The Normativity of Marriage and the Marriage Premium for Children's Outcomes*

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Abstract

Children born to married parents have better health, behavioral, educational, and economic outcomes than children of unmarried mothers. This association, known as the “marriage premium,” has been interpreted as emerging from the selectivity of parents who marry and from a positive effect of marriage. The authors suggest that the positive effect of marriage could be contextual, emerging from the normativity of marriage in society. They test this hypothesis using the case of Chile, where marital fertility dropped sharply from 66% of all births in 1990 to 27% in 2016. The authors find that the benefit of marriage for infant health was large in the early 1990s but declined as marital fertility became less normative in society, to fully disappear in 2016. Multivariate analysis of temporal variation, multilevel models of variation across place, sibling fixed effects models, and a falsification test consistently indicate that marriage has a beneficial effect when marital fertility is normative and a weak effect when is not. Generalizing from this case, the authors discuss contextual effects of diverse practices and statuses.

Keywords: Marriage premium, Infant Health, Birth outcomes, Social norms, Social change

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1 INTRODUCTION

Children born to married parents enjoy better outcomes throughout their lives compared with children born to unmarried women. The advantages associated with marriage start at birth and persist into adulthood. Worldwide, infants born to married mothers are less likely to be low-weight, preterm, and small for gestational age than children of unmarried mothers (Raatikainen, Heiskanen, and Heinonen 2005; Burstrom et al. 2010; Shah, Zao, and Ali 2011) and are less likely to die before their first birthday (Balayla, Azoulay, and Abenham 2011). As shown by a mostly U.S.-based literature, children who grow up with married parents have higher levels of educational attainment and better health, cognitive, and behavioral outcomes than those who grow up in other family settings (McLanahan and Sandefur 1997; Manning and Lamb 2003; Amato 2005; Magnuson and Berger 2010; Brown 2011; Craigie, Brooks-Gunn, and Waldfogel 2012; Crosnoe and Wildsmith 2012). As adults, they have higher levels of employment and income, lower rates of nonmarital parenting, and lower rates of incarceration (McLanahan 1985; Mayer and Lopoo 2005; Lerman, Price, and Wilcox 2017).

Numerous explanations for the marriage premium for children have been proposed. Differences in economic resources, parental time and attention, family stability, conflict and stress, and availability of role models have been shown to partially account for this premium (McLanahan 1985; Amato 2005; Magnuson and Berger 2010). Naturally, the explanations accounting for the benefits of marriage will vary across children’s outcomes and developmental stages (Manning and Lamb 2003; Manning, Brown, and Stykes 2015). This study focuses on the effect of marriage on children’s health at birth, as measured by birth weight, gestational age, and intra-uterine fetal growth. We focus on birth outcomes because they are the earliest indicators of a child’s health and well-being that can be observed and because they predict health, cognitive, educational, and socioeconomic outcomes over the life course, potentially shaping trajectories of disadvantage (Conley, Strully, and Bennett 2003; Behrman and Stith-Butler 2007). Birth outcomes have complex etiologies that include biological, psychosocial, behavioral, sociodemographic, and environmental factors. Among those, the factors found to be more prevalent include uterine infection, stress and anxiety, socioeconomic disadvantage, poor nutrition, smoking, and alcohol consumption (Kramer 1987; Kramer et al. 2000; Behrman and Stith-Butler 2007).

Given that infant health is measured at birth, any mechanisms accounting for the ad-

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vantages of marriage need to be found during the pregnancy and in the period leading to the pregnancy. A number of mechanisms have been proposed. Marriage has been claimed to improve mother’s mental health during the gestation period—measured, for instance, by mother’s stress and depression—and to increase pregnancy wantedness, which in turn can affect birth outcomes (Freeman and Brewer 2013). Spouses provide both emotional support and instrumental and financial assistance (Christakis and Fowler 2011). They also monitor and promote attitudes and behaviors that translate into better health outcomes for the newborn (Nock 1998; Duncan, Wilkerson, and England 2006; Umