the socially constructed nature of parents' sex preferences, as they are a preference for *gender*—the kind of person the fetus will become, including qualities they will possess and how they will behave based on cultural expectations for different sexes—rather than an actual desire for a particular combination of X and Y chromosomes or biological genitalia (Powledge 1983; Rothman 1993).

Research has typically not examined why having “at least one boy and one girl” is valued by so many. Perhaps this is because the assumption for heterosexual coupling appears to make the reasons obvious once motivations for wanting a son *versus* a daughter are known. The one study to ask parents directly why they preferred a mixed-sex composition reports that most of those interviewed wanted at least one son and one daughter “for themselves” and because it “would benefit the children” to learn “how to interact with members of the opposite sex,” but authors do not discuss these results further (Arnold and Fawcett 1975). A variety of motivations may drive the desire to have at least one son and one daughter, including perceived benefits for children and benefits for parents. Next I discuss three possible psychosocial underpinnings of the mixed-sex ideal that can be evaluated using existing data: (a) separate spheres beliefs about the family and work roles of men and women, (b) a rational choice desire to be taken care of in old age, and (c) attitudes supporting the symbolic capital of an “ideal” family image.

#### *Different Traits, Interests, and Roles: A Separate Spheres Framework*

The “separate spheres” paradigm is based on the assumption that men are inherently better suited for work and breadwinning in the public sphere and women are more proficient in the private sphere of domestic life and caretaking (Kraditor 1968;

Lerner 1969; Welter 1966). Such “traditional” attitudes about men’s and women’s respective roles in work and home life are typically considered to be part of a conservative ideology about gender. An enduring and widespread preference for at least one son and one daughter suggests that parents may assume that boys and girls are fundamentally different, and what one anticipates from sons may differ from what one anticipates from daughters (Pollard and Morgan 2002). Williamson (1976) argues that parents may be making presumptions before children are born about their interests, traits, relationship formation, or skills based only on sex. Such assumptions tend to ignore important heterogeneity among girls or among boys (and similarities between sons and daughters) and may imply a notion that girls and boys occupy separate spheres and play different roles in the family. This way of thinking—that boys/men and girls/women are not fully substitutable—is fundamentally similar to the separate spheres paradigm arguing against shared roles for men and women, and gender theorists consider it to be an inegalitarian ideology (Lorber 1994; Pollard and Morgan 2002; Risman 1998).

If valuing a mixed-sex ideal is driven by a separate spheres ideology, variables measuring more conservative views on men’s and women’s roles in work and family life will be positively associated with believing it is important to have at least one son and one daughter. This idea has potential support in some previous research. An Australian survey asked women how important they thought it was to have both sons and daughters in a family (Young 1977). Bivariate results indicate some association between believing it is important to have both boys and girls and agreement with statements that important decisions should be made by husbands and that women’s most important role is being a mother, even when they have careers.

*Maximizing Old-Age Support: A Rational Choice Framework*

In many countries both sons and daughters are expected to help parents in old age (Arnold and Kuo 1984). Even in the contemporary U.S., adult children perform a utilitarian function, where parents typically rely on and prefer daughters as primary caregivers (Stoller 1983; Suito and Pillemer 2006). When sons are caregivers, however, they are more likely to engage in financial management, heavy chores, and shopping than to do cooking, laundry, and daily housekeeping (Stoller 1990). In addition, given the pay gap that still favors men and the longer periods of time men spend in the workforce, parents may view adult sons as a more viable economic safety net than daughters. Although these patterns have some basis in notions of separate roles for men and women based on biological sex, valuing a mixed-sex composition may be motivated by a rational choice desire to maximize chances of having a wide variety of needs met in old age. If this is the case, the importance attached to having at least one son and one daughter will be positively associated with variables related to expectations for both personal care and financial help received from children in old age.

*The “Million Dollar Family”: A Symbolic Capital Framework*

Scholars assert that in the U.S., the economic value of children has disappeared and has been replaced with social value (Schoen et al. 1997; Zelizer 1985). Parents no longer consider children to be contributors to the family economy, but rather they are associated with values such as primary group ties or social identity and adult status (Hoffman, Thornton, and Manis 1978). Families with at least one son and one daughter may be perceived to possess a “symbolic capital” (Bourdieu 1977), or prestige, compared to those without. Goffman (1979) has described the prevalence of “at least one girl and

at least one boy” in nuclear families depicted in advertisements, which he argued ensures the “symbolization of the full set of intrafamily relations.” This implies that when viewed through a heteronormative lens, families without both a son and a daughter may be perceived as somehow incomplete, asymmetrical, or unbalanced. In fact, women in online forums do characterize such families in this way, and fertility clinics in the U.S. use the term “family balancing” to describe one purpose of the various sex selection services they offer (Whittaker 2011). Characteristics such as “balanced” and “complete” by their very nature communicate positive qualities and therefore perhaps a higher status for families described in those terms (Holm 2004; Whittaker 2011).

Related aspects of family structuring are similarly viewed as symbols of prestige. Despite declines in the centrality and universality of marriage and parenthood and a new tolerance for alternative life course trajectories (Coontz 2000), scholars note that being married and having children are perceived as markers of higher status than remaining single or childless (Byrne and Carr 2005; Cherlin 2004; Zelizer 1985). Furthermore, despite high rates of divorce and remarriage, there is still evidence of negative attitudes toward stepfamilies in society (Coleman, Ganong, and Fine 2000). Taken together in the context of desires for mixed-sex children, it is reasonable to conclude that the “ideal” family is symbolically represented by the image of a first-married, heterosexual family with a mother, a father, and two biological children—one boy and one girl. Incidentally, such a family is known as a “storybook” family (Powledge 1983) and is commonly referred to on internet chat boards and blogs as a “million dollar family.” If the mixed-sex ideal derives from its symbolic value as a status marker, it may be associated with

variables representing beliefs about the “perfect” family, namely attitudes about the superiority of marriage, parenthood, and biological families over other family types.

The three frameworks I propose to explain the motivations behind parental wishes for both a son and a daughter are not intended to be competing, mutually exclusive forces. Rather, they are complementary and overlap such that more than one may be operating. As a group these psychosocial motivations reflect the assumption that sons and daughters are fundamentally different in a variety of ways that matter. Together they suggest a more fundamental underlying belief that boys and girls are not socially, functionally, or symbolically substitutable.

*‘At Least One Boy and One Girl’: Sociodemographic Influences*

It is important to account for sociodemographic influences on strong desires for having at least one boy and one girl because psychosocial motivations and sociodemographics may be intertwined. Despite a lack of research examining stated preferences for mixed-sex children among sociodemographic subgroups, a small collection of research on desires for more children and sex composition-related attitudes does provide some direction. I draw on these results to provide potential sociodemographic confounders of the relationship between psychosocial motivations and valuing a mixed-sex composition.

Research indicates that men may be more likely than women to subscribe to the mixed-sex ideal. Clare and Kiser (1951) asked married couples about their compositional preference if they were to have only two children. More men than women (79% vs. 69%) preferred one boy and one girl, and more women than men (12% vs. 9%) had no preference. In addition, a higher proportion of men compared to women (21% vs. 13%)

thought that wanting a particular combination or balance of boys and girls was a very important reason to not have fewer than a desired number of children (Arnold and Fawcett 1975). Sex is likely also confounded with a separate spheres framework because men are more likely than women to subscribe to conservative gender ideologies (Brewster and Padavic 2000).

Education and birth cohort membership may be intertwined with psychosocial motivations as well as a mixed-sex compositional preference. An Australian survey asked women how important they thought it was to have both sons and daughters in a family (Young 1977). These bivariate results indicate that a mixed-sex composition became more important with fewer years of education and among earlier birth cohorts. Lower levels of education are associated with more conservative views about gendered roles played by men and women (see Davis and Greenstein 2009 for a review), as is being a member of an older birth cohort (Brewster and Padavic 2000). Likewise, education may be confounded with measures consistent with adherence to a rational choice framework, as elderly parents with higher levels of education have lower expectations of filial responsibility from their children (Lee, Netzer, and Coward 1994).

Other research suggests that the importance of having a mixed-sex composition is culturally-influenced. Having a particular composition or balance of boys and girls was a very important reason to not have fewer children than desired for a higher proportion of some Asian ethnic subgroups (i.e., Japanese and Filipinos) compared to Whites living in Hawaii (Arnold and Fawcett 1975). Racial/ethnic differences in old-age support expectations may confound a possible relationship between psychosocial variables and subscription to the mixed-sex ideal, as African Americans and Hispanics have stronger

cultural norms of filial obligation than Whites. (Burr and Mutchler 1999; Lee, Netzer, and Coward 1994). Religious affiliation as a cultural influence may also be an important predictor of strong desire to achieve the mixed-sex ideal. A study of Mormon family life found that this religious group is somewhat more inclined than non-Mormons to stress “having at least one boy and one girl” as a fertility consideration (Heaton, Goodman, and Holman 2001). Furthermore, women belonging to Orthodox religions were more likely than other religious groups in Australia to believe it is important or very important to have both sons and daughters in a family (Young 1977).

Finally, analyses must control for current sex composition of children for two reasons. First, some research has found that the answers couples gave to questions about preferred sex compositions often reflected the sex composition of the children they had (Arnold and Kuo 1984; Clare and Kiser 1951), providing evidence of a possible rationalization bias or dissonance reduction strategy (Festinger 1968) because people may not want to appear as if they want children other than the ones they have. Second, several of the demographic characteristics that past research suggests may be associated with subscription to the mixed-sex ideal—sex of respondent, education, and religion—are those that have been associated with preferring boys over girls as only children or first children (Dinitz, Dynes, and Clarke 1954; Markle 1974). In the absence of a survey item asking about a preference for boys, a desire to have “at least one boy and one girl” could be capturing a preference for “at least one boy,” and controlling for current sex composition may help minimize this effect.

### *The Present Study*

This research asks: What are the psychosocial underpinnings of subscription to the mixed-sex ideal? Using multivariate generalized ordered logistic regression and sets of gender and family attitudes, I evaluate three frameworks as possible motivations for obtaining a mixed-sex composition. Analyses are guided by the following three hypotheses: 1) If the mixed-sex ideal is based on a separate spheres ideology, conservative attitudes about men's and women's roles in work and family life will be positively associated with believing it is important to have at least one son and one daughter; 2) If having a mixed-sex composition is motivated by a rational choice desire to maximize chances of having a variety of needs met in old age, stronger beliefs in the importance of having mixed-sex children will be associated with higher expectations for both care and financial help from children in old age; 3) If the mixed-sex ideal is based on its symbolic value as a status marker, valuing a mixed-sex composition may be associated with similar beliefs in the superiority of marriage, parenthood, and biological families over other family types.

In addition, I conduct supplementary analyses that examine whether there are any differences between men and women through interactions between respondent's sex and variables representing each psychosocial framework. Given a lack of theoretical reason to expect that men's and women's endorsement of the mixed-sex ideal are motivated by different frameworks—or in different degrees by each framework—I hypothesize that I will see relationships between each set of psychosocial variables and belief in the importance of having mixed-sex children, but without variation by sex.

## **Method**

### *Data and Sample*

This research analyzes public use, secondary data from the National Survey of Families and Households (NSFH) (Sweet, Bumpass, and Call 1988). The NSFH is a three-part, longitudinal study using a probability sample of 13,007 households from all over the U.S., with an oversampling of Blacks, Puerto Ricans, Mexican Americans, single-parent families, families with step-children, cohabiting couples and recently married persons. Data were collected using a face-to-face interview methodology along with self-administered questionnaires for the randomly-selected main respondent, their spouse/cohabiting partner, and one focal child.

This study uses data from Wave I (1987-1988)—the only wave and the only available survey to inquire about the importance of having “at least one boy and one girl.” These data represent a particularly relevant time period to examine ideas about the sex composition of children. It captures early beginnings of both the third wave of feminism in the 1980s and the post-1985 period in which Pollard and Morgan (2002) note attenuation in the effect of sex-of-previous-children on U.S. fertility.

The analytic sub-sample is limited to those 6,797 (52.3%) adult male and female respondents who answered a question about the importance of “having at least one boy and one girl” as a fertility consideration. This item was part of a module administered by NSFH interviewers only to those respondents believed to have a high likelihood of future fertility behavior—women age 39 or younger, single men age 44 or younger, and married men whose wife/partner was age 39 or younger at Wave I. In addition, it is not known how having foster, adopted, or step-children or children of a cohabiting partner may influence perceptions of having fulfilled the mixed-sex ideal. Therefore, I exclude cases

in which a respondent reports having children that are not their biological children (802 excluded;  $n=5,995$ ). The final analytic subsample includes those 5,544 individuals meeting all of these criteria with complete data on all variables. All analyses adjust for complex survey design using svy procedures in Stata 12.1 and descriptive statistics for the analytic sample for all variables are also weighted.

### *Dependent Variable*

The *mixed-sex ideal* measure comes from a collection of questions asking about fertility considerations. The NSFH reads, “Below is a list of things that some people consider when thinking about having a child or another child. Please circle how important you feel each is to you at present time.” “Having at least one boy and one girl” is one item that respondents rank on a scale from 1 (“not at all important”) to 7 (“very important”). Skewness on this variable could not be adequately corrected in order to meet the assumption of normality required by ordinary least squares regression. Therefore, this measure was coded into an ordinal variable based on distributional patterns, where “not important” represents the unweighted 44.6% who selected a ranking of 1, “moderately important” contains the 26.5% that chose rankings 2 through 4, and “very important” is composed of the 28.9% who selected rankings of 5 to 7. Although another option would be to condense to just five categories, sensitivity analyses showed that the three-category version produced larger cell sizes and more parsimonious models with better model fit. The correlation between this version of the variable and its continuous version is .96, indicating that this categorization captures 96% of the variance in the original variable.

### *Independent Variables*

The separate spheres framework of different roles for boys and girls in the family is measured by the variable *gender conservatism*. This measure consists of a scale constructed from six items assessing how respondents feel about the roles and responsibilities of men and women. Respondents used a range from 1 ("strongly approve") to 7 ("strongly disapprove") to rank how strongly they approved of "mothers who work full-time when their youngest child is under age 5" and "mothers who work part-time when their youngest child is under age 5." Using a scale from 1 ("strongly agree") to 5 ("strongly disagree"), people also rated their agreement with the following four items: "It is much better for everyone if the man earns the main living and the woman takes care of the home and family" (reverse-coded); "Preschool children are likely to suffer if their mother is employed" (reverse-coded); "Parents should encourage just as much independence in their daughters as in their sons;" and "If a husband and wife both work full-time, they should share housework tasks equally." These six items are often used by other researchers using this dataset to tap gender ideology (Greenstein 2000). Because items used different ranges of responses, they were first standardized then averaged to produce a scale ( $\alpha = .67$ ) where higher numbers represent more conservative gender ideologies.

The rational choice framework of maximizing having different types of needs met in old age is captured by two variables. First, the *old-age care* measure comes from a question in the fertility module asking about things people consider when thinking about having children. The item "having someone to care for me when I am old" could be ranked by respondents on a scale from 1 ("not at all important") to 7 ("very important"). Second, the variable *old-age financial aid* comes from the question, "Children ought to

provide financial help to aging parents when their parents are having financial difficulty” (reverse-coded). For this item, respondents used a scale from 1 (“strongly agree”) to 5 (“strongly disagree”) to rate their agreement.

The symbolic capital framework of mixed-sex compositions as a status marker—representing the image of a complete, “balanced,” ideal family—is proxied by similar beliefs in the status of certain family types over others. The measure *family structure superiority* is produced from respondents’ agreement on a scale from 1 (“strongly agree”) to 5 (“strongly disagree”) with the following three statements: “It’s better for a person to have a child than to go through life childless” (reverse-coded); “It’s better for a person to get married than to go through life being single” (reverse-coded); and “Children have fewer problems with two natural parents than with one natural parent and one step-parent (reverse-coded).” Items were averaged to produce a scale ( $\alpha = .55$ ) where higher values represent stronger beliefs about the superiority of certain family structure types. Although this alpha level is lower than the recommended level of .70 (Nunnally 1978), these items have also been used together similarly by other scholars (Thomson 2001). In addition, alpha values are sensitive to how many items compose the scale, so the relatively low value on this scale is partly due to the fact that it contains only three items.

I reclassified scores of all ordinal and scale independent variables into three categories for ease of interpretation and because diagnostics showed that as continuous measures they violated the assumption that predictors have a linear relationship to the log odds of the outcome variable. I separated cases as closely as possible at the 25<sup>th</sup> and 75<sup>th</sup> percentiles (unweighted) into categories representing low, moderate, and high levels of

gender conservatism, expectations for old-age care and financial aid, and belief in the superiority of certain family structures.

### *Sociodemographic Controls*

*Sex* was classified as male or female, and *age* serves as a proxy for birth cohort membership. Due to its nonlinear relationship to the log odds of the outcome variable, I collapsed age into five-year intervals representing the categories “24 and younger (birth years 1964-1970),” “25 to 29 (birth years 1958-1963),” “30 to 34 (birth years 1953 - 1958),” and “35 and older (born before 1953)” I also collapsed completed *education* into the groups “less than high school,” “high school diploma/GED,” “some college,” and “bachelor’s degree or higher.” *Race/ethnicity* represents the categories “non-Hispanic Black,” “non-Hispanic White,” “Latino/Hispanic,” and “Other non-Hispanic,” which combines American Indians and Asians due to their small representation in the sample. Respondents’ *religious affiliation* is coded into the following seven categories as modeled by Lehrer and Chiswick (1993): “Unaffiliated,” “Catholic,” “Jewish,” “Fundamentalist Protestant,” “Mainline Protestant,” “Mormon,” and “Other” (e.g., Buddhist, Hindu, and Muslim). Wave II information on religious affiliation was used if cases were missing on this variable at Wave I.

*Sex composition* of children was determined using information from household rosters and similar items inquiring about children living away. Based on counts of male and female biological children, respondents were classified as having “no children,” “one child - boy,” “one child - girl,” “mixed-sex children,” “all boys,” or “all girls.” Survey documentation notes that sex was misstated for a number of children in Wave I, and that Wave II information on sex was more correct. I confirmed that sex of children at Wave

II was more accurate using spouse/partners' Wave II household roster data, Wave III roster data, and matches of unique person id numbers for children whose sex disagreed between Waves I and II. I then used Wave II roster data and unique person id numbers for each child to impute the sex of a child at Wave I if it was either missing or disagreed with Wave II (n=130).

### *Analytic Strategy*

Analyses used multivariate generalized ordered logistic regression to evaluate three sets of gender and family attitude variables as possible predictors of importance ratings for “having at least one boy and one girl.” Generalized ordered logistic regression is used because diagnostics using the Brant test of the parallel regression assumption showed that some variables violated the proportional odds assumption implicit in ordinal logistic regression (gologit3, Williams 2006). Using this technique will show how the effect of each variable may vary for different levels of the ordinal dependent variable. With a three-category outcome, two separate estimations are run and the coefficients for each cut point are allowed to differ where the parallel lines assumption has been violated. The first estimation compares the odds of being in the two higher importance categories versus the lowest, and the second compares the odds of being in the highest category versus the two lower categories. I first ran separate models evaluating each psychosocial framework individually, controlling for sociodemographics<sup>1</sup>. I next ran a model including all three frameworks together after determining that there were no issues with multicollinearity between any of the variables. Finally, supplementary analyses examine

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<sup>1</sup> Exploratory analyses also controlled for marital status. Because those dummies were not significantly associated with the outcome overall and their inclusion produced minimal effects on the coefficients of key independent variables, they were omitted for model parsimony.

separate models evaluating how each psychosocial framework individually varies by sex of respondent, controlling for sociodemographics.

## Results

[TABLE 2.1 ABOUT HERE]

[TABLE 2.2 ABOUT HERE]

Table 2.1 displays a weighted breakdown of the analytic sample by all study variables. The table shows that 44.6% feel that having at least one boy and one girl is not at all important, while over half rate it as some level of importance higher. About one-quarter (26.5%) feels it is moderately important, and it is very important to 28.9%. Table 2.2 displays Pearson correlation coefficients between continuous versions of each of the independent variables. Although all are significantly correlated at the .05 level, the strongest association is between the gender conservatism scale and the measure of family structure superiority, with a correlation of 0.298. This indicates that there is some overlap in these constructs, but they are still somewhat distinct.

Table 2.3 presents odds ratios from generalized ordered logistic regressions examining the determinants of importance placed on obtaining a mixed-sex composition. With three levels of the outcome, two separate estimations are presented. The first, in the group of columns on the left side of the table, shows the odds of being in the two higher categories (“very important” and “moderately important”) compared to the lowest (“not important”). The second, in columns in the right half of the table, shows the odds of being in the highest category (“very important”) compared to the two lower categories (“moderately important” and “not important”). When the effect of a variable did not vary for different levels of the ordinal dependent, I denote that the coefficients did not differ

from the prior estimation by indicating this with a " notation, rather than repeating the coefficient. For each of the two estimation outcomes, the table shows results for models representing each of the three ideological frameworks: Separate spheres, rational choice, and symbolic capital. A final model contains variables representing all three frameworks together. For each model, I present adjusted Wald tests—an F-test assessing the overall significance of the model.

[TABLE 2.3 ABOUT HERE]

First, the separate spheres models show that higher levels of gender conservatism were associated with increased odds of believing it is important to have at least one son and one daughter. For example, the first estimation shows that being in a moderate range of gender conservatism compared to the lowest was associated with 74% higher odds (OR=1.74) of subscribing to the mixed-sex ideal to some degree compared to not at all. The second estimation shows that moderate gender conservatism carried 41% higher odds (OR=1.41) of subscription to the mixed sex ideal at the highest level compared to lower levels. Having the most conservative beliefs about gendered roles, relative to being in the least conservative gender ideology group, was associated with 76% higher odds (OR=1.76) of valuing the mixed-sex ideal at higher levels.

Second, rational choice models demonstrate that old-age care motivations were also associated with increased odds of valuing having at least one boy and one girl. For instance, results from the first estimation outcome show that relative to those with low levels of old-age care motivations, those with a moderate level of care expectations had more than five times the odds (OR=5.31) of valuing a mixed-sex composition at some level compared to none, and 83% higher odds (OR=1.83) of believing it was very

important compared to lower levels of importance. Having the strongest, relative to the lowest, expectations for old-age care was associated with 6.82 times higher odds of placing some value on a mixed-sex composition compared to none, and five times higher odds (OR=5.15) of rating it as very important.

Expectations about old-age financial help were also associated with the importance of obtaining a mixed-sex composition, but only for those with high levels of old-age financial expectations compared to low. Furthermore, this association was only significant for those placing the highest degree of importance on having mixed-sex children compared to lower levels—such individuals had 25% higher odds (OR=1.25) of valuing mixed-sex compositions at the highest level than those with low expectations for old-age financial help. Post-hoc tests reveal that variables representing expectations for both old-age care and old-age financial aid are jointly significant ( $p < 0.001$ ).

Finally, symbolic capital models show that attitudes about the superiority of certain family structures over others were significantly associated with the odds of subscribing to a mixed-sex ideal. Those with moderate support for family structure superiority compared to low had 74% higher odds (OR=1.74) of placing some degree of importance on having mixed-sex children compared to none at all, and 46% higher odds (OR=1.46) of valuing it at its highest level compared to lower levels. The strongest believers in nuclear family superiority compared to the lowest had 2.28 times the odds of placing higher value on a mixed-sex composition.

Although the three frameworks underlying subscription to the mixed-sex ideal should be considered as complementary rather than competing forces, models in Table 2 with all three combined demonstrate that each contributes uniquely toward motivating

desires for a mixed-sex composition, although there is some degree of overlap. Gender conservatism continued to be significantly associated with the importance placed on having a mixed-sex composition. Those with moderately conservative views about gendered roles for men and women compared to the least conservative had 45% higher odds (OR=1.45) of subscribing to the mixed-sex ideal to some degree compared to not at all, and 22% higher odds of subscription at the highest level compared to lower levels. Those with the most conservative views had 33% higher odds (OR=1.33) of valuing a mixed sex composition at any level.

The effects of moderate expectations for old-age care compared to low attenuated only slightly with the inclusion of all three frameworks. The most noticeable difference was among those with the highest expectations for old-age care—compared to those with the lowest their odds reduced from 6.82 to 6.36 times higher odds of placing any higher value on a mixed sex composition, and from 5.15 to 4.68 times higher odds of subscribing to the mixed sex ideal at its highest level compared to lower levels.. Expectations for financial help in old-age were fully attenuated with the inclusion of other psychosocial frameworks. Finally, the effect of believing in the superiority of family structure types on subscription to the mixed-sex ideal was also slightly reduced for those with moderate superiority beliefs (OR=1.39 vs. 1.74) and those with strong beliefs (OR=1.89 vs. 2.28) compared to low.

All models demonstrate that associations of psychosocial variables with valuing mixed-sex compositions are net of sociodemographic influences, which were all significantly associated in their own right. Across both levels of the outcome, odds of placing greater levels of importance on having mixed-sex children were significantly

higher for men; those with lower levels of educational attainment, progressively more recent birth cohorts; being of a non-White racial/ethnic group compared to Whites; having a religious affiliation; and having no children or one child of either sex.

[TABLE 2.4 ABOUT HERE]

*Supplementary Analyses: Differences by Sex*

Table 2.4 presents odds ratios for separate spheres, rational choice, and symbolic capital models that also include interactions by sex. Interactions between gender conservatism variables and sex were not significant in either estimation, indicating that endorsement of the mixed-sex ideal as it is motivated by degree of gender conservatism does not vary for men and women. Interactions between expectations for care in old age and sex were significant only for those placing the highest level of importance on expecting children to care for them in old age. Calculations of overall interaction effects and post-hoc analyses show that among those valuing old age care at its highest level, men's and women's odds of subscribing to the mixed-sex ideal at any level differ by only 1.0% (OR=8.73 vs. OR=8.65, respectively). However, among the reference group—those valuing old age care at its lowest level—men have 1.70 times the odds of subscribing to the mixed-sex ideal at any level compared to not at all. Interactions between expectations for old-age financial aid and sex were not significant in either estimation, suggesting that the importance of having a mixed-sex composition as it is motivated by expectations for financial help from children in old age does not vary for men and women. Finally, interactions between family structure superiority and sex were not significant, indicating that endorsement of the mixed-sex ideal as it is motivated by

ideas about the symbolic capital of certain family types over others does not differ between men and women

## **Discussion**

This paper attempts to assess the psychosocial underpinnings of the wish to have at least one son and one daughter—a desire held to some degree or another by over half of the U.S. population. Results indicate that all three frameworks help explain the psychosocial underpinnings of the mixed-sex ideal. First, I hypothesized that conservative attitudes about men's and women's roles in work and family life would be positively associated with believing it is important to have at least one son and one daughter. The gender conservatism measure tapping into a separate spheres ideology was significantly associated with believing that a mixed-sex composition is important. Those with moderate and highly conservative views (compared to the least conservative views) about the work and family roles of men and women were more likely to subscribe to the mixed-sex ideal. Such results support the idea that persons who place higher levels of importance on having at least one son and daughter believe that the experiences of having girls versus boys will be substantively and fundamentally unique, likely based on different assumptions about boys and girls regarding traits, interests, relationship formation behaviors, and skills that position them for different roles in the family.

Existing literature suggests that those assumptions may involve how parents differently value sons versus daughters. They may be based on wanting to carry on a surname, valuing certain characteristics or traits often associated with a particular sex (e.g., ease of rearing or sweetness), or on perceived beliefs about boys' and girls' relative usefulness for certain kinds of sex-typed household labor, such as helping care for other

children or doing yard work (Arnold and Fawcett 1975; Arnold and Kuo 1984; Goldberg 2009). They may also stem from a heteronormative ideal of a same-sex companion for each parent, often based on sex-typed interests (e.g., Little League or Girl Scouts) or expectations about special bonds between same-sex and cross-sex dyads (Arnold and Fawcett 1975; Goldberg 2009; Hammer and McFerran 1988). Regardless of specifics, all such expectations point to beliefs about the lack of interchangeability between girls and boys and assumptions about how their children will behave in a family context, based on biological sex.

Second, I hypothesized that stronger beliefs in the importance of having mixed-sex children would be associated with higher expectations for both care and financial help from children in old age. Old-age support expectations underlying the rational choice paradigm were indeed associated with greater importance attached to having at least one boy and one girl. People for whom being taken care of in old age is an important fertility consideration were significantly more likely to place emphasis on having mixed-sex children. Although this measure did not specifically tap beliefs about gender-typed care, care could be interpreted broadly to include male-typed tasks such as home and yard maintenance, financial or other account management, and driving parents on errands, as well as female-typed tasks such as attending to physical health needs, cooking, and housekeeping. In addition, strong expectations about receiving financial help from children in old age also had a modest association to placing high importance on a mixed-sex composition. Patterns support the notion that individuals may be motivated to want at least one son and one daughter for the rational choice reason that it maximizes

having a variety of one's needs met in old age, given the gendered division of labor associated with assisting elderly parents (Stoller 1983; Stoller 1990).

The third hypothesis predicted that valuing a mixed-sex composition would be associated with beliefs about the higher status of marriage, parenthood, and biological families over other family types. The measure tapping into the symbolic capital framework was significantly associated with placing higher importance on having a mixed-sex composition. Moderate and strong beliefs about the superiority of elements associated with the "ideal" family structure increased the probability of the outcome, compared to those with low endorsement of these ideals. These results support the notion that a family consisting of a mother, father, a son, and a daughter—a so-called "million dollar family"—possesses a symbolic capital similar to the way in which a family of first-married parents with biological children is a status marker. Results suggest that for some it is the symbolic image of the complete, "balanced"—and therefore heterosexual—family driving the belief that having at least one son and daughter is important.

It is not surprising to find support for all three psychosocial frameworks, as they are complementary rather than competing forces. The rational choice orientation of maximizing security in old age focuses on the contributions of boys and girls when they are adults, whereas the separate spheres and symbolic capital motivations may be inspired by the values associated with having at least one of each primarily while they are growing up. Furthermore, it is not surprising to note some attenuation in the effects of the variables representing these ideological paradigms when they are all combined in the same model. Both separate spheres and rational choice frameworks depend on an ideology that dictates involvement in the family in sex-typed ways. Likewise, both

separate spheres and symbolic capital orientations require viewing families through a heteronormative lens. Finally, all three depend entirely on the belief that men/boys and women/girls are not socially, functionally, or symbolically substitutable. Such a notion—“equal but different”—in reality makes unequal treatment acceptable, thus sustaining gender inequality (Lorber 1994; Risman 1998). Scholars argue that it is only when we are indifferent to the sex composition of children—when sons and daughters are completely interchangeable—that full gender equality exists (Lorber 1994; Pollard and Morgan 2002).

Although not the focus of this paper, it is noteworthy that in terms of sociodemographic controls, results did not support what was suggested by past research in a couple of instances. The effect of birth cohort (proxied by age) showed that more recent birth cohorts had higher odds of subscribing to the mixed-sex ideal, which was opposite to data showing that having both sons and daughters in a family was more important for earlier birth cohorts of women in Australia (Young 1977). Although age and birth cohort cannot be separated in this instance, an age-oriented explanation could apply. Perhaps the value of mixed-sex children decreases as individuals move out of their childbearing years because they have had time to develop an appreciation for the children they have regardless of biological sex, or perhaps the perceived benefits of achieving it diminish in the reality of the opportunity costs of bearing and raising a third or fourth child. Second, the non-significance of all religious affiliation dummies with the exception of “no affiliation” was not expected based on past research (Heaton, Goodman, and Holman 2001; Young 1977). Although this might suggest that religiosity or religious fundamentalism would have stronger associations with the outcome, these

variables were not significant in exploratory analyses. Instead, perhaps *all* major religious affiliations examined here make various subtle distinctions between men and women in practice (e.g., ceremonial roles or church leadership) or in doctrine in ways that translate into beliefs about the non-substitutable nature of boys and girls.

### *Strengths, Limitations, and Directions for Future Research*

An obvious strength of this research is that it is one of the first attempts to evaluate possible theoretical notions about what drives the wish to have a mixed-sex composition of children—a desire held to some degree or another by over half of the U.S. population. Using a large, nationally representative sample, it is also among the first to associate a series of sociodemographic characteristics with an actual stated desire for ‘at least one boy and one girl.’

This study has three main limitations. First, the item assessing the importance of having at least one boy and one girl was administered to a select group representing only those of childbearing age in 1987-88, specifically those born between the early 1950s and 1970. Given how these data suggest that the desire for at least one son and one daughter diminishes with age, perhaps inclusion of older ages would not have changed these results. Nonetheless it must be acknowledged. On a related point, this particular item was only measured at Wave I of the NSFH in 1987-88 but not in the waves of data collected in 1992-4 or 2001-03. This means that the data are not only 25 years old, but also that any changes in a stated desire for mixed-sex compositions over time due to historical period cannot be assessed—an important direction for future research given the continued progress toward gender equality made since the late 1980s.

This study is also limited in various ways by the attitudinal variables available in the data set. It could be argued that the attitudinal measures derived to tap into the three theoretical frameworks tested are indirect and therefore inadequate proxies for those ideas. Providing “care” to an elderly parent may be interpreted to mean a particular type of care, and the perceived superiority of certain family structures is an indirect way of capturing the perceived symbolic status benefits of having mixed-sex children. Yet, past work on the value of children has been criticized for presenting motivations to respondents too directly. For example, in the case of the item, “Having children should give a couple more prestige,” Hoffman and Hoffman (1973) argue that it is unlikely parents would admit to prestige as a reason for having children even if it were a motivation. In fact, these authors suggest that the actual words naming the concept being measured should not be included in survey items.

Furthermore, parents may be motivated to have a mixed-sex composition by reasons that could not be tested using NSFH variables. For example, Arnold and Fawcett (1975) noted that some respondents wanted at least one boy and one girl “for themselves” and because they believed it would benefit the children to learn about interacting with members of the opposite sex. Given available variables, I could not determine the specific beliefs about boys’ and girls’ interests, traits, and relationships that parents perceive will benefit them or other children—beliefs that may drive “separate spheres” notions of different roles for boys and girls in family life. Qualitative research should expand our understanding of the specific reasons parents hope for a mixed-sex composition.

Future work should also explore how various social groups differ in the reasons why they strongly value having mixed-sex children. For instance, those of lower educational attainment and non-White racial/ethnic groups were more likely to strongly support having a mixed-sex composition. Although men and women did not differ in the motivational frameworks driving subscription to the mixed-sex ideal, other social groups may be driven differently by various psychosocial forces. Those of lower socioeconomic status with fewer resources for upward mobility may be more likely to seek status and identity through the sex composition of children. Or, having mixed-sex children may be more important for rational choice reasons of old-age security because they might expect to have fewer external resources to draw upon when they are elderly. Therefore, further scholarship is needed on how social groups may be differently motivated to have mixed-sex children.

Finally, future research should also explore whether children with parents who strongly endorse the mixed-sex ideal experience more sex-typed pressure. In addition, what happens when the sex composition of children matches parents' desires, but one or more children do not conform to the sex-typed expectations parents held? Examining the possible consequences of parents' strong subscription to the mixed-sex ideal on the well-being of children—in families with both mixed-sex and same-sex children—is an important direction for future work.

### *Conclusions*

This research evaluates potential attitudinal and ideological pathways leading to a widespread preference for a mixed-sex composition among Americans. Results provide support for three psychosocial paradigms motivating the belief that it is important to have

at least one boy and one girl. First, evidence exists for a separate spheres ideology underpinning the mixed-sex ideal. Parents may view the roles of sons and daughters in the family as very different, and the experience of raising boys compared to girls as distinct, perhaps based on presuppositions about sons' and daughters' interests, traits, relationship formation, and skills. Second, having at least one boy and one girl may be deemed important as a rational choice orientation, whereby achieving this goal maximizes having a variety of one's needs met in old age. Third, valuing at least one boy and one girl is motivated by its symbolic capital, indicating that a complete, "balanced" (and heterosexual) ideal has been achieved.

The results of this research help inform current knowledge about why particular family sizes and gendered structures may evolve the way they do. In addition, this research provides a clearer picture of a contemporary and subtle way in which gender inequality has roots in families, specifically in attitudes about the perceived non-substitutable nature of sons and daughters socially, functionally, and symbolically. It therefore contributes to literature on gender and family theory, and it also informs current ethical debates surrounding sex selection technologies, specifically whether the act of sex selection—even when it is to achieve a mixed-sex composition—is based on gender inequality.

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Table 2.1. Frequencies and Weighted Percentages for Study Variables, NSFH I (n=5,544)

Dependent variable	n	%
Mixed-sex ideal		
Not important	2,572	44.60
Moderately important	1,430	26.52
Very important	1,542	28.89
Independent Variables		
Separate Spheres Variables		
Gender conservatism		
Low	1,772	29.35
Moderate	2,805	52.37
High	967	18.28
Rational Choice Variables		
Old-age care		
Low	2,670	47.37
Moderate	1,755	32.98
High	1,119	19.65
Old-age financial aid		
Low	1,399	24.14
Moderate	2,946	53.87
High	1,199	21.98
Symbolic Capital Variables		
Family structure superiority		
Low	1,668	28.39
Moderate	2,860	52.27
High	1,016	19.34
Control Variables		
Sex		
Female	3,140	48.78
Male	2,404	51.22
Education		
Less than high school	754	12.57
High school diploma/GED	2,149	36.93
Some college	1,493	29.22
Bachelor's or higher	1,148	21.27
Age		
24 and younger (birth years 1964-1970)	1,432	32.64
25 to 29 (birth years 1958-1963)	1,402	21.88
30 to 34 (birth years 1953 -1958)	1,398	22.34
35 and older (born before 1953)	1,312	23.14

Race/ethnicity		
non-Hispanic Black	977	11.29
non-Hispanic White	3,974	77.82
Latino/Hispanic	480	8.48
Other	113	2.41
Religious affiliation		
Unaffiliated	581	10.93
Catholic	1,479	28.39
Jewish	91	1.96
Fundamentalist Protestant	1,688	26.05
Mainline Protestant	1,500	28.26
Mormon	108	2.38
Other	97	2.03
Sex composition of children		
No children	2,142	46.37
One child - boy	608	9.29
One child - girl	539	7.79
Mixed-sex children	1,414	22.62
All boys	426	7.28
All girls	415	6.66

*Note:* Estimates adjust for complex survey design using Stata 12.1 svy commands. Percentages are weighted and n values are unweighted.

Table 2.2. Correlation Matrix for Independent Variables, NSFH I (n=5,544)

	Gender conservatism	Old-age care	Old-age financial aid	Family structure superiority
Gender conservatism	1.00			
Old-age care	0.134*	1.00		
Old-age financial aid	-0.033*	0.083*	1.00	
Family structure superiority	0.298*	0.145*	0.141*	1.00

*Note:* Estimates use continuous versions of independent variables before being categorized.

\* p < .05. \*\* p < .01. \*\*\*p < .001

Table 2.3. Odds Ratios from Generalized Ordered Logistic Regression Models Predicting the Importance of 'Having At Least One Boy and One Girl,' NSFH I (n=5,544)

	Moderately Imp/Very Imp (1) vs. Not Important (0)				Very important (1) vs. Moderately Imp/Not Imp (0)			
	Separate Spheres	Rational Choice	Symbolic Capital	All Three	Separate Spheres	Rational Choice	Symbolic Capital	All Three
Male	1.39***	1.74***	1.38***	1.44***	"	1.50***	"	"
< High school	1.34**	1.24*	1.33**	1.19	"	"	"	"
Some college	0.92	0.97	0.91	0.99	"	"	"	"
Bachelor's +	0.84*	0.81*	0.76**	0.84	"	"	"	"
25 to 29	0.65***	0.67***	0.65***	0.67***	"	"	"	"
30 to 34	0.45***	0.47***	0.46***	0.48***	"	"	"	"
35 and older	0.27***	0.29***	0.28***	0.29***	"	"	"	"
NH Black	1.59***	1.32**	1.55***	1.19	2.18***	"	2.14***	1.58***
Latino/Hispanic	2.04***	1.71***	1.96***	1.56***	"	"	"	"
Other	2.45***	2.10***	2.26***	1.84**	"	"	"	"
No rel affiliation <sup>a</sup>	0.68***	0.69***	0.69***	0.73***	"	"	"	"
No children	1.68***	1.31**	1.72***	1.42***	1.41***	"	1.44***	"
One child - boy	1.97***	1.60***	1.88***	1.70***	1.49**	"	1.44**	"
One child - girl	1.63***	1.49**	1.54***	1.54**	"	"	"	"
All boys	1.02	0.99	1	0.98	1.02	"	"	"
All girls	0.91	0.97	0.9	0.98	0.91	"	"	"
Gender conservatism								
Moderate	1.74***			1.45***	1.41***			1.22*
High	1.76***			1.33**	"			"
Old-age care								
Moderate		5.31***		5.20***		1.83***		1.78***
High		6.82***		6.36***		5.15***		4.68***
Old-age financial aid								
Moderate		1.07		1.02		"		"
High		0.87		0.85		1.25*		1.16
Family structure superiority								
Moderate			1.74***	1.39***			1.46***	"
High			2.28***	1.89***			"	"
<i>F</i> statistic ( <i>df</i> )	20.51(22)	25.35(24)	21.10(22)	10.52(29)				

*Note:* Analyses adjust for complex survey design using Stata 12.1 svy commands. The " symbol indicates that coefficients did not violate the proportional odds assumption and therefore did not differ from the prior estimation. Very Important = 5-7 (44.6%), Mod Important = 2-4 (26.5%), Not Important = 1 (28.9%).

Reference categories: High school diploma, 24 and younger, non-Hispanic White, mixed-sex children, Gender conservatism: Low, Old-age support motivations: Low, Marriage/Parenthood superiority: Low

<sup>a</sup>Other religious affiliation dummies were not significant and were collapsed into the reference category for parsimony and model fit.

\* p < .05. \*\* p < .01. \*\*\*p < .001.

Table 2.4. Odds Ratios from Generalized Ordered Logistic Regression Models Predicting the Importance of 'Having At Least One Boy and One Girl' with Interactions by Sex, NSFH I (n=5,544)

	Moderately Important/Very Important (1) vs Not Important (0)			Very important (1) vs. Moderately Imp/Not Imp (0)		
	Separate Spheres	Rational Choice	Symbolic Capital	Separate Spheres	Rational Choice	Symbolic Capital
Male	1.53***	1.70***	1.54***	"	"	"
Gender conservatism						
Moderate	1.85***			1.50***		
High	1.76***			"		
Moderate x Male	0.85			"		
High x Male	0.96			"		
Old-age care						
Moderate		5.61***			1.94***	
High		8.65***			6.34***	
Moderate x Male		0.9			"	
High x Male		0.59***			"	
Old-age financial aid						
Moderate		0.96			"	
High		0.92			1.29*	
Moderate x Male		1.26			"	
High x Male		0.92			"	
Family structure superiority						
Moderate			1.85***			1.55***
High			2.37***			"
Moderate x Male			0.86			"
High x Male			0.9			"
<i>F</i> statistic ( <i>df</i> )	18.70(24)	12.65(28)	16.55(24)			

*Note:* Analyses adjust for complex survey design using Stata 12.1 svy commands. The " symbol indicates that coefficients did not violate the proportional odds assumption and therefore did not differ from the prior estimation. Very Important = 5-7 (44.6%), Moderately Important = 2-4 (26.5%), Not Important = 1 (28.9%). All models control for education, age, race/ethnicity, no religious affiliation, and sex composition of children.

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\* $p < .001$ .

### **Chapter 3. Parents' Preference for 'at Least One Boy and One Girl': Does It Explain Third Births?**

#### **Abstract**

Research focusing on Western countries documents a higher propensity toward third births among parents with two boys or two girls compared to those with a mixed-sex pair. The studies conclude that this behavior is motivated by a desire for at least one boy and one girl, but they do not directly measure either the presence or importance of the parent's preference. Further, such conclusions have assumed that this behavior reflects a mixed-sex preference by both partners, without acknowledging possible within-couple differences. I use discrete-time event history with logistic regression and nationally representative data from the National Survey of Families and Households (NSFH) to address these gaps. It is the first study to link individuals' direct statements about valuing a mixed-sex composition with later fertility, and the first to account for within-couple differences on this preference. Results indicate that couples with two sons or two daughters (n=429) did not have higher odds of having a third child than those with one of each sex. Furthermore, the degree to which a couple valued having a mixed-sex composition did not matter more for those with same-sex children in overall propensity to conceive a third child. Although couples with the strongest subscription to the mixed-sex ideal had significantly higher odds of a third birth than those with the lowest only among couples with two boys, the effect of this pattern is too small to play a significant role in determining third births. Findings demonstrate that using third birth behavior is an inadequate way of capturing the strength of a preference for a mixed-sex composition.

## Introduction

A pregnant mother of two boys notes the preponderance of strangers attempting to make conversation with the question, "Going for your girl?" (Wilson 2009). Another pregnant mother of two recalls the prevalence of strangers who admonished, "You've got a boy and a girl already. Why don't you just leave it alone?" (Paul 2008). What such comments exemplify, besides the boldness of strangers, is the seemingly widespread assumption that the primary reason someone in the contemporary United States would choose to have a third child is to obtain a mixed-sex composition.

Since the 1970s to the present, the practice of stopping childbearing at two children has dominated both as a cultural ideal and a behavioral reality in the U.S. overall (Blake 1974; Hamilton and Cosgrove 2010), with possible differences between some sociodemographic subgroups. Although having three children has been the next most common completed family size, researchers have determined that rates of having a third child are higher among those with same-sex children compared to those with one boy and one girl in the U.S. (Sloane and Lee 1983; Wood and Bean 1977; Yamaguchi and Ferguson 1995), although Pollard and Morgan (2002) found a decrease in this pattern between 1986 and 1994. Such studies conclude that a difference in rates between families with same-sex versus mixed-sex compositions is driven by a desire to have at least one boy and one girl. However, these studies have not directly measured or assessed the effect of a *stated* desire for "at least one boy and one girl" on actual eventual fertility. Furthermore, such conclusions have assumed that this behavior reflects a mixed-sex preference by both partners, without acknowledging possible within-couple differences. This paper addresses that gap.

I use discrete-time event history with logistic regression and nationally representative data from the National Survey of Families and Households (NSFH; 1987-1994) to explore the question of whether actual statements about valuing a mixed-sex composition affect eventual fertility. Specifically, I will examine whether couples with two boys or two girls are more likely than those with one son and one daughter to have a third child. I will then assess whether this relationship is moderated by direct statements about the importance of “having at least one boy and one girl,” controlling for couple dynamics related to family structure and demographic characteristics. Furthermore, I will assess how individual models for men and women compare to models accounting for couple-level preferences and characteristics to determine whether preferences expressed by one partner are more important than another in explaining relationships between sex composition, a preference for mixed-sex children, and fertility. Such a study is important given a current climate of new sex selection technologies and debates about their potential effects on demographic variables such as overall sex ratio and family size.

## **Background**

### *Fertility and Number of Children*

Sex composition desires and the role they play in influencing fertility behavior must be considered within a changing cultural context of family size patterns and ideals. In countries and/or time periods with a higher average family size and low levels of contraceptive use, the effect of sex composition preferences on fertility is small or nonexistent (Bongaarts 2001), because families at higher parities (i.e., numbers of children) are likely to have at least one son and one daughter (Cleland, Verrall, and Vaessen 1983). Specifically, the probability of having at least one boy and one girl

increases from 50% for parents bearing two children to 87% for those having four (Freedman, Freedman, and Whelpton 1960).

Fertility rates worldwide are on the decline and birthing four or more children is increasingly rare. Although rates vary by individual country, the average global total fertility rate has been less than four children per woman ever since 1975 (United Nations 2009), typically remaining at or above four children only in parts of the Middle East, Africa, and some Southeast Asian or Pacific islands where levels of economic development, education, and/or women's status remain low. In the U.S., the proportion of those bearing four or more children increased during the "baby boom" years (1944-1964) from previous Depression-era lows but saw a steep decline afterward. For example, 37% of women born between 1931 and 1935 went on to have four or more children over their life span, compared to only 11% of women in the birth cohorts 1956 to 1960 (Hamilton and Cosgrove 2010).

Shifting fertility patterns reflect both structural and cultural/attitudinal factors. Such patterns in industrialized countries are likely due to changes in contraception practices, women's increased enrollment in higher education and involvement in the labor force, delayed marriage, and delayed childbearing that began to occur in the late 1980s. In addition, some scholars argue that intended or actual fertility is influenced by perceptions of ideal family sizes (Hagewen and Morgan 2005; West and Morgan 1987). Positive or negative cultural views of different family sizes endorse particular choices and therefore narrow the range of options that individuals are willing to consider as appropriate choices (Hagewen and Morgan 2005). The proportion of those considering four or more children to be the ideal family size has decreased since the late 1950s (Blake

1974; Hagewen and Morgan 2005). Furthermore, qualitative interviews indicate that “supernormative” mothers—those with four or more children—encounter social pressure to limit their childbearing after the third or fourth child (Mueller and Yoder 1999). Such women also reported that others perceive them as uneducated, unambitious, ignorant about family-planning, unable to provide for their children financially and emotionally, and/or that their youngest children were accidents or efforts to have a boy or a girl.

Similarly, negative stereotypes also are attached to the voluntarily childless and one-child families, and these negative perceptions are used in social encounters to pressure people into avoiding those childbearing options (Blake 1974; Mueller and Yoder 1999). Stereotypes about women who elect not to have children include attributions that they are selfish, not nurturing, too focused on career, infertile, and do not know about or like children—all attributions that are counter to conventional expectations of femininity. Mothers of only children are likewise perceived as selfish and too career-oriented (Mueller and Yoder 1999). In addition, it is believed that only children are socially and psychologically disadvantaged—spoiled, self-centered, and having poor social skills—despite extensive evidence that their adjustment and sociability do not differ from those with siblings and that they actually fare better on intelligence and achievement outcomes (Blake 1981; Falbo and Polit 1986). Nonetheless, few consider none or one to be an ideal number of children to have (Blake 1974; Hagewen and Morgan 2005). Therefore, even though parenthood poses high financial, opportunity, lifestyle, and marital costs, strong beliefs persist against both voluntary childlessness and having only one child and such choices have typically been perceived as deviant (Hagewen and Morgan 2005).

Instead, a prominent two-child norm established in the 1970s continues to dominate in the contemporary U.S. Since then, over half of Americans have consistently replied that two is the ideal number of children (Blake 1974; Hagewen and Morgan 2005). Although surveys measuring the ideal number of children often ask about the preferred number for a hypothetical family rather than for the individual themselves, Hagewen and Morgan (2005) argue that some people are actually reporting with their own ideal, and that such questions still reflect the normative context within which fertility intentions are formed. Actual fertility behaviors have largely reflected this ideal, with two being the most common completed number of lifetime births for women born between 1938 and 1956 (the youngest cohort for whom the most recent data capture births through age 50). Having three children over the course of one's childbearing years is the second most common outcome for such women (Hamilton and Cosgrove 2010).

Some recent media reports suggests that “three is the new two” (El Nasser 2004), and that having three children is a “luxury good” meant to display status and resources in a culture that demands sparing no expense for children (Paul 2008)—a contemporary twist on the classic notion of “conspicuous consumption” (Veblen and Mills 1992). However, data indicate that an increase in the proportion of those having three children exists only among women in the top 1.3% of household earnings; there is otherwise no evidence indicating that other parents who would otherwise have two children are increasingly deciding to have three (Martin 2008).

#### *Sex Composition Preferences and Fertility*

Scholars have long found a variety of sociodemographic characteristics to be associated with higher rates of fertility behavior in the U.S., including age, religion,

race/ethnicity, and socioeconomic status measures such as education (Bumpass and Westoff 1970; Chandra et al. 2005; Westoff, Potter, and Sagi 1963). In addition, some research has determined that psychological motivations also play a role, where childbearing intentions are influenced by values such as having someone to love and care for and the pleasure of watching children grow (Bulatao 1981). Wanting a boy or wanting a girl are also considered important motivators for having a child, but in a multi-stage model of family formation, sex preferences take a back seat to emotional values at low parities and become more prominent for third and fourth children (Bulatao 1981).

Just as negative stereotypes about the size of families both too large and too small exist, there is some evidence that there are negative cultural perceptions of families with same-sex compositions of children. Medical anthropologist Andrea Whittaker (2011) notes that the term ‘family balancing’ is used in the marketing of sex selective reproductive services by fertility clinics, as well as in academic ethical discussions favoring sex selection and by the general public in online forums. Such a term, which involves a preference for a mixed-sex composition, is a loaded term incorporating the positive values of ‘family’ and ‘balance,’ and both its semantics and context of use construct ‘unbalanced,’ same-sex families as problematic (Holm 2004; Whittaker 2011). It is not clear exactly why families with same-sex children are problematic, but negative perceptions of families with same-sex children do appear to be reflected in U.S. sex composition ideals. In surveys asking about the ideal sex composition of children, same-sex combinations are consistently chosen as the least desirable, favored by less than 10% of Americans (Coombs 1977; Dahl et al. 2006). For example, recent data finds that 5% preferred all boys and 4% preferred all girls (Dahl et al. 2006).

Research has attempted to examine the role that sex composition ideals—specifically the desire for at least one boy and one girl—play in eventual fertility. Consistent with the remarks of strangers to pregnant women in this paper’s opening paragraph, academic scholarship suggests that a desire for a mixed-sex composition motivates some U.S. parents with same-sex children to violate an otherwise two-child ideal. Typically research has taken two approaches to examining the influence of a mixed-sex ideal on eventual fertility. First, research has examined stated sex composition preferences in the context of hypothetical completed families. For example, one study used a system of rank ordering all possible combinations of boys and girls and asked respondents at each composition whether they would stop having more children (Widmer, McClelland, and Nickerson 1981). This study finds that when the ideal number of children is two, a preference for compositions containing mixed-sex children tends to increase the number of children one is willing to have. However, because childbearing decisions are only hypothetical, asked of college students without any children yet, the true relationship between a preference for mixed-sex children and fertility behavior is unknown.

A more widely-used approach to examining the role a mixed-sex ideal plays in completed fertility is to examine intended or actual childbearing and infer sex composition preferences. In such studies the sex composition of children at different parities is related to either future fertility intentions, completed fertility, or both. These studies have often found a “sex-of-previous-children effect”—parents with two boys or two girls are more likely to have had a third child or intend to have another child than parents of a mixed-sex pair. Scholars conclude that these higher rates of intended or

actual third births are due to a desire for at least one boy and one girl in the U.S. (Bumpass and Westoff 1970; Freedman, Freedman, and Whelpton 1960; Sloane and Lee 1983; Wood and Bean 1977; Yamaguchi and Ferguson 1995), although Pollard and Morgan (2002) found a decrease in the sex-of-previous-children effect in the U.S. between 1986 and 1994. Similar patterns have been found for Canada (McDougall, DeWit, and Ebanks 1999), Australia (Kippen, Evans, and Gray 2007), and across Europe (Andersson et al. 2006; Hank and Kohler 2000; Mills and Begall 2010), with the same conclusions that higher rates of intended or actual third births among families with two same-sex children are due to a mixed-sex compositional preference.

*Problems with Inferring Preferences from Behavioral Outcomes*

Although the analyses presented make a convincing case, especially given that same-sex compositions appear to be unpopular in surveys, caution with such conclusions is warranted. A large body of social psychological research indicates that there is often a mismatch between attitudes and behaviors such that actions cannot be accurately predicted from attitudes alone, and likewise beliefs cannot be correctly inferred from behaviors (e.g., see Ajzen 1991). Numerous scholars have warned against inferring a preference for at least one boy and one girl, citing other possible motivations for the birth. For example, Raley and Bianchi (2006) note that different propensities for a third birth may be interpreted in other ways—parents with two daughters may be more likely to have a third child because they realize they enjoy their daughters and desire another. Coombs (1977) contends that a person with a mixed-sex pair may have an overall preference for sons or daughters, but it is already satisfied by the current sex composition. Similarly, some researchers hypothesize that an affiliative preference for at least one

child of their own sex may exist among individuals, but these preferences cancel each other out in an aggregate mix of heterosexual couples, resulting in the appearance of a mixed-sex preference (Mills and Begall 2010).

In the cultural context of a prominent two-child norm and the declining desirability of larger family sizes, a stronger desire to stop at two children may prevent the manifestation of some of these alternative individual preferences—including a stance of “no preference”—among parents of mixed-sex pairs. On a related note, McClelland (1979) also argues that some may decide to stop having children not because they are happy with the current sex composition, but because the risk of a more undesirable composition is too great. It is not reasonable to infer that a couple is satisfied with their current sex composition if they decide not to have more children; therefore, many different patterns of preferences and values could lead to the same observed behavior (McClelland 1983).

Furthermore, research inferring a collective preference for “at least one boy and one girl” fails to account for within-couple heterogeneity in values and assumes that the behavioral outcome represents the preferences of both parties. It confounds the effect of a desire shared between partners with what in actuality might be the resolution of conflicting desires (Thomson, McDonald, and Bumpass 1990). In fact, some research shows substantial disagreement within couples regarding family formation ideals and overall sex composition preferences (Pebley, Delgado, and Brineman 1980; Sensibaugh and Yarab 1997). When spouses disagree about the importance of having mixed-sex children, it is important to consider the extent to which gendered power might influence outcomes. Thomson (1997) contends that there may be several processes at work—

husbands may exercise their traditionally greater power in decision-making such that their desires have greater influence on outcomes than wives'. Or, women's influence may be stronger for childbearing decisions than other types of decisions given their typically much greater involvement in the domain of family life and childrearing.

Despite the viability of such explanations, research on fertility outcomes has generally found that fertility behavior is a process best represented by childbearing preferences from both partners (Thomson, McDonald, and Bumpass 1990), and this may be the case with sex composition preferences, as well. Therefore, it seems unreasonable that researchers could accurately infer how strongly each partner values having a mixed-sex composition from a couple's collective childbearing behavior. The point of all of these critiques is well-taken—without knowing the actual importance of having “at least one boy and one girl” for each individual and each couple as a unit, researchers are limited in what can be concluded with certainty about sex composition preferences for children and the role they play in individuals' decisions to have another child.

#### *Effects of Sex Preferences on Fertility*

Only a handful of studies have studied the link between individuals' or couples' *stated* sex preferences and either fertility intentions or actual subsequent fertility behavior. In addition to analyzing parity progression ratios and the sex ratio of last child born, Clare and Kiser (1951) asked couples how much they were encouraged to have their last child because of wanting a girl if they had only boys or wanting a boy if they had only girls. Researchers also asked how much couples were discouraged from having more children because they already had a mixed-sex composition. Authors note that their results seemed to suffer from a rationalization bias, where respondents were more willing

to admit that having an opposite-sex child was a fertility motivator when the result was a mixed-sex composition, but less so when they had same-sex children. Admitting to desires for a different sex composition of children than the one a person has may lead to cognitive dissonance (Festinger 1968), so they may adjust their perceptions of those desires to match their reality instead.

Werner, Middlestadt-Carter, and Crawford (1975) found that women's intention to have a third child sometime in the next three years was not statistically related to achieving a "proper sex balance of children in the family." Yet authors note that few in their small, snowball sample actually intended to have a third child. In addition, intentions may not result in more children for various reasons, and likewise plans to stop childbearing are sometimes reversed later. Freedman et al. (1960) analyzed a subgroup of their sample, specifically those with three or four children of the same sex who expected to have four or five children. For 22 out of 55 such women, a desire for a child of the sex they did not have was a reason given for expecting more children. Authors did not give any details about how reasons were collected or interpreted by researchers. Also, as stated above, those intending to have another child may not actually do so. Not only are these studies dated due to changes over time in expectations for men/boys and women/girls, but the retrospective nature of Clare and Kiser's (1951) study and the hypothetical nature of those by Werner et al. (1975) and Freedman et al. (1960) point to the importance of longitudinal data for examining links between individuals' stated sex composition preferences and actual fertility behavior.

The presence of only two studies using longitudinal data perhaps explains why so many scholars rely on parity progression or other analyses supported by cross-sectional

data to infer their conclusions. In one study, married women in Taiwan answered questions that generated a scaled sex preference value (Coombs 1979). Four years later in 1977, researchers collected data on any births that had happened between the two time points. The results demonstrated that underlying preferences for sex of children did contribute to differences in fertility over the follow-up period, although preferences for a specific number of children played a stronger role than sex preferences.

While these results are informative, the question of how a desire for at least one boy and one girl influences fertility cannot be answered due to limitations of the derived measure of sex preference. Respondents' positions on the sex preference scale were based on their rank-ordering of sex composition preferences for a three-child family when presented with a series of forced-choice comparisons. Respondents whose first two preferences were for compositions that contain at least one boy and one girl were classified as having a weak boy preference, a weak girl preference, or a preference for an equal number of boys and girls, depending on whether they chose "three girls" or "three boys" in the last forced-choice comparison. Therefore, we do not know how a preference for "at least one boy and one girl" influences fertility because such a preference is not measured in this study.

The second and only other study to use longitudinal data linking sex preferences with actual fertility used the National Fertility Study (Pebley and Westoff 1982). In the 1970 wave, women in the U.S. were asked their preference for the sex of a hypothetical next child. Follow-ups with a subsample of these women in 1975 asked the same question and collected information on births happening between the two waves. Their data show that many women's sex preferences changed over time depending on the sex

of children they had between waves, although preferences also changed for 38% of women who had no children between waves. In addition, women who preferred a child of a sex they did not already have in 1970 were more likely to have a child by 1975.

This study was conducted during a time when fewer women encountered opportunity costs to having children, but it makes an important contribution linking an individual's stated sex preferences to actual, eventual fertility. However, it is important to note that a desire for a mixed-sex composition is still inferred—perhaps incorrectly—based on the relationship between the sex of previous children and the sex preference for a hypothetical next child. For example, a woman with a son may say she prefers a daughter for a hypothetical next child and go on to have another child. The additional birth may be driven by an outright preference for girls over boys, a compositional preference for “at least one daughter,” or a preference for a particular family size, rather than by a desire for “at least one of each.” Furthermore, given that preferences changed for one-third of women who did not have more children between waves, it is difficult to translate a preference for a hypothetical next child into an overall sex composition preference, even when viewed in light of the sex of previous children. Given this, as well as previous studies' reliance on the stated preferences of only women, researchers cannot conclude with certainty that an individual or couple preference for at least one boy and one girl is the mechanism motivating third births for those with same-sex children.

### *The Present Study*

This research asks: 1) Do parents with different sex compositions have varying risks of having a third birth? 2) How do direct statements about the importance of “having at least one boy and one girl” influence fertility-related outcomes for parents

with different sex compositions? 3) Do the values of one parent matter more than the other, or is knowledge of both necessary for predicting fertility behavior? Using discrete-time event history analyses, I estimate two-child families' odds of having a third birth, incorporating direct statements of how much individuals within a couple value having a mixed-sex composition. I examine outcomes based on the values of only women and only men in the couple, in addition to the collective importance of having mixed-sex children for *both* partners combined.

I first examine whether those with two boys or two girls have higher odds of having a third child than those with a mixed-sex pair. Based on past research, I hypothesize that they will. Although Pollard and Morgan (2002) have found an attenuation in this trend in the post-1985 time period they studied, their data still indicate that those with two daughters or two sons are slightly more likely to have a third child than those with a mixed-sex composition. Given that the time period of these data (1987-1994) overlaps with theirs, I expect to still see evidence that parents with same-sex children have higher odds of third births than those with a mixed-sex pair.

I then examine whether the degree to which subscribing to the mixed-sex ideal matters for third births among those with two boys or two girls. Past research provides suggestive evidence that it does; therefore, I hypothesize that those who believe most strongly in the importance of having mixed-sex children will have higher odds of third births than those who value it the least, among those with two boys or two girls. However, given that past research generally finds that fertility behavior is a process best represented by childbearing preferences from both partners, I hypothesize that this effect will be apparent only in couple-level analyses (i.e., models that account for preferences of

both partners combined), but not in models reflecting the preferences of only men or only women as individuals.

Finally, I will evaluate whether any significant relationships remain net of controls. Past research finds that higher fertility is associated with couple dynamics such as intentions to have more children, relationship duration, and relationship stability or quality, (Myers 1997; Schoen et al. 1999). There is also a relationship between fertility and sociodemographic factors such as education, race/ethnicity, and religion (Bumpass and Westoff 1970; Chandra et al. 2005; Westoff, Potter, and Sagi 1963), although some research finds that fertility differences between religious groups are shrinking and relationships between religion and fertility may be explained by religiosity (Lehrer 1996). Preliminary analyses using these data find that valuing a mixed-sex composition more strongly is associated with lower education, being religiously affiliated, and being of a non-White racial/ethnic group. To avoid potential confounding effects, I therefore control for couple dynamics related to family structure and demographic characteristics<sup>2</sup>.

## **Methods**

### *Data and Sample*

This research analyzes public use, secondary data from the National Survey of Families and Households (NSFH) (Sweet, Bumpass, and Call 1988; Sweet and Bumpass 1996). The NSFH is a three-part, longitudinal study using a probability sample of 13,007 households from all over the United States, with an oversampling of blacks, Puerto

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<sup>2</sup> I also tested models controlling for having an opposite sex sibling growing up, age of the female partner, interval of time between the first and second births, urban versus rural location, region of the country, religious affiliation, current school enrollment, and employment status for women and men. None of these variables were significant in the presence of other controls, so they were excluded to preserve parsimony and model fit.

Ricans, Mexican Americans, single-parent families, families with step-children, cohabiting couples and recently married persons. Data were collected using a face-to-face interview methodology along with self-administered questionnaires for the randomly-selected main respondent, their spouse/cohabiting partner, and one focal child.

This analysis is limited to the 10,005 adult male and female respondents who participated in both Waves I (1987-1988) and II (1992-1994). In addition, it includes only those cases asked a question about the importance of “having at least one boy and one girl” (4,345 excluded; n=5,660). This item was part of a Wave I module administered only to those respondents with a high likelihood of future fertility behavior—women age 39 or younger, single men age 44 or younger, and married men whose wife/partner was age 39 or younger at Wave I. Information on this variable was not collected on spouse/partners who appear after Wave I. In addition, births are more likely to be unplanned among parents who are not cohabiting or married (Musick 2002). Therefore, the sample is further limited to those respondents in a cohabiting or marital relationship at Wave I in which both the respondent and their spouse/partner answered the item (2,973 excluded; n=2,687)<sup>3</sup>.

It is also important to eliminate those who already had two biological children at Wave I because some research indicates a rationalization bias, where the answers couples gave to questions about preferred sex compositions often reflected the sex composition of the children they had (Arnold and Kuo 1984; Clare and Kiser 1951). Preliminary analyses confirm that respondents with two children already are more likely to report that they find it “not at all important” to have at least one boy and one girl, and those with

same-sex children do not differ significantly from those with a mixed-sex pair, so the analytic sample is limited to those with one child or no children at Wave I (1,283 excluded; n=1,404). Also, it is not known how having foster, adopted, or step-children or children of a cohabiting partner may influence perceptions of having fulfilled the mixed-sex ideal. Therefore, I include only cases in which neither partner reported having any non-biological children during the time at risk of having a third child together (361 excluded; n=1,043).

Furthermore, I omit couples reporting they had a child die at any time prior to Wave I or between Waves I and II (15 excluded; n=1,028) because having additional children may be driven in part by a desire to replace the child who died. Finally, I eliminate cases that technically never were “at risk” of having a third child: 1) those couples in which the respondent reported that s/he or a spouse/partner had an operation that prevents childbirth prior to Wave I (36 excluded; n=992)<sup>4</sup>; 2) those whose second birth involved delivering twins (8 excluded; n=984); and 3) those who never had a second child together as a couple<sup>5</sup> between Waves I and II (548 excluded; n=436). The final analytic subsample includes 429 couples with Wave II information on the couple’s fertility-related behavior since Wave I<sup>6</sup>. Because I exclude those who did not have at least two children sometime between Waves I and II, the excluded group differs

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<sup>3</sup> Although exclusion criteria are presented here in a stepwise manner, it should be noted that this ordering is in some ways arbitrary and these criteria are not mutually exclusive. Cases may be excluded due to membership in multiple categories rather than just one.

<sup>4</sup> Spouses/partners were not asked this question in the self-administered questionnaires at Wave I, so here I rely on the main respondents’ reports of partners’ operations.

<sup>5</sup> Although respondents may have a second birth with a new partner if the original Wave I couple separated or divorced, data are not available on how the new partner values having mixed-sex children, so they are not included in this analytic subsample.

<sup>6</sup> One case was eliminated due to a missing birth date for the second child. Six were eliminated because parents’ reports of the sex composition of children conflicted.

significantly from the analytic sample on the key independent variable of sex composition, as well as the dependent variable of having a third child.

#### *Dependent Variable*

The dichotomous indicator *third birth* represents those having a third child if the couple reported they had a third child or that the woman was currently pregnant with a third child at the Wave II interview. I coded cases as having no birth event if they did not experience a birth or known conception together as a couple after their second child between Waves I and II.

#### *Independent Variables*

The *mixed-sex ideal* measure comes from a Wave I module on fertility considerations. The NSFH reads, “Below is a list of things that some people consider when thinking about having a child or another child. Please circle how important you feel each is to you at present time.” “Having at least one boy and one girl” is one item that respondents rank on a scale from 1 to 7, with 1 being “not at all important” and 7 being “very important.” For each partner, this measure was coded into three categories representing rankings of 1 (not important), 2 to 4 (moderately important), and 5 to 7 (very important), based on earlier analyses and distributional patterns. In order to create a couple-level measure of subscription to this ideal, I first constructed a detailed measure comprised of the following categories: both not important, one not/one moderate, both moderate, one moderate/one very, both very. Based on sensitivity analyses, I determined that model fit was better by collapsing categories into a final measure composed of the following: 1) both not important or one moderate/one not, 2) both moderate, 3) one not/one very, 4) one moderate/one very or both very.

I use information on age and sex from rosters of children living away and in the household to determine the sex composition of the first two children born to each couple between Wave I and Wave II. The variable *sex composition* classifies children at parity two as a mixed-sex pair, two boys, or two girls.

### *Control Variables*

I include controls for several couple dynamics related to family structure. First, I controlled for couples' Wave I *intentions to have three or more children*. From the item, "What is the total number of children you intend to have (including those you have now)?" I constructed a variable for each individual partner indicating whether they intended to have more than two children. Because respondents in this sample had only one child or no children at Wave I, I counted them as no on this indicator if they were a valid skip on this question because they had said no to the item, "Do you intend to have (a/nother) child sometime?" I then constructed a couple-level measure indicating whether both partners intended three or more children, only one had this intention, neither intended it, or one or both partners' intention was missing.

In addition, I control for *relationship quality* and *relationship duration*. At Wave I, married and cohabiting partners were asked, "Taking all things together, how would you describe your relationship?" Using their answers on a seven-point scale from "very unhappy" to "very happy," each individual partner was coded as 1 indicating they were very happy if they gave ratings of 6 or 7, and 0 if they gave ratings of 1 to 5. The couple-level measure of relationship quality captures whether both partners were very happy, only one was very happy, neither was very happy, or one or both were missing data on this item. The couple's relationship duration in years is a time-varying covariate

calculated using the century month date of marriage. Five cohabiting couples had not married by the time they became at risk of having a third child (the birth of the second child). In those cases I used the date of the beginning of cohabitation.<sup>7</sup>

I also control for a variety of demographic characteristics of the couple. Individual-level measures of *race/ethnicity* include the categories “non-Hispanic black,” “non-Hispanic white,” “Latino/Hispanic,” and “Other non-Hispanic,” which combines American Indians and Asians due to their small representation in the sample. The couple-level variable for race/ethnicity indicates whether partners were: both non-Hispanic black, both non-Hispanic white, both Latino/Hispanic, both other non-Hispanic, or a mixed racial/ethnic couple. In addition, I collapsed highest level of completed *education* for each partner into the groups “less than high school,” “high school diploma/GED,” “some college/associate’s degree” and “bachelor’s degree or higher.” The couple-level measure of education indicates whether both partners had a high school diploma/GED or less versus those where both partners had some college or more.

Finally, individual level measures of *religious attendance* indicate how often in a year each partner attends religious services, noting whether s/he attended at least weekly or more. When cases were missing data on this variable, I coded them as not attending weekly or more if s/he indicated having no religious affiliation, and I used Wave II religious attendance to impute any remaining missing cases. The couple-level measure of religious attendance indicates whether both partners attend services weekly or more, only one partner attends weekly or more, or neither attends at least weekly.

### *Analytic Strategy*

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<sup>7</sup> When partners' dates disagreed, I used the primary respondent's reported date.

To examine the effects of sex composition, subscription to the mixed-sex ideal, and their interaction on propensity toward third births, I use discrete-time techniques for event history data (Allison 1984; Singer and Willett 2003). Event history is used rather than a standard logistic regression model predicting having a third child or an ordinary least squares regression predicting time to having a third child because it allows information from censored cases (i.e., those not experiencing an event) to be incorporated. Discrete-time models give results that are very similar to continuous time models as time units get smaller (Allison 1984). The units of analysis are person months experienced during the risk period until event occurrence or until censored. To estimate the models, I organized a person-month file, with each case having one record for each month “at risk” of conceiving a third child.

Couples become at risk of conceiving a third child in the month after the birth of a second child. This happens anytime between Wave I and II, so new two-child couples enter the sample at different points during the period. Once a couple has their second child, for these analyses they remain at risk of conceiving a third child up to and including the month that any one of the following events occurs first: Conception of a third child<sup>8</sup>, having “an operation that makes it impossible to have a child,”<sup>9,10</sup> or the

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<sup>8</sup> This was determined by subtracting nine months from a birth date, or from a due date if respondents were currently pregnant at the Wave II interview. NSFH measures birth or current pregnancy rather than conception, but I subtract months to obtain a conception date because once conception has occurred, they are no longer at risk of that event for the time being, even in cases of miscarriage. Furthermore, factors associated with decisions to have a third child are more likely to be influential at the time of conception, rather than at the time of birth.

<sup>9</sup> When couples provided discrepant reports about whether or when their partner had had such an operation, I used the report of the person who would have had the operation. However, if the provided date was prior to a later birth with that same partner, then I used the date the other person provided for their partner’s operation.

separation or divorce of the original Wave I couple.<sup>11</sup> The century month of the Wave II interview date was used as the end of the risk period if none of those events occurred, and such cases are censored<sup>12</sup>. I also censor those who separated or divorced after the birth of a second child using the century month separation date. Respondents may go on to have a third child with another partner after their separation/divorce, but new partners' valuation of the mixed-sex ideal is unknown. Because the number separating or divorcing in this sample during this risk period is small, I do not model this outcome separately.

Those experiencing a sterilization operation are treated similarly—they are removed from the risk pool using the date of their operation, but they are ultimately included with censored cases as not experiencing a third birth event. Having such an operation is arguably different from otherwise simply not experiencing a third birth yet, but at the same time, both involve behaviors or conditions with contraceptive effects. Ideally operations should be modeled as a separate outcome using a multinomial competing risks model, but cell sizes for interactions and control variables are too small to support this analysis. Models will still run, but fit is poor with operations included as a

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<sup>10</sup> When couples reported an operation in the same month as the birth of the second child, I added two months to this date for women and one month for men. Operations in the same month as a birth were nearly all women, while men typically waited at least a month. I add time rather than exclude them because this would introduce a selection bias due to sex-based differences in the reproductive process. I add two months for women to group them with other women having post-birth operations based on the fact that tubal ligations happen six weeks post-birth, while hysterectomies happen at the birth. Results for third births do not differ with operation cases excluded instead.

<sup>11</sup> I considered adding "woman ages out" (or becomes infecund due to age) as a separate event but the oldest woman in this sample not experiencing a third birth or operation was 45 at the time her risk period ended.

<sup>12</sup> In four cases, the birth of the second child happened in the same month as the Wave II interview. To retain these cases, I subtract one month from the birth of the child because the chances of them conceiving a third child in the month following the birth are low.

competing risk outcome. Results for the third birth outcome from preliminary multinomial models were compared to models using ordinary logistic regressions—both where operation cases are excluded entirely and where they are folded into the “no third birth” category. Results from all three approaches are strikingly similar, so this paper reports results from ordinary logistic models where cases having operations are removed from the risk pool but treated as not having a third birth along with censored cases.

Preliminary examinations using Kaplan-Meier curves reveal that the baseline hazard for conceiving a third child appears to approximate the polynomial quadratic function. This is consistent with an expectation that the rates of conceiving a third child might be initially very low in the period immediately following the second birth and increase thereafter up to a certain point and then decline. Therefore, I model duration dependency using the quadratic function by including time at risk in months (centered at the mean) along with its squared term. All analyses adjust standard errors for the stratification and clustering of the NSFH sampling design using the `svy` commands in Stata 12.1. Descriptive statistics adjust for complex survey design while applying the Wave I weight.

I run the same series of models for women and men independently and then for couples using couple-level characteristics. Models first examine baseline main effects of each of the two key independent variables (sex composition and subscription to the mixed-sex ideal), separately and together. I then add intentions to have a third child, followed by full models controlling for all other control variables to examine how main effects persist in their presence. I next use two-way interactions to assess whether the effect of sex composition depends on the importance of having at least one boy and one

girl. Finally, I assess the effect of the interactions, controlling for dynamics related to family structure and demographic factors.

## Results

[TABLE 3.1 ABOUT HERE]

[TABLE 3.2 ABOUT HERE]

Table 3.1 shows descriptive data on the analytic sample, focusing on showcasing weighted characteristics of men and women in the couples as individuals. Table 3.2 displays some of the same information from Table 3.1 that does not vary by individual partners, but these descriptive statistics focus on the weighted characteristics of the couples using couple-level measures. Variables were measured at Wave I with the exception of relationship duration. Because this variable is a time-varying covariate, values displayed were measured at the time each couple entered the sample—the birth of the second child. Both tables show that for these 429 two-child couples, 22.6% conceived a third child between the birth of their second child and the Wave II interview. The median period at risk was 21 person-months, or roughly two years.

Both tables show that 47.3% of the sample already had a mixed-sex composition at parity two. According to Table 3.1, 27.0% of women in the couples reported at Wave I (prior to the birth of a second child) that it was very important to have at least one boy and one girl; this was very important for 33.9% of men. Table 3.2 demonstrates that prior to the birth of a second child, 34.1% of couples were composed of partners for whom having mixed-sex children was very important to both, or one partner rated it very important and the other moderately so. Disagreement between couples at its most meaningful, most extreme level was found in 11.9% of couples, in which one partner

reported that a mixed-sex composition was very important, while the other partner found it to be not important.

*Men and Women Individually: Do Values of One Parent Matter More Than the Other?*

[TABLE 3.3 ABOUT HERE]

Table 3.3 displays odds ratios predicting having a third child from discrete-time event history models using logistic regression. This series of models represents only women in the couple, including their subscription to the mixed-sex ideal individually, as well as other characteristics measured at an individual level. Models show that there is a main effect for how strongly they value the mixed-sex ideal, where those finding it very important have higher odds of having a third child, regardless of the sex composition of their children. This effect fully attenuates with the addition of control variables, and interactions between sex composition and valuing mixed-sex children are not statistically significant.

[TABLE 3.4 ABOUT HERE]

Table 3.4 also displays odds ratios predicting having a third child, but presents childbearing preferences and characteristics of only the men in the couple. Models 2 and 3 show only a marginally-significant main effect for how strongly men value the mixed-sex ideal ( $p=.06$ ), and this also attenuates with the addition of control variables. As in the models for women only, interactions between sex composition and the importance of having mixed-sex children are not significant.

*Couple-Level Analyses: Main Effects of Sex Composition and Value of Mixed-Sex Ideal*

[TABLE 3.5 ABOUT HERE]

Table 3.5 displays odds ratios predicting having a third child from discrete-time event history models using logistic regression and couple-level data. Model 1 demonstrates that sex composition itself is not associated with having a third birth in these data. Those with two boys or two girls do not have significantly higher odds of having a third child than those with a mixed-sex pair of children. However, couple-level subscription to the mixed-sex ideal is associated with third births in Models 2 and 3. Couples for whom having a mixed-sex composition was very important to one partner and moderately or very important to the other had 62% higher odds of having a third child than those for whom mixed-sex composition was the least important (i.e. one partner found a mixed-sex composition not important and the other found it moderately important or not at all). These results did not fully attenuate in Model 4 with controls present.

*Couple-Level Analyses: Does Valuing the Mixed-Sex Ideal Vary with Sex Composition?*

Results for Model 5 include an interaction between sex composition and couple-level subscription to the mixed-sex ideal. Tests reveal that the overall interaction itself is not significant ( $p=.29$ ); therefore it does not contribute significantly toward odds of a third birth over and above the main effect of valuing a mixed-sex composition just described in the paragraph above. However, significant interaction terms suggest that the effect of valuing a mixed-sex ideal on odds of having a third child does vary by parity two sex composition, even if this pattern has no significant effect on third birth odds overall. Results show that among those with two girls or a mixed-sex pair, how strongly couples value having mixed-sex children has no bearing on subsequent chances of having

a third child. For families with two boys, though, strength of valuing a mixed-sex composition matters.

Figure 3.1 is based on calculations of overall interaction effects from Model 5. Among two boys, those for whom a mixed-sex composition is very important to both partners or very important to one and moderately so to the other have three times higher odds (OR = 2.97) of a third birth than those for whom it is not as important to both or not important to one and moderately so to the other. This difference is significant based on post-hoc testing ( $p < .01$ ). Although the pattern looks nearly identical for those with two girls—couples in the highest level of subscription to the mixed-sex ideal have 2.44 times the odds of having a third child compared to those in the lowest—this difference is not significant ( $p = .18$ ). Finally, Figure 1 also reveals that merely having one partner who believes a mixed-sex composition is very important is not enough to increase the odds of a third child among couples with two boys or two girls compared to any couples with mixed-sex children. The second partner must also believe it is very important or at least moderately so, but more disagreement than that between partners tends to produce a pattern of lower odds of having a third birth instead.

Model 6 in Table 3.5 includes the same interactions but also controls for a variety of couple dynamics related to family structure and other demographic characteristics. Although the overall interaction itself is not a significant contributor to odds of a third birth, individual interaction terms remain significant with the inclusion of control variables. Despite the variance accounted for by relationship quality, relationship duration, intention to have a third child, race/ethnicity, and religious attendance, two-boy couples with the strongest subscription to the mixed-sex ideal still have 2.75 times higher

odds of a third birth than those with the least ( $p=.02$ ). Overall interaction effects remain similar to those seen in Figure 1, with patterns for two girls closely resembling those of two boys. As with Model 5, couples with two girls who most strongly value obtaining a mixed-sex composition have the highest odds of having a third child than any other group—twice the odds ( $OR = 1.96$ ) of those with two girls who value mixed-sex children the least—but once again this difference is not significant.

## **Discussion**

Literature focusing on Western countries has documented a higher propensity toward third births among parents with two boys or two girls compared to those with one son and one daughter (e.g., Kippen, Evans, and Gray 2007; McDougall, DeWit, and Ebanks 1999; Mills and Begall 2010; Yamaguchi and Ferguson 1995). Researchers conclude that this behavior is motivated by a preference for at least one boy and one girl. However, it is potentially problematic to infer this connection because researchers do not actually know the importance of having a mixed-sex composition for each individual. Further, prior studies' conclusions based on third births have assumed that this behavior reflects a mixed-sex preference by both partners, without acknowledging possible within-couple differences in family composition preferences or the strength of those preferences. Although other scholars have attempted to link some individuals' statements regarding sex preferences with later fertility (e.g., Coombs 1979; Pebley and Westoff 1982), there are issues with those studies as well. Therefore, researchers are limited in what can be concluded with certainty about a preference for a mixed-sex composition and the role it plays in having a third child. These analyses are among the first to address the question

of whether actual statements about valuing a mixed-sex composition have any effect on eventual fertility for couples with two boys or two girls.

*Are Third Births More Likely among Those with Same-Sex Compositions?*

Given past work showing higher rates of a third birth among parents with two boys or two girls compared to those with a mixed-sex pair, I first asked whether this pattern would exist in these data, hypothesizing that there would be a small main effect for sex composition of children. This hypothesis was not supported, as those with two boys or two girls did not have higher odds of having a third child than those with mixed-sex children. I conclude that if sex composition alone is associated with third birth rates, this relationship operates at a degree too low to register significantly in this small sample.

*Does Valuing the Mixed-Sex Ideal Matter More among those with Same-Sex Children?*

This result does not necessarily indicate that a desire for a mixed-sex composition is not associated with third births; different types of preferences may operate at once but cancel each other out to appear as no effect in the aggregate (McClelland 1983). Therefore, I next hypothesized that strength of subscription to the mixed-sex ideal would matter for those with same-sex compositions. I predicted that among those with two boys or two girls, couples with the strongest belief in the importance of mixed-sex compositions would be at higher risk of a third birth than those with weak or no beliefs in the importance of having mixed-sex children. These hypotheses were not supported in models for women and men individually, suggesting that neither partner's degree of subscription to the mixed-sex ideal matters more than the other's in predicting third births among those with two boys or two girls.

However, these hypotheses were partially supported in models accounting for couple-level preference for a mixed-sex composition. While this overall pattern of association was found for those with both two boys and two girls, it was significant only for those with two sons. Although it may be tempting to conclude that this is driven by the woman's preference for a girl, recall that this pattern was not evident in individual models for women. The fact that it was not also significant for two girls may be due to the fact that those with only boys were more represented in the sample than those with only girls (31.3% vs. 21.4% of sample, respectively). Otherwise, Figure 1 demonstrates that the pattern of calculated interaction effects for two daughters is very much in line with that for two sons—the difference in odds ratios between the two groups at extreme ends of the mixed-sex ideal was only slightly smaller for couples with two girls than for two boys (ORs 2.44 and 2.97, respectively).

Controlling for family structure dynamics and demographics did not substantially change the patterns found in models without control variables, although one interaction term for two girls did begin to approach significance ( $p = .07$ ). However, the overall interaction between sex composition and how much couples valued having mixed-sex children was not significant in either the baseline or fully-controlled models. This suggests that even though level of importance placed on having a mixed-sex composition matters for couples with two boys, variation in subscription to the mixed-sex ideal by sex composition does not contribute toward having a third child overall. In other words, although this pattern may exist and operate for couples with two boys—and potentially two girls—its effects are too small to make a significant difference in third birth rates.

### *Importance of Measuring Couple-Level versus Individual Preferences*

Findings from couple-level models reinforce the importance of accounting for sex composition preferences for *both* individuals within a couple. Results show that in cases of disagreement, one partner's belief that a mixed-sex composition is very important was not enough to motivate couples with same-sex compositions toward a third birth. Rather, the other partner had to also believe mixed-sex compositions were very important or at least moderately so in order to raise odds of a third birth—namely for those with two boys. Greater disagreement between partners produced overall patterns of lower odds of a third birth instead, net of relationship quality. Perhaps if couples disagree about the value of a mixed-sex composition, they may disagree about other childbearing and childrearing decisions, therefore making it less likely that having several children together is seen as a positive outcome. This finding and insignificant results from individual models for women and men are important given that past work associating statements of sex preferences with fertility has tended to look only at women. In line with other research (Thomson, McDonald, and Bumpass 1990), I conclude that models of heterosexual fertility must measure and incorporate men's childbearing desires as well as women's, including degree of preference for a mixed-sex composition.

### *Sex Composition Doesn't Matter?: Reconciling Results with Past Research*

Given past U.S. research finding higher rates of a third birth among parents with same-sex children compared to those with a mixed-sex pair (Pollard and Morgan 2002; Wood and Bean 1977; Yamaguchi and Ferguson 1995), it surprising that these data did not show a main effect of sex composition on likelihood of having a third child. Researchers who included data from a time period most similar to these data (1987 to

1994), did find a decrease in sex-of-previous-children effect after 1985 (Pollard and Morgan 2002). Nonetheless, they still found that those with two same-sex children<sup>13</sup> had 15% higher odds of a third birth than to those with mixed-sex children in the period 1986 to 1994. Although this is a small substantive effect, it was statistically significant.

I explored the possibility that a main effect for sex composition may appear in these data only in some years between 1987 and 1994 but not others, given that Pollard and Morgan (2002) found a decrease over time in the sex-of-previous-children effect. Cell sizes in this sample prevent stratification of my full analyses by time period, but I ran a regression using the sex composition variable alone with time dependence variables only, for 1987 to 1990 and for 1991 to 1994. No significant effect of sex composition on third births appeared in either period, although a higher likelihood for those with two girls compared to mixed-sex pairs began to approach significance in the period 1987 to 1990. I also wondered if this main effect may be present in these data only among a subgroup, given that Yamaguchi (1995) found a stronger sex-of-previous-children effect among women with the highest levels of educational attainment in 1985. Pollard and Morgan (2002) conclude that this effect was unique to the 1985 year of Current Population Survey (CPS) data collection because it did not appear in post-1985 years of CPS data they analyzed. Nonetheless, I ran a regression including sex composition alone with time dependence variables only for women with college degrees and still found no effect of sex composition.

The lack of a main effect for sex composition in these analyses compared to those of Pollard and Morgan (2002) may be due to sample differences. Those researchers used

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<sup>13</sup> Exploratory analyses in these data combining two boys and two girls into one group of same-sex children still does not reveal a main effect of sex composition.

a large sample ( $n=59,977$ ) composed of pooled data from both the National Survey of Family Growth and the CPS, while my sample of 429 couples is much smaller. A more likely explanation, though, is that their sample for time period analyses examining third births looked at completed birth histories for women over the age of 40, supplemented by the addition of women still in their childbearing years. My sample consists primarily of women who are still of an age to bear more children. In fact, 94% of those who have not yet had a third birth or a sterilization operation are under age 40, and half such women are under age 33 at the end of the observation period. It is possible that if the complete childbearing histories of those 205 couples were known, a small main effect—and a slightly more pronounced interaction effect—would have been present.

*Insignificant Effects: Sex-Composition Indifference or a Preference for Two Children?*

It may be tempting to conclude that the lack of a main effect and the overall insignificant interaction effect are evidence of more parental indifference to the sex compositions of their children. Most studies using third birth rates among Western parents with different sex compositions use differences between same-sex and mixed-sex families as an indicator of the strength of a mixed-sex compositional preference (e.g., see Andersson et al. 2006; Hank and Kohler 2000; Kippen, Evans, and Gray 2007; Mills and Begall 2010). Similarly, Pollard and Morgan speculate that the decrease they observed in the sex-of-previous-children effect after 1985 is an indication of an “emerging gender indifference,” whereby sons and daughters are considered fully substitutable. They note that women in their peak childbearing years during the post-1985 period were the first to be raised in a cultural climate supportive of gender equality and the first to actually experience growing opportunities for women. Because the late 1980s is a time of

convergence in men's and women's roles in the home as well as in opportunities for school and work, Pollard and Morgan (2002) argue this may carry over to attitudes about boys and girls such that having a mixed-sex composition is no longer as important to people.

It is difficult to know if the degree of importance people place on having at least one boy and one girl has, in fact, decreased in the post-1985 period in which Pollard and Morgan (2002) note a decline in the sex-of-previous-children of effect. This is due to the fact that nationally representative surveys have not asked this particular item prior to the NSFH Wave I in 1987. Although these data suggest that sex composition and compositional preferences do not play a significant role in the likelihood of having a third birth, they do show that a preference for a mixed-sex composition is alive and well in the post-1985 period. In fact, 46% of couples in this analytic subsample were composed of at least one partner for whom it was very important to have at least one boy and one girl. Therefore, what this study demonstrates is that using behavioral data such as third birth rates is an inadequate method of measuring the existence and strength of a preference for a mixed-sex composition, adding to the large body of social psychological literature on attitude-behavior inconsistencies.

The lack of effects in these data and the declining sex-of-previous-children effect noted by Pollard and Morgan (2002) may speak less to the existence and strength of a mixed-sex compositional preference and more to the climate of childbearing in the late 1980s and early 1990s. Although stopping at two children has been the most common practice in the U.S. since the 1970s (Blake 1974; Hamilton and Cosgrove 2010), Pollard and Morgan (2002) point out that those in their childbearing years in the late 1980s were

the first to experience growing educational and employment opportunities for women. Not only have these experiences delayed fertility, making larger family sizes less realistic logistically, but they also heighten the opportunity costs of bearing a third child for women. Thus, the late 1980s and early 1990s are an historical period that is distinct from the 1970s when the two child norm arose. Perhaps the desire to have only two children has strengthened in a context of higher opportunity costs for childbearing women, such that a preference for only two children trumps the perceived benefits of a mixed-sex composition, even though the importance of it appears to remain high in the U.S. in the late 1980s.

#### *Limitations, Strengths, and Directions for Future Research*

This study has a number of important strengths. First, it incorporates a direct, stated preference for ‘at least one boy and girl’ rather than inferring that preference based on combinations of other attitudes and behaviors. Second, this study takes into account beliefs in the importance of having mixed-sex children for both members of the dyad rather than relying on reports from women only. Third, the data are longitudinal. By capturing a stated, direct preference for having a mixed-sex composition prior to reaching the typical two-child ideal, its associations with actual fertility are not a reflection of rationalization bias or having come to terms with what one has in light of having reached their ideal number of children.

However, early measurement of how important it is to have at least one boy and one girl is a potential limitation of the study, as well. There is a possibility that the importance placed on achieving a mixed-sex composition may change over time. Other analyses have found that preference for the sex of a hypothetical next child changed for

more than a third of women who had no additional children between waves (Pebbley and Westoff 1982). Because measurement of subscription to the mixed-sex ideal does not coincide with the timing of decisions to have a third child, it is difficult to know exactly to what degree couples value having mixed-sex children at that particular point in time. Furthermore, the time period of data measurement—1987 to 1994—also limits the degree to which conclusions generalize to contemporary U.S. society. Time trend data and hypotheses by two scholars (Pollard and Morgan 2002) suggest that any existing link between a mixed-sex preference and fertility is on track to be very minimal at best currently, but without more current data it is difficult to make conclusions about the U.S. in the 21<sup>st</sup> century.

This study is also limited because the small size of the sample prevented interesting supplemental analyses. For example, it would be useful to know whether preferences for mixed-sex compositions play any role in the propensity to obtain sterilization operations for those with same-sex children. A larger sample would be needed to support multinomial analyses treating sterilization operations as a competing risk. In addition, an increased sample size could allow stratification by subgroups, such as different racial/ethnic groups or those from varying levels of education or social class, particularly given that these sociodemographic characteristics are associated with strength of endorsing the mixed-sex ideal. Further, it might provide more power to discern whether minor interaction effects among those with two boys are shared by those with two girls, and also whether these effects are operational in the population overall but relatively small versus entirely inconsequential. Such suggested supplemental analyses are important directions for future research, and qualitative research may help in this

regard. Also important are analyses of the association of sex composition and subscription to a mixed-sex ideal with non-fertility outcomes, such as how the well-being of parents and children are affected when parents' ideals are not met.

### *Conclusions*

These analyses help fill gaps in the research on how preferences for a mixed-sex configuration of children affect decisions to have a third child among couples with two boys or two girls compared to a mixed-sex pair. This research provides evidence that although a desire for at least one boy and one girl is still prevalent, it plays a much less prominent role in third birth rates than the wisdom of strangers or some academic research would have us believe. In these data, couples with two sons or two daughters were no more likely to have a third child than those with one of each. Furthermore, the degree to which a couple valued having a mixed-sex composition did not matter more for those with same-sex children in overall propensity to have a third child. Although two-boy couples with the strongest subscription to the mixed-sex ideal had higher odds of a third birth than those with the lowest, the effect of this pattern is too small to make a significant impact in determining third births. Results therefore demonstrate that using third birth behavior is an inadequate way of capturing the strength of a preference for a mixed-sex composition. Finally, findings also illustrate the importance of accounting for preferences for *both* individuals within a couple, rather than relying only on female respondents' statements.

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Table 3.1. Descriptive Statistics for Study Variables among Men and Women, NSFH

	Women	Men
Total number of two-child couples	429	429
Total number of person-months	10,337	10,337
Median number of person-months at risk	21	21
Number of respondents having a 3rd child (%)	97 (22.6%)	97 (22.6%)
<i>Independent Variables</i>		
Mixed-sex ideal		
Not important	40.14**	32.34
Moderately important	32.91	33.79
Very important	26.96	33.86
Sex composition		
Mixed-sex pair	47.34	47.34
Two boys	31.27	31.27
Two girls	21.38	21.38
<i>Control Variables</i>		
Intends Three or More Children		
No, intends 2 or fewer	60.94	66.28
Yes, intends 3+	36.24	31.77
Missing	2.81	1.96
Relationship quality		
Not very happy	15.54	18.93
Very happy	82.41	79.83
Missing	2.05	1.24
Relationship duration in yrs at start of risk period		
Mean (SE)	6.09 (0.17)	6.09 (0.17)
Min - Max	0-18	0-18
Race/ethnicity		
Non-Hispanic Black	1.51*	1.59
Non-Hispanic White	95.08	90.61
Latino/Hispanic	1.88	5.54
Other	1.54	2.26
Educational attainment		
Less than high school	6.76	6.40
High school diploma/GED	29.01	26.71
Some college or associate's	27.72	23.77
Bachelor's degree or higher	36.51	43.12
Religious attendance		
Does not attend weekly or more	70.97	70.78
Attends weekly or more	29.03	29.22

\*  $p \leq .05$ , \*\*  $p \leq .01$ , \*\*\*  $p \leq .001$

Note: Statistics are weighted and adjust for complex survey design using Stata svy commands

Table 3.2. Couple-level Descriptive Statistics for Study Variables, NSFH

Total number of two-child couples	429
Total number of person-months	10,337
Median number of person-months at risk	21
Number of respondents having 3rd child (%)	97 (22.6%)
<i>Independent Variables</i>	
Combined mixed-sex ideal	
Both not important or one not/one moderately	41.48
Both moderately important	12.52
One not important/one very important	11.94
Both very important or one very/one moderately	34.07
Sex composition	
Mixed-sex pair	47.34
Two boys	31.27
Two girls	21.38
<i>Control Variables</i>	
Intends Three or More Children	
Neither intends 3+	49.68
One intends 3+	25.39
Both intend 3+	20.48
Missing	4.45
Relationship quality	
Neither very happy	4.96
One very happy	24.09
Both very happy	67.82
One or both missing	3.12
Relationship duration in yrs at start of risk period	
Mean (SE)	6.09 (0.17)
Min - Max	0-18
Race/ethnicity	
Both NH Black	1.22
Both NH White	90.32
Both Latino/Hispanic	1.50
Both Other	1.54
Mixed racial/ethnic couple	5.42
Educational attainment	
Both high school diploma or less	24.06
One or both some college or more	75.94
Religious attendance	
Neither weekly or more	59.21
One weekly or more	23.33
Both weekly or more	17.46

Note: Statistics are weighted and adjust for complex survey design using Stata svy commands

Table 3.3. Odds Ratios from Logistic Regressions of Third Births among Women in the Couple, NSFH (n=429)

	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Sex composition												
Two boys	0.90	(0.53, 1.54)			0.89	(0.52, 1.53)	0.92	(0.51, 1.66)	0.6	(0.27, 1.34)	0.66	(0.29, 1.52)
Two girls	1.10	(0.68, 1.77)			1.06	(0.66, 1.72)	1.19	(0.68, 2.11)	0.79	(0.35, 1.74)	1.16	(0.50, 2.70)
Mixed-sex ideal												
Moderately imp			0.88	(0.52, 1.50)	0.88	(0.51, 1.51)	0.94	(0.54, 1.63)	0.67	(0.34, 1.34)	0.87	(0.43, 1.79)
Very important			1.73*	(1.10, 2.73)	1.72*	(1.09, 2.73)	1.48	(0.92, 2.40)	1.30	(0.69, 2.44)	1.19	(0.60, 2.34)
Intends 3+ children?												
Yes, intends 3+							2.19**	(1.33, 3.61)			2.24**	(1.32, 3.79)
Missing							1.75	(0.56, 5.41)			1.54	(0.49, 4.85)
Relationship quality												
Very happy							1.20	(0.66, 2.18)			1.22	(0.67, 2.23)
Missing							1.74	(0.70, 4.31)			1.78	(0.72, 4.35)
Relationship dur (yrs)							0.88**	(0.81, 0.95)			0.88**	(0.81, 0.96)
Race/ethnicity												
Non-Hispanic Black							2.23	(0.91, 5.47)			2.27	(0.92, 5.59)
Hispanic/Latino							5.64**	(1.91, 16.69)			5.70**	(1.83, 17.78)
Other							0.73	(0.10, 5.10)			0.66	(0.08, 5.74)
Education												
Less than HS							2.21*	(1.02, 4.80)			2.33*	(1.03, 5.29)
Some coll/assoc							1.13	(0.63, 2.04)			1.13	(0.63, 2.03)
Bachelor's or higher							1.58*	(1.01, 2.48)			1.60*	(1.00, 2.56)
Attends weekly +							1.68**	(1.15, 2.46)			1.67*	(1.13, 2.46)
Interactions												
2 boys x mod imp									2.02	(0.57, 7.18)	1.70	(0.52, 5.54)
2 boys x very imp									1.67	(0.53, 5.24)	1.64	(0.48, 5.58)
2 girls x mod imp									1.32	(0.40, 4.34)	0.72	(0.20, 2.53)
2 girls x very imp									1.72	(0.64, 4.64)	1.36	(0.44, 4.15)
Time since 2nd birth	1.03**	(1.01, 1.05)	1.03**	(1.01, 1.05)	1.03**	(1.01, 1.05)	1.04***	(1.02, 1.07)	1.03**	(1.01, 1.05)	1.04***	(1.02, 1.07)
Time since 2nd birth sq	1.00**	(1.00, 1.00)	1.00**	(1.00, 1.00)	1.00**	(1.00, 1.00)	1.00**	(1.00, 1.00)	1.00**	(1.00, 1.00)	1.00**	(1.00, 1.00)
F (df)	2.67(4)*		4.78(4)**		3.18(6)*		2.36(18)*		1.94(10)		1.70(22)	

\* p ≤ .05, \*\* p ≤ .01, \*\*\* p ≤ .001

Note: Analyses adjust for complex survey design using Stata 12.1 svy commands. Reference categories: Mixed, Not important, No, Not very, NH White, HS diploma/GED.

Table 3.4. Odds Ratios from Logistic Regressions of Third Births among Men in the Couple, NSFH (n=429)

	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Sex composition												
Two boys	0.90	(0.53, 1.54)			0.89	(0.53, 1.49)	0.89	(0.50, 1.56)	0.69	(0.27, 1.75)	0.67	(0.25, 1.79)
Two girls	1.10	(0.68, 1.77)			1.08	(0.67, 1.73)	1.17	(0.74, 1.84)	0.56	(0.17, 1.82)	0.68	(0.19, 2.38)
Mixed-sex ideal												
Moderately imp			1.22	(0.66, 2.26)	1.24	(0.67, 2.27)	1.22	(0.62, 2.41)	1.08	(0.50, 2.33)	1.06	(0.45, 2.46)
Very important			1.56	(0.98, 2.49)	1.56	(0.98, 2.49)	1.36	(0.81, 2.26)	1.01	(0.50, 2.07)	0.94	(0.44, 2.01)
Intends 3+ children?												
Yes, intends 3+							1.66*	(1.05, 2.62)			1.60*	(1.01, 2.51)
Missing							1.32	(0.31, 5.56)			1.14	(0.25, 5.26)
Relationship quality												
Very happy							0.79	(0.42, 1.46)			0.80	(0.43, 1.48)
Missing							3.00*	(1.30, 6.93)			3.06*	(1.30, 7.19)
Relationship dur (yrs)							0.89**	(0.82, 0.96)			0.90*	(0.83, 0.98)
Race/ethnicity												
Non-Hispanic Black							1.53	(0.58, 3.99)			1.70	(0.68, 4.27)
Hispanic/Latino							2.06	(0.82, 5.17)			2.05	(0.78, 5.36)
Other							0.85	(0.14, 5.17)			0.870	(0.14, 5.42)
Education												
Less than HS							1.50	(0.72, 3.12)			1.35	(0.64, 2.87)
Some coll/assoc							1.20	(0.61, 2.35)			1.16	(0.60, 2.26)
Bachelor's or higher							1.03	(0.57, 1.86)			0.96	(0.52, 1.75)
Attends weekly +							1.49	(0.96, 2.33)			1.47	(0.91, 2.36)
Interactions												
2 boys x mod imp									0.73	(0.18, 3.03)	0.88	(0.20, 3.92)
2 boys x very imp									2.21	(0.72, 6.77)	1.98	(0.60, 6.48)
2 girls x mod imp									2.66	(0.73, 9.69)	2.16	(0.53, 8.78)
2 girls x very imp									2.28	(0.51, 10.15)	1.96	(0.41, 9.37)
Time since 2nd birth	1.03**	(1.01, 1.05)	1.03**	(1.01, 1.05)	1.03**	(1.01, 1.05)	1.04***	(1.02, 1.06)	1.03**	(1.01, 1.05)	1.04***	(1.02, 1.06)
Time since 2nd birth sq	1.00**	(1.00, 1.00)	1.00**	(1.00, 1.00)	1.00**	(1.00, 1.00)	1.00**	(1.00, 1.00)	1.00**	(1.00, 1.00)	1.00**	(1.00, 1.00)
F (df)	2.67(4)*		4.78(4)**		3.18(6)*		2.36(18)*		1.94(10)		1.70(22)	

\* p ≤ .05, \*\* p ≤ .01, \*\*\* p ≤ .001

Note: Analyses adjust for complex survey design using Stata 12.1 svy commands. Reference categories: Mixed, Not important, No, Not very, NH White, HS diploma/GED.

Table 3.5. Odds Ratios from Logistic Regressions of Third Births among Couples, NSFH (n=429)

	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
	OR	95% CI	OR	95% CI	OR	95% CI						
Sex composition												
Two boys	0.9	(0.53, 1.54)			0.92	(0.55, 1.52)	0.99	(0.57, 1.71)	0.42*	(0.20, 0.90)	0.44	(0.19, 1.03)
Two girls	1.1	(0.68, 1.77)			1.07	(0.66, 1.73)	1.18	(0.73, 1.91)	0.56	(0.16, 1.91)	0.69	(0.18, 2.56)
Mixed-sex ideal												
Both mod important			0.72	(0.29, 1.78)	0.73	(0.30, 1.78)	0.81	(0.31, 2.08)	0.47	(0.15, 1.44)	0.59	(0.18, 2.01)
1 not imp/1 very			0.86	(0.42, 1.76)	0.86	(0.42, 1.74)	0.79	(0.37, 1.69)	0.3	(0.08, 1.16)	0.23*	(0.06, 0.90)
Both very or very/mod			1.63*	(1.08, 2.46)	1.62*	(1.07, 2.46)	1.44	(0.89, 2.32)	1.03	(0.60, 1.77)	0.98	(0.56, 1.70)
Intends 3+ kids? <sup>a</sup>												
One intends							1.46	(0.86, 2.49)			1.55	(0.84, 2.84)
Both intend							1.95*	(1.07, 3.56)			1.97*	(1.06, 3.67)
Relationship quality												
One very happy							2.93*	(1.23, 6.99)			3.50*	(1.21, 10.10)
Both very happy							1.8	(0.84, 3.85)			2.21	(0.82, 5.99)
One or both missing							2.82*	(1.10, 7.27)			3.21	(0.91, 11.33)
Rel dur in yrs							0.86**	(0.79, 0.95)			0.88*	(0.79, 0.98)
Race/ethnicity <sup>b</sup>												
Both NH												
Black							3.18*	(1.03, 9.81)			5.15*	(1.17, 22.78)
Both												
Hisp/Latino							9.45***	(3.15, 28.35)			11.28***	(3.65, 34.84)
Mixed couple							1.1	(0.28, 4.35)			1.19	(0.27, 5.23)

Both < high school						0.88	(0.46, 1.70)			0.83	(0.42, 1.62)	
Religious attendance												
One weekly or more						0.85	(0.45, 1.63)			0.74	(0.37, 1.48)	
Both weekly or more						1.63*	(1.02, 2.61)			1.61*	(1.01, 2.56)	
Interactions												
2 boys x both mod imp								2.52	(0.36, 17.58)	2.59	(0.31, 21.88)	
2 boys x 1 not/1 very								6.57*	(1.29, 33.37)	9.44*	(1.42, 62.66)	
2 boys x both very or very/mod								2.88*	(1.04, 8.00)	2.81*	(1.01, 7.83)	
2 girls x both mod								2.82	(0.30, 26.89)	1.69	(0.14, 20.15)	
2 girls x 1 not/1 very								4.77	(0.72, 31.56)	6.1	(0.86, 42.98)	
2 girls x both very or very/mod								2.37	(0.57, 9.81)	1.99	(0.43, 9.32)	
Time since 2nd birth	1.03**	(1.01, 1.05)	1.03**	(1.01, 1.05)	1.03**	(1.01, 1.05)	1.05***	(1.02, 1.07)	1.03**	(1.01, 1.05)	1.04***	(1.02, 1.07)
Time since 2nd birth sq	1.00**	(1.00, 1.00)	1.00**	(1.00, 1.00)	1.00**	(1.00, 1.00)	1.00**	(1.00, 1.00)	1.00**	(1.00, 1.00)	1.00**	(1.00, 1.00)
F (df)	2.67(4)*		5.60(5)***		3.85(7)**		2.82(19)*		2.46(13)*		1.78(25)	

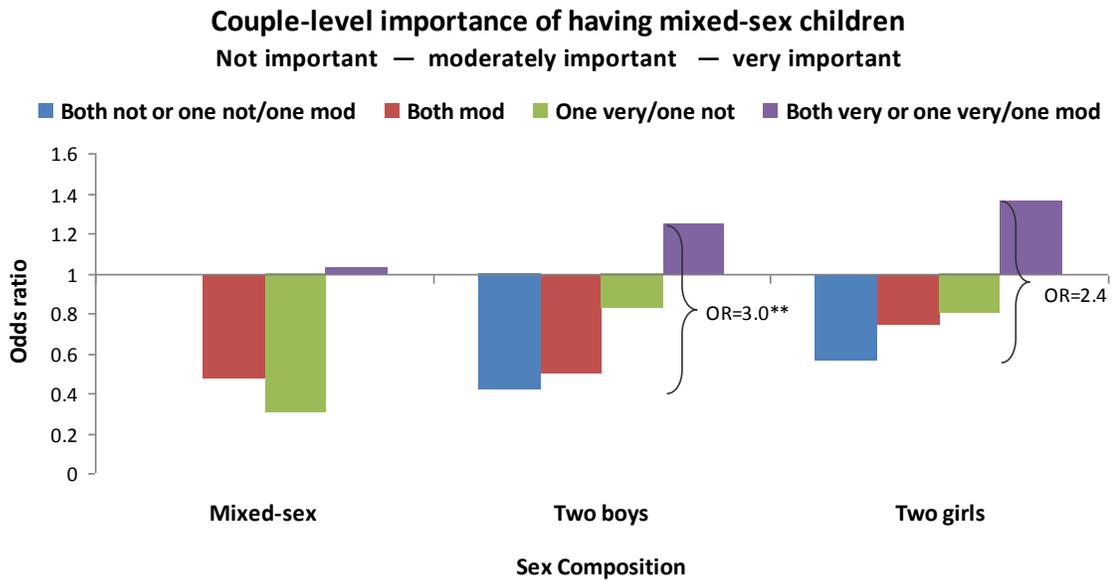
\* p ≤ .05, \*\* p ≤ .01, \*\*\* p ≤ .001

Note: Analyses adjust for complex survey design using Stata 12.1 *svy* commands. Reference categories: Mixed, Both not or mod/not, Neither or missing, Neither very, Both NH White/Other, Neither weekly

<sup>a</sup>Based on preliminary analyses, I found that those for whom one or both partners' intention was missing were not significantly different from those for whom neither partner intended three or more.

<sup>b</sup>Preliminary analyses showed that the dummy variable for "Both Other non-Hispanic" was not significantly different from "Both non-Hispanic White" and trended in the direction of lower odds of third birth compared to other groups. Due to small cell sizes on the "Both Other" variable and for model parsimony and fit, these two categories were combined.

Figure 3.1. Interaction Effects from Logistic Regressions of Third Births on Sex Composition and Importance of Mixed-sex Ideal, NSFH



## Chapter 4. Same-Sex Children, Mixed-Sex Dreams: Does It Matter for Psychological Well-Being Post-Partum and Beyond?

### Abstract

Recent news media suggests that an unmet desire for at least one son and one daughter may result in serious consequences for psychological well-being referred to as ‘gender disappointment.’ Past scholarship finds that depressive symptoms may be a result of having a child of an unwanted sex, but such research has focused on preferences for an individual birth rather than an overall compositional preference. Using nationally representative data from the National Family of Survey and Households (NSFH; n=420), I examine whether unfulfilled ideals for a mixed-sex composition are associated with negative psychological consequences among mothers. Results show that the sex composition of children—all boys, all girls, or mixed-sex—was not associated with women’s psychological well-being. Furthermore, those who valued a mixed-sex composition but did not obtain it did not report more depressive symptoms, poorer life satisfaction overall, or less satisfaction with family life than those who did not value the mixed-sex ideal.

### Introduction

An *Elle* magazine article recounts the story of Stephanie Lewis, a mother of one son who had just given birth to twin boys (Barrett 2009). Expecting boy-girl twins instead based on ultrasound imaging, her post-birth distress brought a psychiatric social worker to her bedside. When her anguish for the daughter she did not have deepened at home, she was put on Prozac. “She stayed in her room, ate peanut butter and jelly sandwiches, and slept for hours,” feeling “in a fog” and as if “a funeral should be held.”

Online, she found chatrooms full of women with screen names such as Dreamofgirlz, Praying4Pink, and PlzBeABoy, where she was supported by others suffering similar feelings: “I have not stopped crying,” and “I just sit in a daze and contemplate the end of my life” (Barrett 2009). In her book *Unnatural Selection*, journalist Mara Hvistendahl suggests that many who use new sex-selective reproductive technologies are actually shielding themselves from a similar sort of disappointment, as illustrated by an interview with a patient using in vitro fertilization to sex-select a son: “I didn’t want to be in a disappointed state where I try for a boy and then end up with a girl again” (2011).

According to medical anthropologist Andrea Whittaker (2011), online expressions of feelings of disappointment, guilt, and desperation about the sex of one’s children have led to pathologizing such feelings as a syndrome with a name: ‘gender disappointment (GD)’ or ‘extreme gender disappointment (EGD).’ Coined ‘gender disappointment’ by the women online themselves, this depression is basically “a deep grief arising from not getting what we want” in terms of the sex of children (Hvistendahl 2011). This social legitimization of feelings and experiences and giving them a label of this nature is a potential example of how electronic support groups (and media) can contribute to consumer-driven ‘medicalization’—defining human experiences in medical terms or treating them using medical interventions (Barker 2008; Conrad 2005).

Although some popular media argue that gender disappointment among women is primarily driven by hopes for girls (Associated Press 2009; Barrett 2009), Whittaker (2011) notes that women posting online already have children of a single sex and have desires for the other fueled by highly stereotyped depictions of boys and girls. Therefore, having an unmet desire for at least one son and one daughter may lead to negative

consequences for the well-being of mothers. A large body of research suggests that unfulfilled expectations for a mixed-sex composition in Western countries have fertility-related ramifications, where couples with all boys or all girls are more likely to have a third child compared to those with a mixed-sex pair (see Hank 2007 for a review). Yet research has not examined the psychological consequences of an unfulfilled desire for at least one boy and one girl.

Discrepancy theories argue that unrealized expectations may have a negative effect on psychological well-being (Higgins 1987; Michalos 1985), and research has found this to be true in related realms of family-building regarding expectations about marrying and becoming parents (Carlson and Williams 2011; Koropecj-Cox 2002; McLaughlin 2004; Simon and Marcussen 1999). In addition, some research on postpartum depression also supports this framework. For example, studies find an association between mothers' postpartum depression scores and not giving birth to a child of their preferred sex (Adewuya 2006; Boyce and Hickey 2005; Ekuklu et al. 2004; Kheirabadi et al. 2009; Patel, Rodrigues, and DeSouza 2002). However, such research has examined preferences for an individual birth, rather than overall compositional preferences. There is an important distinction between the two because preferences for a specific birth do not always directly represent an overall sex composition preference, even when viewed in light of the sex of previous children. Furthermore, overall compositional preferences are larger, broader family-building goals that may carry more weight than sex preferences for individual births.

Addressing this gap in the research is the focus of this study. I employ multivariate regression techniques to determine whether valuing a mixed-sex

composition but not obtaining it has negative consequences for mothers' psychological well-being, controlling for prior depressive symptoms, stressful situations, and demographics. Because evidence for 'gender disappointment' and prior research focuses on women, these analyses likewise address women. Using nationally representative data from the National Family of Survey and Households (NSFH), I examine whether child sex composition, beliefs in the importance of having at least one boy and one girl, and their interactions predict three outcomes—depressive symptoms, overall life satisfaction, and satisfaction with family life among mothers.

Such a study is important given recent media attention on the possible existence of 'gender disappointment' and stories in online forums suggesting that an unmet desire for at least one son and one daughter may lead to poor psychological well-being among women. It therefore has the potential to contribute to the literature on unmet expectations, medicalization, and on the social factors related to postpartum depression. Although 'gender disappointment' has not been officially linked to postpartum depression in the medical world, the two phenomena seem to bear some resemblance. The Diagnostic and Statistical Manual (DSM-IV) defines postpartum depression as two weeks or more of depressed mood, loss of interest in daily activities, and at least four of the following symptoms: appetite disturbance, sleep disturbance, psychomotor agitation or slowing, fatigue, feelings of worthlessness or inappropriate guilt, poor concentration, and suicidal ideation within the four weeks of birth (Sit and Wisner 2009). The experiences and symptoms of some of the women described seem to be similar to these, although only a trained clinician evaluating such women directly can make that judgment. Given that past research just mentioned already links sex preferences to

postpartum depression scores, it may be only a matter of time before this happens in the case of ‘gender disappointment’ as well.

## **Background**

### *Child Sex Composition and Well-being*

The effect of parenthood on well-being has been widely studied, but the vast majority of studies compare parents to non-parents (see Umberson, Pudrovska, and Reczek 2010 for a review of the past decade's research). Fewer studies have explored the relationship between the sex composition of multiple children—or the sex of single children, for that matter—and parents’ psychological well-being while children are young. A study in Sweden found that women who gave birth to boys had higher risk of depressive symptoms five days after the birth, but not at six weeks or six months (Sylvén et al. 2011). Researchers in France (de Tychey et al. 2008) found that having a son was positively associated with postnatal depression among women four to eight months postpartum, regardless of the number and sex of children previously born.

In the mid-1980s, Barbara Katz Rothman (1993) interviewed 50 U.S. women who learned the sex of the fetus they were carrying through amniocentesis, exploring their emotional reactions to the sex of the child. Of the 32 who were pleased at the announcement, 24 of them were carrying daughters. This was true for girls of all birth orders and even included eight women who already had only girls. Of the ten who were disappointed, all ten were carrying a male fetus. Five of these were having firstborn sons, three were having sons with both older brothers and sisters, and only two were having sons with just older brothers. The only women pleased to be having sons were two expecting firstborn sons, four who already had daughters but not sons, and two who were

expecting the second son in a five- and seven-child family. Of the eight women saying they were neither pleased nor disappointed, six were carrying boys. The author concludes that “boys were welcome when they ‘balanced’ a family. Girls were almost always welcome” (p. 148-149).

This appears to conflict with findings by de Tyche et al. (2008) because the study in France did not find that postnatal depression depended on the sex of previous children. All three of these studies occur in countries where the status of women and men at this time are equalizing and behavioral norms of childbearing appear to suggest an overall cultural value for having a mixed-sex composition (Hank 2007). Yet only findings by Rothman (1993) appear to support the idea that a mixed-sex composition may be associated with greater psychological well-being in the U.S., and specifically only compared to those with all boys. However, her study did not capture the strength of the emotions ‘pleased’ and ‘disappointed’ or their duration. Given this lack of specificity and the overall mixed results of these studies together, they do little to help inform hypotheses about the relationship between children’s sex composition itself and mothers’ psychological well-being in the U.S.

In the U.S., families of same-sex children have been viewed as problematic by women in online forums experiencing ‘gender disappointment,’ and a need for ‘gender variety’ has become a problem that can be medically addressed by fertility clinics, which market their sex-selective reproductive technologies under the label of ‘family balancing’ services (Whittaker 2011). This suggests a cultural climate that values mixed-sex compositions in the U.S. Nonetheless, there is no theoretical reason to suggest that the sex composition of children *in and of itself*—apart from a macro-level sociocultural value

attached to having a mixed-sex composition—influences mothers' psychological well-being in the U.S. That is to say, there is nothing inherent to particular sex compositions that would suggest that one over others leads to better well-being for parents while children are young.

Furthermore, although there is a larger cultural environment that values having mixed-sex children, there is no evidence I am aware of to suggest that this is borne out in actual differences in social or economic resources accrued by families with mixed-sex children compared to those with all boys or all girls. In contrast, in some countries valuing boys over girls, families may experience real social and economic rewards for having sons. Given a lack of evidence that cultural values translate into actual benefits for parents of mixed-sex children, I do not expect to see a main effect association between mothers' postnatal psychological well-being and the sex composition of children. The relationship between psychological well-being and sex compositions as they relate to culturally-influenced, individual ideals that go unmet, on the other hand, is another matter entirely and the topic of the next section.

#### *Family-building Expectations and Well-being*

Larger sociocultural climates can lead to individual sex composition preferences that may have effects on psychological well-being when they are not met or denied. However, it is important to note that such effects may be because a person idealized something and did not get it, rather than because particular sex compositions bring actual rewards (although in some cases this may happen as well and may be the reason that one sex composition is preferred over another in the first place). Therefore, whether or not systems of status rewarding some sex compositions over others are present, the negative

psychological well-being a person experiences may be due to an individual's idealization of a particular sex composition that was subsequently not met. There are both theoretical reasons and research results to suggest that the psychological well-being of mothers from different sex composition groups may vary depending on the expectations they had regarding the sex of their children.

Discrepancy theories (Higgins 1987; Michalos 1985) argue that gaps between ideals or expectations (the "ideal/ought self") and actual reality *signify* the loss of perceived positive outcomes and are associated with negative emotions. Consistent with this view, research has shown that the effect of certain family-building transitions on psychological well-being depends on how much a person values marriage, parenthood, and even the timing or sequencing of those events (Carlson and Williams 2011; Koropecykj-Cox 2002; McLaughlin 2004; Simon and Marcussen 1999). For example, those who did not expect to have children before marriage are more likely to experience lower psychological well-being due to premarital childbearing and the strains of single parenthood than those who expected children before marriage (Carlson and Williams 2011).

In addition, research suggests that fulfilled or unfulfilled ideals regarding the sex of children matter for psychological well-being. Studies have found a link between postnatal depression scores and having a child of the sex mothers did not prefer in countries such as India (Patel, Rodrigues, and DeSouza 2002), Turkey (Ekuklu et al. 2004), Nigeria (Adewuya 2006), and rural Iran (Kheirabadi et al. 2009). Although preferences in these countries were often for boys based on the economic and status

rewards that may result, there was not a main effect for child sex in some studies. Rather, the effect of child sex in some cases depended on the mother's sex preference.

Fewer studies have used samples in more industrialized countries. Boyce and Hickey (2005) found a significantly increased risk for postnatal depression among Australian women having a baby of the nondesired sex, but this variable was not included in the later multivariate model. Walker (1992) found that U.S. women who learned the sex of their fetus through amniocentesis were "elated" and "thrilled" when the sex was what they preferred, yet others described being "sad," "frustrated," and "upset" or needing time to "adjust" to the "loss" they were experiencing when the sex of the fetus was incongruent with their desires (p. 297-8).

Further, Teichman, Rabinovitz and Rabinovitz (1992) examined 149 Israeli women's levels of anxiety and depression before expressing a sex preference, after an ultrasound exam, and 38-48 hours postpartum in both first-time mothers and third-time mothers who had either two girls or two boys already. For first time mothers, information given at the ultrasound (including fetal sex) had a calming effect regardless of sex preference. For third-time mothers, significant changes in emotion were experienced only by those with two sons who preferred a daughter and learned they would be having another son—they experienced a significant increase in anxiety and depression after the ultrasound, but those levels decreased to below baseline after the birth.

Such studies suggest that gaps between ideals and reality regarding the sex of children may be associated with psychological consequences, yet they all examine preferred versus actual sex of an individual birth, rather than overall sex composition

preferences versus achieved reality. Although preferences for an individual birth may be a reflection of an overall sex composition in some cases, overall sex composition preferences cannot always be accurately inferred from preferences for an individual birth. For example, a woman with a son may say she prefers a daughter for her next child, but this preference may be driven by an outright preference for girls over boys. If it is achieved, she may be satisfied with the outcome of the individual birth but still disappointed that her overall preference for all daughters was not met. In addition, overall compositional preferences are larger, broader family-building goals that have the potential to carry more weight than sex preferences for individual births.

As described earlier, there is evidence of a larger cultural climate in the U.S. that values mixed-sex compositions, and this appears to be mirrored in individual preferences as well—surveys suggest that having all boys or all girls are the least popular sex compositions (Coombs 1977; Dahl et al. 2006; Sensibaugh and Yarab 1997). Drawing on discrepancy theories, women who consider it important to have at least one boy and one girl but do not achieve this ideal may experience negative psychological consequences. Therefore, although I do not expect a main effect of sex compositions on psychological well-being that would be based on actual rewards for different sex compositions, I do hypothesize a significant interaction between sex composition and the degree to which mothers value the mixed-sex ideal. I expect that those with unmet ideals for a mixed-sex composition will have lower psychological well-being than those who had no such expectation.

In sum, past research focusing on women finds that unmet sex preferences for individual births are related to the psychological well-being of mothers. However, such

studies do not examine how valuing a mixed-sex composition and not obtaining it may be related to psychological well-being. Furthermore, these studies have typically used either scales of depressive symptoms often used to screen for postpartum depression or general emotional reactions (e.g., “thrilled,” “pleased,” “disappointed,” “sad,” etc.). Depression is an affective measure, and different measures representing other aspects of psychological well-being such as satisfaction—a cognitive measure—may better capture or respond to disappointment about what we have relative to what we want. Therefore, this study extends prior research focusing on mothers’ psychological well-being to examine whether child sex composition, beliefs in the importance of having at least one boy and one girl, and their interactions predict three outcomes—depressive symptoms, overall life satisfaction, and satisfaction with family life.

#### *Other Influences on Psychological Well-Being and a Mixed-Sex Preference*

A variety of other influences may play a role in psychological well-being, so it is important to control for them. For example, it is possible that poor psychological well-being at any given time may be due to prior, ongoing depression rather than to unfulfilled desires for a mixed-sex composition. Research has also found that psychological well-being is influenced by situational conditions such as poor physical health, the recent loss of a loved one through death or separation/divorce, or involuntary termination from a job (Dew, Bromet, and Penkower 1992; Dolan, Peasgood, and White 2008; Gove and Shin 1989). In addition, psychological well-being depends on the number of children one has, as well as how long ago the last child was born (Margolis and Myrskylä 2011; Umberson and Gove 1989).

Some sociodemographic characteristics are associated with both psychological well-being outcomes and a desire for mixed-sex children, so a spurious association may exist between these two sets of variables if sociodemographics are not controlled. Past work has shown that age, education, race/ethnicity, and rural/urban residence are all associated with psychological well-being (Diener 2009; Dolan, Peasgood, and White 2008; Probst et al. 2006). Research on sex preferences also finds that birth cohort (or perhaps age) and education are associated with believing it is important to have both sons and daughters in a family (Young 1977). In addition, ethnicity and rural/urban residence were found to be associated with attitudes about having a particular composition or balance of boys and girls (Arnold and Fawcett 1975). To avoid potential confounding effects, I therefore control for age, education, race/ethnicity, and rural/urban residence.

## **Methods**

### *Data and Sample*

This research analyzes public use, secondary data from the National Survey of Families and Households (NSFH) (Sweet, Bumpass, and Call 1988; Sweet and Bumpass 1996). The NSFH is a three-part, longitudinal study using a probability sample of 13,007 households from all over the United States, with an oversampling of Blacks, Puerto Ricans, Mexican Americans, single-parent families, families with step-children, cohabiting couples and recently married persons. Data were collected using a face-to-face interview methodology along with self-administered questionnaires for the randomly-selected main respondent, their spouse/cohabiting partner, and one focal child.

This analytic subsample draws from those 6,131 adult female respondents who participated in both Waves I (1987-1988) and II (1992-1994). In addition, it includes

only those cases that answered a question about the importance of “having at least one boy and one girl” (2,941 excluded; n=3,190). This item was part of a Wave I module administered to male and female respondents of childbearing age; for women, this age was 39 or younger. I also eliminate those who already had two biological children at the Wave I interview because some research indicates a rationalization bias, where the answers given to questions about preferred sex compositions often reflected the sex composition of current children (Arnold and Kuo 1984; Clare and Kiser 1951). Those with two boys or two girls may be less likely to admit a desire to have at least one boy and one girl, so the analytic sample is limited to women with one child or no children at Wave I (1,522 excluded; n=1,668).

This analytic subsample further excludes those women reporting that she or a spouse/partner (in continuously partnered couples) had an operation that prevents childbirth prior to Wave I (77 excluded; n=1,591). In addition, it is not known how having foster, adopted, or step-children or children of a cohabiting partner may influence perceptions of having fulfilled the mixed-sex ideal. Therefore, I exclude cases that report having non-biological children (299 excluded; n=1,292). Last, I eliminate women that still only had one or no children at the Wave II interview (856 excluded; n=436). The final analytic subsample includes 420 women with complete data on all variables<sup>14</sup>.

Because I exclude those who did not have at least two children sometime between Waves I and II, the excluded group differs from the analytic sample on the key independent variable of sex composition. In addition, prior analyses show that those with two children or more at Wave I (also excluded from this sample) differ on the other key

independent variable of subscription to the mixed-sex ideal—those with two or more children already tend to rate having a mixed-sex composition as less important than those with no children or one child. However, excluded women are not significantly different than the analytic sample on any of the dependent variables.

### *Dependent Variables*

#### *Depressive Symptoms*

The outcome *depressive symptoms* is a continuous variable that comes from the short form of the Center for Epidemiologic Studies Depression Scale (CES-D). The 12 items included in the scale ask, “On how many days during the past week did you: 1) Feel bothered by things that usually don't bother you? 2) Not feel like eating; your appetite was poor? 3) Feel that you could not shake off the blues even with help from your family or friends? 4) Have trouble keeping your mind on what you were doing? 5) Feel depressed? 6) Feel that everything you did was an effort? 7) Feel fearful? 8) Sleep restlessly? 9) Talk less than usual? 10) Feel lonely? 11) Feel sad? 12) Feel you could not get going?” Scores from Wave II were averaged to produce a scale ( $\alpha = 0.91$  in analytic sample) on which higher numbers represent greater depressive symptomatology. For cases missing information on just one of the 12 items, I imputed the average of the other 11 items as the value for that item. Because of the skewed nature of the distribution toward fewer depressive symptoms, which caused the error terms to be not normally distributed, I take the square root of this scale as the dependent variable.

#### *Life satisfaction*

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<sup>14</sup> I eliminated 13 cases with missing data on dependent variables. I also eliminated the three most extreme outliers on the dependent variable, which Cook's D determined to be influential cases.

The dependent variable *life satisfaction* is a dichotomous variable formed from women's Wave II responses to the statement, "When I look at the story of my life, I am pleased about how things have turned out." Individuals could indicate one of six levels of agreement, from Strongly/Moderately/Slightly Agree to Strongly/Moderately/Slightly Disagree. I compare those who agreed at any level (1) to those who disagreed at any level (0).

#### *Satisfaction with Family Life*

The outcome *family satisfaction* is a dichotomous indicator constructed from a single item in a Wave II series of items asking respondents, "Overall, how satisfied are you with..." Satisfaction with "Your family life" could be rated on a seven-point scale on which end points were labeled "Very Dissatisfied" (1) and "Very Satisfied" (7). The distribution of this scale was severely skewed toward high family satisfaction and could not be corrected using a variety of transformations. Due to problems this caused with distribution of the error terms, I coded those individuals with scores of 6 and 7 as 1 ("very satisfied") on this dichotomous variable, and those with scores of 1 through 5 as 0 ("not very satisfied")<sup>15</sup>.

#### *Independent Variables*

The *mixed-sex ideal* measure comes from a Wave I module on fertility considerations. The NSFH reads, "Below is a list of things that some people consider when thinking about having a child or another child. Please circle how important you feel each is to you at present time." "Having at least one boy and one girl" is one item

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<sup>15</sup> I cannot know for certain where most people decide "very satisfied" becomes "not satisfied" because only the two extremes are given labels. Therefore, I conducted sensitivity analyses in which I tested an outcome coding only those with scores of 7 as "very satisfied" and results were not significantly different.

that respondents rank on a scale from 1 to 7, with 1 being “not at all important” and 7 being “very important.” This measure was coded into three categories representing rankings of 1 (not important), 2 to 4 (moderately important), and 5 to 7 (very important), based on earlier analyses and distributional patterns. I use information on age and sex from rosters of children living away and in the household to determine the sex composition of children born to each woman by Wave II. The variable *sex composition* classifies children as mixed-sex, all boys, or all girls.

### *Control Variables*

It is possible that poor psychological well-being at Wave II may be due to prior, ongoing depression rather than to unfulfilled desires for a mixed-sex composition. Therefore, I control for *prior depression* using the Wave II item, “Have you had 2 years or more in your life when you felt depressed or sad most days, even if you felt okay sometimes?” Those who responded affirmatively were coded as having experienced depression previously (1) on this dichotomous indicator, and those who did not were coded as not having prior depression (0).

I also control for a variety of situational factors that may play a role in psychological well-being. First, the dummy variable *health problems* indicates whether a woman’s self-rated health was very poor, poor, or fair; whether she reported being limited in activities by her health; and/or whether satisfaction with her health was 1 through 4 on a scale ranging from 1 (very dissatisfied) to 7 (extremely satisfied). Second, the dummy variable *recent loss* indicates those women who experienced any of the following over the last year: the death of a parent, spouse, or child; a divorce or separation from a partner; or the inability to find a job for two months or longer. I also

control for the *number of children* a respondent has, which I collapsed into the categories of “two” and “three or more” due to skewness that caused error terms to be not normally distributed. Last, how long ago a woman had her *last child* is a continuous variable that represents the number of years between the Wave II interview and the birth of the most recent child. It ranges from 0 (less than one year) to 6 but was top-coded at 4 to reduce skewness causing error terms that were not normally distributed.

In order to make sure that any possible relationships between well-being and the importance of having mixed-sex children are not spurious, models control for a number of sociodemographic characteristics that are associated with both independent and dependent variables. Respondents’ *age* is a continuous variable representing a woman’s age in years at the Wave II interview<sup>16</sup>. I also collapsed the highest level of completed *education* at Wave II into the groups “less than high school,” “high school diploma/GED,” “some college or associate’s degree,” and “bachelor’s degree or higher.” *Race/ethnicity* represents the categories “non-Hispanic Black,” “non-Hispanic White,” and “Other,” which combines American Indians, Asians, and Hispanics/Latinos due to their small representation in the sample<sup>17</sup>. The dichotomous variable *rural* classifies those that do not live in a Standard Metropolitan Statistical Area (SMSA) as rural respondents, and those that live in an SMSA as urban.

### *Analytic Strategy*

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<sup>16</sup> I also explored whether age might not operate in a linear fashion by including nonlinear variables such as quadratic and log functions, as well as a categorical version of the variable. In the interest of model parsimony, given the lack of significant effects otherwise, I use the linear, continuous version of this variable.

<sup>17</sup> Some zero cells resulted from keeping American Indians/Asians as a distinct category of “non-Hispanic Other.” I ran separate analyses excluding those in the non-Hispanic Other category rather than folding them in with Hispanic/Latino. Results were similar. I include them in this manner to increase power on key independent variable interactions.

I use multivariate regression to predict three measures of psychological well-being at Wave II—depressive symptoms, life satisfaction, and satisfaction with family life. I use ordinary least squares regression in analyses involving the continuous outcome of depressive symptoms, and logistic regression in models predicting life satisfaction and satisfaction with family life. For each of the three outcomes, I first examine the main effects of the two key independent variables (sex composition and subscription to the mixed-sex ideal). I then add controls for prior depression, stressful situations, and demographic factors. I next use two-way interactions to assess whether the effect of sex composition depends on the importance of having at least one boy and one girl. In full models, I assess the effect of the interactions controlling for prior depression, stressful situations, and demographic factors. All statistics adjust for complex survey design using svy procedures in Stata 12.1. Descriptive statistics for the analytic sample for all variables are also weighted.

## **Results**

[TABLE 4.1 ABOUT HERE]

Table 4.1 shows descriptive statistics for the analytic sample, specifically weighted means and percentages for each study variable. On average the level of depressive symptoms at Wave II was 1.13 days in the last week experiencing various depressive symptoms (out of a possible total of 7 days). In addition, roughly 81.5% of the sample indicated that they were pleased with how their life had turned out so far, and 70.0% reported that they were very satisfied with family life at Wave II. About half (50.7%) had a mixed-sex composition of two or more children by Wave II, and the importance of ‘having at least one boy and one girl’ at Wave I was split roughly into

thirds between each of the three levels of importance (not important = 36%, moderately important = 34%, very important = 30%).

*Sex Composition, Mixed-Sex Ideals, and Depressive Symptoms*

[TABLE 4.2 ABOUT HERE]

Results from four ordinary least squares regressions predicting depressive symptoms are presented in Table 4.2. Model 1 demonstrates that the sex composition of a woman's children was not related to depressive symptoms. Compared to the mixed-sex reference group, having all boys or all girls was not significantly associated with higher depressive symptomatology scores measured by the CES-D. Subscription to the mixed-sex ideal was positively associated with depressive symptomatology—women who believe it is moderately important to have at least one boy and one girl had higher scores on the CES-D depression scale than those who believe a mixed-sex composition is not at all important. In addition, very strongly endorsing the mixed-sex ideal as opposed to not at all was associated with more depressive symptoms, although this effect was only marginally significant. In Model 2, which controls for other factors, the effect of believing it is moderately important to have at least one boy and one girl on depressive symptomatology is still significant in the presence of control variables. This result suggests that the relationship between moderate subscription to the mixed-sex ideal and depressive symptoms is not explained by other variables.

Model 3 presents coefficients for main effects and interactions prior to the addition of controls. This regression indicates that interactions between sex composition and the importance of having a mixed-sex composition are not significant overall. Their addition to the main effects only model (Model 1) in the absence of control variables only

explains less than 1% of additional variance above and beyond the main effect of the mixed-sex ideal variable. In addition, none of the four interaction terms themselves are significant, suggesting that the effect of subscription to the mixed-sex ideal on depressive symptoms does not vary depending on the sex composition of one's children. Model 4 presents results for main effects, interactions, and control variables predicting depressive symptomatology. The addition of control variables does not change results from Model 3 and interactions remain not significant.

*Sex Composition, Mixed-Sex Ideals, and Life Satisfaction*

[TABLE 4.3 ABOUT HERE]

Table 4.3 presents results from logistic regressions predicting life satisfaction. Results from Model 1 indicate that the sex composition of a woman's children is not associated with life satisfaction—having all boys or all girls was not significantly related to being more or less pleased with one's life compared to women with a mixed-sex composition. Beliefs that a mixed-sex composition is very important or moderately important were also not associated with life satisfaction. Model 2 confirms a lack of main effects overall, as the addition of control variables does not change the significance of those terms.

The regression in Model 3 indicates that interactions between sex composition and the importance of having a mixed-sex composition are not significant overall, nor are the individual interaction terms significant. These results indicate that there is no relationship between sex composition of children and life satisfaction that depends on a woman's subscription to the mixed-sex ideal. The addition of control variables seen in

Model 4 confirms this lack of interaction effects overall, as those terms remain not significant.

*Sex Composition, Mixed-Sex Ideals, and Satisfaction with Family Life*

[TABLE 4.4 ABOUT HERE]

Table 4.4 displays results from four logistic regressions predicting satisfaction with family life. Results from Model 1 reveal that the sex composition of a woman's children is not related to life satisfaction in the realm of family. Compared to women with children of a mixed-sex composition, those with all boys or all girls were not significantly more or less satisfied with family life. Valuing a mixed-sex composition was negatively associated with family satisfaction, where women who believe it is moderately important to have at least one boy and one girl had 39% lower odds of feeling very satisfied with family life, compared to those who believe a mixed-sex composition is not at all important. Those with very strong beliefs in the importance of a mixed-sex composition were not significantly different in terms of family satisfaction from those who believe a mixed-sex composition is not important.

Model 2 shows that the effect of moderately strong beliefs in the importance of a mixed-sex composition has attenuated after controlling for prior depression, stressful situations, and demographic factors. Post-hoc analysis examining this effect in the presence of individual control variables finds that it is age and education that explain this attenuation, even though they themselves are not significant in this model or in models by themselves. It has a marginal effect on the outcome even in the presence of other variables ( $p=.065$ ), but its effects are primarily due to age and education differences.

Results for Model 3 indicate that overall interactions between sex composition and the mixed-sex ideal and their respective interaction terms are not significant. The addition of control variables in Model 4 does not change this. Overall, such results suggest that the effect of moderate subscription to the mixed-sex ideal on family satisfaction does not vary depending on the sex composition of one's children.

## **Discussion**

Recent literature focusing primarily on non-Western countries where boys are valued is increasingly examining the impact that the sex of a child born has on psychological well-being. Studies are also beginning to account for women's pre-birth hopes for the sex of that child, showing that a gap between expectations and reality in terms of the sex of the child can have negative psychological consequences (Adewuya 2006; Ekuklu et al. 2004; Kheirabadi et al. 2009; Patel, Rodrigues, and DeSouza 2002). However, less is known about what it means for psychological well-being in an industrialized context when an overall compositional desire for at least one son and one daughter goes unmet. Drawing on discrepancy theories' arguments that unrealized expectations may result in negative psychological well-being, these analyses address the question of whether subscribing to the mixed-sex ideal but having all boys or all girls has negative consequences for women's psychological well-being.

Given a lack of evidence and theoretical reasons to believe that women with mixed-sex versus same-sex children would differ in their psychological well-being due to sex composition alone, I hypothesized that sex composition of the children itself would not be associated with psychological well-being. For all three outcomes—depressive symptoms, overall life satisfaction, and satisfaction with family life—this hypothesis was

supported. No models yielded results to suggest that having a mixed-sex composition was better for well-being than having all sons or all daughters. Although same-sex families are viewed as problematic by women in online forums and pathologized by fertility clinics marketing sex-selection reproductive technologies (Whittaker 2011), the empirical reality suggested by these analyses is that mothers of such ‘unbalanced’ families are no worse off in terms of psychological well-being than those who have at least one son and one daughter.

Based on discrepancy theories, I hypothesized instead that psychological well-being may vary for mothers of different sex compositions depending on how much they actually valued having a mixed-sex composition. I proposed that those women who consider it important to have at least one boy and one girl but do not achieve this ideal may experience negative psychological well-being. However, for all three psychological well-being outcomes, this hypothesis was not borne out. No models provided results indicating that those with unmet desires for a mixed-sex composition have more depressive symptoms, are less pleased with how their life has turned out so far, or are less satisfied with family life than those who had no such expectation.

There are three possible explanations for this discrepancy between hypothesized and actual results. First, it may be that those actually affected in a measurable way by unmet ideals for mixed-sex children are too small in number relative to the overall population. Past research finds associations between preferences for the sex of an individual child and postpartum depression scores, so it is reasonable to think of postpartum depression as a particular case that might help explain results with regard to the mixed-sex ideal. It is estimated that postpartum depression itself affects around 10-

15% of women (Robertson et al. 2004). The proportion of those whose postnatal well-being is due to not having a mixed-sex composition of children is likely to be even smaller, as roughly 50% of all people with two children—and 75% of those with three—have a mixed-sex pair due to chance alone (Freedman, Freedman, and Whelpton 1960). In addition, it was ‘very important’ to have at least one boy and girl for roughly 30% of the entire study sample, so for many with same-sex compositions, this is not seen as undesirable. Therefore, the ‘gender disappointment’ described by women online may only affect a very small proportion of women who have all managed to find one another due to the internet’s ability to connect statistical minorities. If this is the case, the limited size of this analytic sample and associated small cell sizes in the proposed interactions may limit the power available to detect it.

Second, it may be that negative psychological consequences do result from unrealized hopes for a mixed-sex composition in the U.S. at a rate detectable in statistical analyses, but that the effects are too short-lived to be measureable using these data. Again, using postpartum depression as case with similarities to ‘gender disappointment,’ it is noteworthy that postpartum depression typically resolves within several months of onset for a majority of women. Although the effects of unmet expectations related to marriage and parenthood can have enduring negative effects on psychological well-being (Carlson and Williams 2011; Koropecj-Cox 2002; McLaughlin 2004; Simon and Marcussen 1999), Sylvén et al. (2011) found that the sex of a child born to Swedish women was associated with depressive symptomatology at five days—but not six weeks or six months—after delivery. Although time since the last child was born could be calculated in months using these data, too few had their latest child recently enough to

conduct meaningful analyses examining whether interactions between sex composition and importance of the mixed-sex ideal varied with time since the most recent child's birth. Therefore, it may be that mothers with unmet sex composition ideals have resolved their disappointment within a time period far shorter than these data are able to represent, as the most recent child was born two years prior to the Wave II interview on average.

Both explanations suggest that we are not very good at predicting the intensity and duration of the happiness or unhappiness we associate with certain events or nonevents. Some researchers argue that there is often an "impact bias" in affective forecasting whereby people overestimate the profound, enduring impact future events will have on their emotional well-being (Gilbert, Driver-Linn, and Wilson 2002). The results of this analysis seem to indicate that among the majority of women for whom 'having at least one boy and one girl' is very important, obtaining it may not make them as happy as they expected. Likewise, having only boys or only girls may not be associated with as much measurable and enduring *unhappiness* as those wanting a mixed-sex composition expected.

Finally, it may be that 'gender disappointment' does exist as a measurable condition lasting more than a few days to several weeks, but that it is a uniquely modern, socially-constructed phenomenon not reflected in these data. In the same way that consumer-driven medicalization is happening in similar electronic support groups (Barker 2008; Conrad 2005), the term 'gender disappointment' is "an internet-era label" (Barrett 2009) that arose online among a select group of women users of internet forums (Barrett 2009; Whittaker 2011). Although Stephanie Lewis, described in the *Elle* article at the beginning of this chapter (Barrett 2009), thought she was alone in feeling the

anguish she felt, she was astonished to find a large community of supporters online. The connection and anonymity afforded by the internet today may have resulted in the social construction of a new cultural climate of emotional responses to unmet sex composition ideals, changing the environment from some variant of ‘as long as it’s healthy’ (Associated Press 2009) to acceptable disappointment when desires are unmet. In sum, these data are from 1988 through 1994—a pre-internet era that may be pre-‘gender disappointment,’ as well.

Last, it was unexpected but noteworthy to see that placing moderate importance on having a mixed-sex composition compared to none was itself associated with both more depressive symptoms and lower odds of being very satisfied with family life. Furthermore, in the presence of control variables, this main effect did not disappear in models for depressive symptoms and attenuated somewhat to still-marginal significance for satisfaction with family life. In addition, a main effect for strong subscription to the mixed-sex ideal trended toward marginal significance ( $p=0.86$ ) in the baseline model for depressive symptoms, with attenuation in the presence of controls. Previous analyses from an earlier chapter found that demographics such as lower education and younger age may lead to or account for a person’s subscription to the mixed-sex ideal, which explains why its effect on satisfaction with family life showed attenuation in the presence of these two variables. Nonetheless, it is important to note that this effect did not exist for overall life satisfaction, suggesting that the effects of endorsing a mixed-sex ideal are not global as far as they relate to satisfaction; rather they are specific to assessments of family life.

The existence of these main effects for depressive symptoms and satisfaction with family life that result from lower education and younger age suggests that having expectations for the sex composition of children—regardless of whether or not they are met—sets a person up for poorer psychological well-being down the road. Previous analyses showed that having certain beliefs about family-building were associated with subscription to the mixed-sex ideal. Expectations about unshared roles of men/women and boys/girls; about caregiving by children in old age; and about marriage, parenthood, and having certain types of family structures were all associated with subscription to the mixed-sex ideal. Perhaps this indicates that women who believe in the importance of having mixed-sex children have higher or more rigid expectations in many domains of family life that set them up for greater disappointment and poorer psychological well-being.

#### *Strengths, Limitations and Directions for Future Research*

One key strength of this study is that it uses multiple measures to capture different dimensions of psychological well-being, both affective and cognitive, rather than looking only at depression or general, non-specific emotional reactions. Second, this survey includes a direct measure of how important it is to a person to have at least one boy and one girl, rather than assuming this or inferring it from the sex of a person's other children. Furthermore, because this measure was collected prior to the birth of a second child, it is unaffected by any rationalization bias that may occur due to having already reached the normative or ideal number of children.

This study is limited in several ways. First, although it uses nationally representative data, the sample is restricted to women with only two or more biological

children. As less normative family structures such as blended families or having single children become more common, the analytic sample used here becomes less representative of family life in the U.S. today. Results found in these analyses may therefore become less relevant if other family structures view having a mixed-sex composition differently than those with two or more biological children. Second, the number of women having their last child within several weeks of the birth is too small to conduct meaningful analyses. Therefore, this study does not live up to its potential to inform some of the current research related to postpartum depression.

Furthermore, sample size also limited subgroup analyses that are important to pursue in future work, such as whether or not the same results apply to men, and how results might differ by social class. It is difficult to speculate about whether or how poorer psychological well-being related to unachieved mixed-sex compositional ideals might manifest among different social class groups. For instance, preliminary analyses showed that strong endorsement of the mixed-sex ideal is associated with increasingly lower levels of education, yet remaining digital divides suggest that women posting online experiences of 'gender disappointment' are more likely to be of higher socioeconomic status. These dynamics merit further exploration.

Finally, the fact that data were from 1987-88 and 1992-94 means that they may not represent the current climate surrounding relationships between sex composition of children, sex composition ideals, and well-being. There may have been recent shifts in how strongly people value having at least one boy and one girl that make these results less representative of current trends. Furthermore, changes in reproductive technology in the mid- to late '90s after these data were collected offer the ability to find out the sex of

the fetus before birth through routine ultrasound (rather than as an option only in high-risk cases through amniocentesis). This could mean that depressive symptoms related to unmet sex composition ideals may be less likely to happen postpartum and more likely to happen in the second trimester after ultrasounds. Or, with the ability to sex-select prior to conception through in vitro fertilization and practices of aborting based on fetal sex revealed in prenatal ultrasounds (Hvistendahl 2011; Puri et al. 2011), perhaps current levels of postpartum ‘gender disappointment’ that may exist will soon disappear entirely.

Such changes in reproductive technology that allow one’s sex composition ideals to be met open important avenues for future research. It is important to know whether desires for particular sex compositions have become stronger or more commonplace in an environment where something previously governed by chance alone has become one of many aspects of reproduction and medicine that are now consumer-controlled choices (Barker 2008; Conrad 2005; Wertz and Fletcher 1989). In addition, what happens when the sex composition of children matches what parents desired, but one or more children do not conform to the sex-typed expectations parents held? What are the implications for the well-being of both parents and children? Such questions can only be answered by data not yet in existence but are important ones to answer in order to help inform ethical debates surrounding the regulation of developing reproductive technologies.

### *Conclusions*

These analyses help fill gaps in the research on the sex composition of children and ideals regarding mixed- vs. same-sex configurations that may play a role in psychological well-being. Despite discussions in online forums and fertility clinics’ marketing materials suggesting that same-sex families are ‘unbalanced’ and therefore

problematic, this research provides evidence that mothers of same-sex children are no worse off in terms of psychological well-being than those who have at least one son and one daughter. The sex composition of children—all boys, all girls, or mixed-sex—in and of itself was not associated with psychological well-being. Furthermore, this study adds to social psychological literature on unmet ideals by taking into account how important a mixed-sex composition was for each woman: It answers the question of whether having at least one boy and one girl only mattered for psychological well-being among those for whom it was important. Analyses revealed that those who wanted a mixed-sex composition but did not obtain it are no less happy than anyone else. Likewise, those who achieved a strong ideal they held for having mixed-sex children experienced no advantages to psychological well-being.

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Table 4.1. Frequencies and Weighted Means and Percentages for Study Variables, NSFH (n=420)

	Valid N Or Min/Max	Percent or Mean (SE)
<i>Dependent variables</i>		
Depressive symptoms	0, 5.58	1.13 (0.06)
Overall life satisfaction		
Pleased with life so far	348	81.45
Satisfaction with family life		
Very satisfied (0 = not 'very satisfied')	301	69.99
<i>Independent variables</i>		
Sex composition		
Mixed-sex	214	50.71
All boys	115	28.58
All girls	91	20.70
Mixed-sex ideal		
Not at all important	151	35.66
Moderately important	137	33.93
Very important	132	30.41
<i>Control variables</i>		
Prior depression (0 = no prior depression)	81	19.50
Health problems (0 = no health problems)	144	33.15
Recent loss (0 = no recent losses)	77	17.70
Number of Children		
Two	327	77.22
Three or more	93	22.78
Last child (in years)	0, 4	2.11 (0.08)
Age (in years)	23, 44	31.31 (0.26)
Education		
Less than high school	31	8.77
High school diploma/GED	148	34.74
Some college or associate's degree	128	29.47
College degree or higher	113	27.01
Race/ethnicity		
Non-Hispanic Black	63	12.34
Non-Hispanic White	338	82.42
Other	19	5.24
Urban/rural residence		
Urban	329	80.14
Rural	91	19.86

Note: Statistics are weighted and adjust for complex survey design using Stata 12.1 svy commands.

Table 4.2. Unstandardized Coefficients from Ordinary Least Squares Regressions  
 Predicting Women's Depressive Symptoms (Square Root), NSFH (n = 420)

	Model 1		Model 2		Model 3		Model 4	
	B	(SE)	B	(SE)	B	(SE)	B	(SE)
Independent variables								
Main effects								
Sex composition (ref = mixed)								
All boys	-0.08	-0.05	-0.07	-0.05	-0.04	-0.08	-0.03	-0.08
All girls	-0.02	-0.07	-0.07	-0.05	0.08	-0.10	-0.01	-0.08
Mixed-sex ideal (ref = not imp)								
Moderately important	0.12*	-0.05	0.11*	-0.04	0.14*	-0.06	0.12*	-0.06
Very important	0.13	-0.07	0.00	-0.06	0.20*	-0.08	0.06	-0.06
Interactions								
All boys x moderately imp					0.03	-0.12	0.00	-0.10
All girls x moderately imp					-0.14	-0.12	-0.14	-0.11
All boys x very important					-0.14	-0.14	-0.07	-0.12
All girls x very important					-0.18	-0.15	-0.13	-0.11
Control variables								
Prior depression			0.35***	-0.06			0.35***	-0.06
Health problems			0.18***	-0.05			0.17**	-0.05
Recent loss			0.22***	-0.06			0.22***	-0.06
Number of children (ref =Two)								
Three or more			0.02	-0.05			0.02	-0.05
Last child			-0.02	-0.02			-0.02	-0.02
Age			0.00	-0.01			0.00	-0.01
Education (ref = HS diploma)								
Less than high school			0.29***	-0.08			0.29***	-0.08
Some college/associate's			0.05	-0.05			0.05	-0.05
College degree or higher			-0.09	-0.06			-0.09	-0.06
Race/ethnicity (ref=NH White)								
Non-Hispanic Black			0.00	-0.07			-0.01	-0.07
Other			-0.10	-0.10			-0.10	-0.10
Rural residence (ref = Urban)			0.07	-0.05			0.07	-0.05
Intercept	0.91***	-0.05	0.90***	-0.19	0.88***	-0.05	0.89***	-0.18
R-squared	0.02		0.29		0.03		0.30	

\*  $p \leq .05$ , \*\*  $p \leq .01$ , \*\*\*  $p \leq .001$

Note: Analysis adjusts for complex survey design using Stata 12.1 svy commands.

Table 4.3. Odds Ratios from Logistic Regressions Predicting Overall Life Satisfaction, NSFH (n = 420)

	Model 1		Model 2		Model 3		Model 4	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
<b>Main effects</b>								
Sex composition (ref = mixed)								
All boys	1.57	(0.78, 3.14)	1.56	(0.67, 3.66)	1.10	(0.36, 3.41)	0.86	(0.26, 2.79)
All girls	0.82	(0.48, 1.40)	0.80	(0.44, 1.47)	0.45	(0.16, 1.28)	0.45	(0.15, 1.39)
Mixed-sex ideal (ref = not imp)								
Moderately important	0.93	(0.47, 1.86)	0.90	(0.38, 2.10)	0.67	(0.28, 1.58)	0.61	(0.21, 1.80)
Very important	0.70	(0.38, 1.28)	1.14	(0.53, 2.43)	0.47	(0.20, 1.12)	0.68	(0.24, 1.91)
<b>Interactions</b>								
All boys x moderately important					1.12	(0.26, 4.84)	1.46	(0.30, 7.21)
All girls x moderately important					2.72	(0.58, 12.77)	4.66	(0.87, 24.86)
All boys x very important					3.14	(0.67, 14.67)	2.96	(0.53, 16.53)
All girls x very important					2.06	(0.41, 10.36)	1.95	(0.32, 11.68)
<b>Control variables</b>								
Prior depression			0.27***	(0.14, 0.51)			0.24***	(0.13, 0.46)
Health problems			0.77	(0.43, 1.38)			0.83	(0.46, 1.49)
Recent loss			0.30**	(0.14, 0.61)			0.30**	(0.15, 0.64)
Three or more children (ref = Two)			0.91	(0.51, 1.61)			0.95	(0.53, 1.72)
Last child			1.05	(0.85, 1.30)			1.05	(0.84, 1.30)
Age			1.00	(0.92, 1.10)			1.01	(0.93, 1.10)
Education (ref = HS diploma)								
Less than high school			0.69	(0.22, 2.11)			0.71	(0.22, 2.26)
Some college			1.02	(0.46, 2.24)			1.04	(0.47, 2.31)
College degree or higher			1.56	(0.50, 4.91)			1.58	(0.49, 5.06)
Race/ethnicity (ref = NH White)								
Non-Hispanic Black			0.92	(0.40, 2.14)			0.98	(0.41, 2.36)
Other			1.21	(0.42, 3.51)			1.26	(0.38, 4.18)
Rural residence (ref = Urban)			0.60	(0.35, 1.05)			0.58*	(0.34, 1.00)
F statistic (df)	0.99(4)		3.19(16)		0.92(8)		2.18(20)	

\* p ≤ .05, \*\* p ≤ .01, \*\*\* p ≤ .001

Note: Analysis adjusts for complex survey design using Stata 12.1 svy commands.

Table 4.4. Odds Ratios from Logistic Regressions Predicting Satisfaction with Family Life, NSFH (n = 420)

	Model 1		Model 2		Model 3		Model 4	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Main effects								
Sex composition (ref = mixed)								
All boys	1.08	(0.68, 1.71)	1.15	(0.71, 1.86)	1.38	(0.59, 3.21)	1.52	(0.64, 3.61)
All girls	1.35	(0.78, 2.33)	1.55	(0.84, 2.85)	1.14	(0.49, 2.66)	1.44	(0.58, 3.53)
Mixed-sex ideal (ref = not imp)								
Moderately important	0.61*	(0.38, 0.97)	0.64	(0.39, 1.03)	0.54	(0.28, 1.03)	0.61	(0.31, 1.19)
Very important	0.96	(0.60, 1.53)	1.17	(0.69, 1.98)	1.18	(0.61, 2.28)	1.47	(0.72, 3.00)
Interactions								
All boys x moderately important					0.82	(0.26, 2.53)	0.78	(0.22, 2.76)
All girls x moderately important					0.57	(0.18, 1.85)	0.54	(0.15, 1.91)
All boys x very important					2.38	(0.65, 8.67)	1.79	(0.47, 6.89)
All girls x very important					0.66	(0.17, 2.52)	0.68	(0.17, 2.74)
Control variables								
Prior depression			0.87	(0.47, 1.62)			0.86	(0.46, 1.63)
Health problems			0.55*	(0.34, 0.89)			0.55*	(0.33, 0.92)
Recent loss			0.53*	(0.29, 0.97)			0.56	(0.30, 1.04)
Three or more children (ref = Two)			1.02	(0.57, 1.82)			1.03	(0.58, 1.83)
Last child			0.96	(0.82, 1.11)			0.96	(0.82, 1.11)
Age			1.02	(0.95, 1.10)			1.02	(0.95, 1.09)
Education (ref = HS diploma)								
Less than high school			0.88	(0.38, 2.01)			0.86	(0.38, 1.95)
Some college			0.78	(0.45, 1.37)			0.82	(0.46, 1.46)
College degree or higher			1.08	(0.55, 2.12)			1.09	(0.55, 2.15)
Race/ethnicity (ref = NH White)								
Non-Hispanic Black			1.38	(0.68, 2.79)			1.36	(0.66, 2.82)
Other			0.53	(0.22, 1.31)			0.55	(0.23, 1.33)
Rural residence (ref = Urban)			1.24	(0.63, 2.45)			1.20	(0.60, 2.41)
F statistic (df)	1.40(4)		1.17(16)		1.16(8)		0.72(20)	

\* p ≤ .05, \*\* p ≤ .01, \*\*\* p ≤ .001

Note: Analysis adjusts for complex survey design using Stata 12.1 svy command

## Chapter 5. Conclusion

### Summary

In this dissertation, I have explored the determinants and consequences of incorporating a preference for a mixed-sex composition of children into family formation ideals in the United States. Research on sex preferences has populated scientific literature in the U.S. since the 1930s, but it is a timely topic particularly today given the debut of new reproductive technologies that allow couples to select the sex of their children prior to conception. I set out on this project with an interest in the trajectory of the popular mixed-sex compositional ideal before, during, and after childbearing has taken place: What motivates it (Chapter 2), what role does it play in couples' fertility decision-making (Chapter 3), and what are its effects on mothers' psychological well-being (Chapter 4)?

In Chapter 2, I examined what drives a parental preference for at least one boy and one girl among men and women in the U.S., evaluating three psychosocial frameworks that may motivate subscription to this ideal. I found that it has foundations in a "separate spheres" ideology, through which parents may view the interests, traits, skills, and roles of boys and girls in families as very different based on conservative, sex-typed roles for men and women in family life. Second, results supported a rational choice orientation, whereby achieving a mixed-sex composition maximizes having a wide variety of one's needs met in old age. Results also suggested that a preference for a mixed-sex composition may be motivated by its symbolic capital as a status marker, representing the image of a perfect, "balanced" family. These motivational pathways did not vary for men and women. I conclude that because wanting to have mixed-sex

children is based on beliefs about the non-substitutability of boys and girls, this ideal represents a form of gender inequality that persists in families.

In Chapter 3, I studied whether actual statements made by individuals and couples about valuing a mixed-sex composition have any effect on third births for those with same-sex children, rather than inferring this relationship based on the fertility behavior of parents with different sex compositions. I found that couples with two sons or two daughters did not have higher odds of having a third child than those with one of each. Furthermore, the degree to which a couple valued having a mixed-sex composition did not matter more for those with same-sex children in overall propensity to conceive a third child. Although couples with the strongest subscription to the mixed-sex ideal had higher odds of a third birth than those with the lowest among those with two boys and two girls, the effect was only significant for those with boys. The overall effect of these patterns was too small to play a significant role in determining third births. In addition, these patterns did not exist for men and women as individuals, but only emerged when looking at combined, couple-level ideals. Couple-level data also demonstrated that disagreement between individuals produced unique patterns, suggesting that knowing preferences for both partners is important. I concluded that at the time these data were recorded (1987-1994) in the U.S., a desire for at least one boy and one girl played little to no role in third birth rates.

In Chapter 4, I examined whether unfulfilled ideals for a mixed-sex composition are associated with negative psychological consequences among mothers. Results show that mothers of same-sex children are no worse off in terms of psychological well-being than those who have at least one son and one daughter because the sex composition of

children was not associated with women's psychological well-being. Furthermore, those who valued a mixed-sex composition but did not obtain it did not report more depressive symptoms, poorer life satisfaction overall, or less satisfaction with family life than those who did not value the mixed-sex ideal. Likewise, those who achieved a strong ideal they held for having mixed-sex children experienced no psychological health advantages. Finally, subscription to the mixed-sex ideal was itself related to poorer psychological well-being, although in the case of satisfaction with family life and the strongest level of endorsement for depressive symptoms this effect seemed to be due to other factors such as having lower education and younger age.

Although the use of different samples makes it difficult to compare findings across chapters, the results do take on larger meaning when put in conversation with one another. The fact that higher odds of a third birth were not found for couples with two boys or two girls does not mean that couples no longer prefer to have at least one boy and one girl. It simply means that combining fertility behavior with the sex composition of previous children is a poor way of measuring whether couples—but particularly not individuals—value having a mixed-sex composition. In other words, the prevalence and strength of preferences cannot always be accurately inferred from behavioral data. In fact, descriptive data from both Chapters 2 and 3 demonstrate that over half of men and women found it moderately or very important to have at least one boy and one girl. Furthermore, descriptive statistics from Chapter 3 show that just under half of couples had some level of *agreement* about it being moderately to very important (although it is important to remember that these analytic subsamples were a somewhat select group of individuals and couples).

Findings from Chapter 3 that couples with two boys or two girls did not have higher odds of a third birth than those with mixed-sex children also does not necessarily mean that as a society we are becoming more egalitarian. In fact, results from Chapter 2 indicate that sex-based stereotypes about the roles of men/boys and women/girls both as children and as later adults in caregiving do inform beliefs about the importance of having at least one boy and one girl. It may be a sign of egalitarian progress that these beliefs about differences between men/boys and women/girls do not seem to matter enough to act on them by having a third child. However, this may be because the desire to have only two children might have strengthened in a context of higher opportunity costs for childbearing women that emerged in the late 1980s, such that a preference for only two children trumps the perceived benefits of a mixed-sex composition. Furthermore, beliefs based on sex-typed stereotypes that still underlie the desire for having mixed-sex children may carry over to the treatment of children by adults who subscribe to them, whether or not they matter enough to cause those adults to have a third child. In other words, adults may not decide to have a third child, but there is a potential that their beliefs may cause them to act differently around boys versus girls, whether they are children in their own or extended families, or children in larger structures such as schools or media, thereby perpetuating sex-typed stereotypes.

Finally, the idea that believing boys and girls are different, even if parents perceive that they are treated fairly, is still negatively associated with mothers' psychological well-being. Chapter 4 showed that endorsing the mixed-sex ideal was itself related to more depressive symptoms and less satisfaction with family life, regardless of whether or not it was achieved, although some of these effects disappeared

once education and younger age were taken into account. Chapter 2 showed that having certain beliefs about family-building were associated with subscription to the mixed-sex ideal. Expectations about unshared roles of men/women and boys/girls; about caregiving by children in old age; and about marriage, parenthood, and having certain types of family structures were all associated with subscription to the mixed-sex ideal. Perhaps this indicates that women who believe in the importance of having mixed-sex children have higher or more rigid expectations in many domains of family life such that it is a high-expectation mentality rather than the beliefs themselves that are associated with poorer psychological outcomes.

### **Directions for Future Research**

This dissertation addresses several important research questions related to the popular preference of having mixed-sex children. However, based on data limitations—both in terms of this particular data set and in available data overall—it raises many more than it answers. First, qualitative research could expand our understanding of the specific reasons parents hope for a mixed-sex composition. Parents may be motivated to have mixed-sex children by reasons that could not be tested using NSFH variables, and the attitudinal measures used here to tap into the three theoretical frameworks tested were indirect and therefore inadequate proxies for those ideas in the first place. For example, I could not determine the specific beliefs about boys' and girls' interests, traits, and relationships that may be driving “separate spheres” notions of different roles for boys and girls in family life. Although past research on preferences for having a girl versus having a boy provides some clues about such beliefs, future research needs to determine why parents say they prefer to have mixed-sex children over having all boys, all girls, or

having no preference. Qualitative research can also tease out specific beliefs about gender-typed care in old age, as well as beliefs about the symbolic capital perceived to be carried by families with mixed-sex children.

Second, the time period of data measurement limits the degree to which conclusions generalize to the U.S. in the 21<sup>st</sup> century. The particular item about the importance of ‘having at least one boy and one girl’ has not been measured by any other survey since the NSFH Wave I survey in 1988. Given continued progress toward gender equality made since the late 1980s, ratings on this measure may have shifted, and therefore its relationship to fertility behavior and women’s psychological well-being may also have changed. On the other hand, with new technologies that make it possible to select the sex of children prior to conception, amidst a cultural climate that encourages consumers to control their choices when they can, people may feel as if it is more acceptable to have sex preferences for children. Subscription to the mixed-sex ideal could quite possibly be stronger than it was in the late 1980s, but research needs current data asking explicitly how important it is to individuals to have mixed-sex children—rather than inferring it from behavioral data—in order to determine this. Furthermore, because a single item asking about the importance of ‘having at least one boy and one girl’ may be capturing an individual’s desire for having just ‘at least one boy’ or ‘at least one girl,’ surveys need to include several items differentiating among these preferences.

In addition, although less normative family structures such as blended families are becoming more common, the analytic samples I used did not include these family forms due to the complexity of coding their particular sex compositions in these data. Therefore, it is unknown whether parents of alternative family structures view the

importance of having a mixed-sex composition differently than those with biological children. For example, couples who remarry may be motivated to have biological children together even when they already have children from prior relationships, and it is unknown how or whether a preference for a mixed-sex composition may work in tandem with this motivation to bear more children. It is also unknown whether their perceptions of having fulfilled a mixed-sex composition are complicated by having different types of children of different ages at remarriage who may have been present or absent in the household for varying amounts of time. Finally, same-sex couples may not endorse having a mixed-sex composition as strongly as heterosexual couples or may be differently motivated toward it given that the image of a symmetrical, “balanced” family based on the sex of parents versus children does not apply to them.

Sample size in Chapters 3 and 4 limited subgroup analyses that are important to pursue in future work, such as how results might differ by social class. For instance, results from Chapter 2 showed that strong endorsement of the mixed-sex ideal is associated with increasingly lower levels of education. Lower education is also typically associated with higher fertility rates (Chandra et al. 2005), although those of a higher socioeconomic status tend to have more resources available to support a third child if it is important to them. In addition, although the strongest subscription to the mixed-sex ideal was associated with the lowest educational levels, remaining digital divides suggest that women posting online experiences of ‘gender disappointment’ are more likely to be of higher socioeconomic status. Furthermore, marketing efforts that problematize families with same-sex children as ‘unbalanced’ are likely to target those of a higher socioeconomic status who can afford high-cost PGD and IVF procedures at fertility

clinics, perhaps creating higher expectations about being able to achieve a desired sex composition among that social class group. Therefore, disappointment about unrealized ideals has the potential to be more pronounced among those of a higher social class. It is difficult to speculate about whether or how mixed-sex compositional ideals influence third births and psychological well-being differently among various social class groups, but these complex dynamics deserve some focus in future work.

Finally, future research should also explore how parents' preference for mixed-sex children might affect the well-being of children. Do children of parents who subscribe to the mixed-sex ideal experience more sex-typed pressure? What happens when the sex composition of children matches parents' desires, but one or more children do not conform to the sex-typed expectations parents held? Researchers should likewise explore the well-being of children in families with same-sex children where it once was—or still is—very important for parents to have mixed-sex children. It is unknown what the implications are for the well-being of both parents and children in these situations. Such questions can only be answered by data not yet in existence but are important ones to answer in order to help inform ethical debates surrounding the regulation of developing reproductive technologies.

### **Implications and Final Remarks**

Findings from each of these studies produce their own set of important implications for research, theory, and debates about sex selection technologies. Contributions of Chapter 2 are best understood in the changing normative context of families today. Blended families, same-sex families, mixed-race families, and single-parenthood are all more common than they were in the 1980s (Gates 2007; Martin et al.

2012; Teachman and Tedrow 2008; Wang 2012). Not only are such families becoming statistically more normal, but they appear to be more culturally supported, as television shows like “Modern Family” and “The New Normal” emerge and rise in popularity. In addition, attitudes about the roles of women and men in work and family life have become more egalitarian over past decades, and women’s labor force participation has risen while men’s has declined (Lang and Risman 2007). Yet, in some ways gendered behaviors of men and women and ideals about family remain as “traditional” as ever, and this research contributes to that reality.

Chapter 2 provides a clearer picture of a contemporary and subtle way in which gender inequality, heteronormativity, and the perceived superiority of “traditional,” nuclear families have roots in parents’ ideals about the composition of children. Beliefs about the importance of having at least one boy and one girl—a desire held to some degree or another by roughly half of the U.S. population in the late 1980s—are partly motivated by a conservative ideology about the gendered roles of men and women and beliefs in the higher symbolic status of some family forms over others.

These results contribute to existing research on gender and family theory, and to work documenting the ways in which beliefs idealizing the “traditional,” nuclear family—a stable, first-married, heterosexual union with two or more mixed-sex biological children—persist today. For example, despite high rates of divorce and remarriage there is still evidence of negative attitudes toward stepfamilies in society (Coleman, Ganong, and Fine 2000), and being married and having children continue to be perceived as markers of higher status than remaining single or childless (Byrne and Carr 2005; Cherlin 2004; Zelizer 1985). Furthermore, despite real demographic shifts

showing increases in alternative family forms in the U.S., ideologies of the “traditional” family and a cultural imperative of a single, shared surname as the only legitimate expression of family identity ensure that patrilineal surnames for children continue to prevail over other options (Nugent 2010).

Furthermore, women still do more household labor than men, and mothers are still more likely to work part-time than fathers (Lang and Risman 2007). Judith Stacey (1996) argues that an “ideology of the family” is actually an increasingly potent ideological force in the U.S. due to changing patterns in family, work, and sexuality; this environment of rapid family change feels tumultuous and insecure and generates nostalgia for the relative security of the “traditional,” patriarchal family. Therefore, despite a growing cultural acceptance of alternative family forms today and continued convergence in the attitudes and behaviors regarding the roles of men and women, the results of Chapter 2 contribute to work providing evidence that beliefs about the family structures people willingly choose as ideal and gender inequality persist in families.

While it seems that the psychosocial underpinnings of preferring mixed-sex children have persisted since the late 1980s, there are reasons to also believe that this ideal itself is still prevalent today, despite some scholars’ projection of an “emerging gender indifference” regarding how strongly parents prefer to have at least one boy and one girl (Pollard and Morgan 2002). Whittaker (2011) notes that women posting experiences of ‘gender disappointment’ in online forums already have children of a single sex and have desires for the other fueled by highly stereotyped depictions of boys and girls. In addition, they characterize families with same-sex children as incomplete, asymmetrical, or unbalanced. The connection and anonymity afforded by the internet

today may have resulted in the social construction of a new cultural climate of acceptable strong preferences and disappointment when desires are unmet, replacing prior sentiments of ‘as long as it’s healthy’ (Associated Press 2009). Furthermore, fertility clinics have been marketing sex selection services since 2003 under the label of ‘family balancing’ (Hvistendahl 2011; Whittaker 2011). In an environment where something previously governed by chance has become one of many aspects of reproduction and medicine that are now consumer-controlled choices (Barker 2008; Conrad 2005; Wertz and Fletcher 1989), perhaps a preference for mixed-sex children is as strong as ever.

The findings of Chapter 2 can also help inform current ethical debates surrounding sex selection technologies, specifically whether the act of sex selection—even when it is to achieve a mixed-sex composition—is based on gender inequality. When families are motivated to have a third birth in order to achieve a mixed-sex composition—or to sex-select a child via CVS, sperm-sorting, or abortion following amniocentesis/ultrasound—they are doing so based on ideas that the roles of boys and girls in families cannot be shared or transferred across sexes, but rather that boys and girls are not substitutable socially, functionally, or symbolically. Therefore, although it is subtle, a preference for mixed-sex children has foundations in gender inequality.

Chapter 3 helps fill gaps in current research on sex composition, preferences for mixed-sex children, and fertility behavior. Changes in family formation over the past few decades also help contextualize the contributions of this chapter. The late 1980s and early 1990s ushered in the beginning of an era of actual convergence in the roles of men and women in families and work, increased opportunities for women in education and work, and delayed fertility. All of this translates into the continuation of an already well-

established two-child norm, but also a decline in family size overall, as having a third child became both less realistic logistically and a source of heightened opportunity costs. In fact, current data on women's completed childbearing show that having one child is steadily becoming a more common reality and having three is on the decline as the second-most prevalent completed family size after two (Hamilton and Brady 2010).

Although data in Chapter 3 are from the early 1990s, the results seem to contribute to this body of evidence of continuing low fertility in the 21<sup>st</sup> century. This research provides evidence that although a desire for at least one boy and one girl is still quite prevalent, it plays a nonexistent or very minor role in third birth rates. Yet just under half of couples had some level of agreement that having mixed-sex children is moderately to very important. This suggests that perhaps the desire to have only two children has strengthened in a context of higher opportunity costs for childbearing women, such that a preference for only two children trumps the perceived benefits of a mixed-sex composition. However, it also opens the door for sex selection procedures to become more attractive in order to achieve both strong sex composition preferences and a two-child ideal at the same time.

These results inform ethical discussions about potential demographic effects of sex selection, demonstrating that overall family size would not be significantly reduced by the use of sex selection technologies, although the impact of sex selection on overall sex ratio and birth order remain unknown. This research also adds to large body of social psychological literature on attitude-behavior inconsistencies, demonstrating the complications of inferring preferences from behavior. In other words, using behavioral data such as third birth rates is an inadequate method of measuring a preference for a

mixed-sex composition. Rather, direct statements of mixed-sex preferences and their importance are necessary if research intends to accurately measure their existence and strength in order to compare them over time and place. Finally, fertility research must account for preferences for *both* individuals within a couple, rather than relying only on individual respondents' statements.

Chapter 4 helps fill gaps in the literature on the sex composition of children, mixed-sex ideals, and psychological well-being. Despite recent media attention on 'gender disappointment' among women, this research provides evidence that this phenomenon does not play a significant role in mothers' psychological well-being as it relates to unmet expectations for mixed-sex children. These data suggest that whether it affects too few or is too short-lived, it was not measureable in the early 1990s. Whether it is uniquely modern, on the other hand, could not be addressed with these data. Such results contribute to research on unmet expectations, the social factors related to postpartum depression in a Western context, and correlates of psychological well-being. They also inform ethical discussions about sex selection technologies by answering whether there are psychological consequences to a belief system where some family compositions are seen as more problematic than others—beliefs that are in part structured by and legitimated through the existence and acceptance of sex selection technologies.

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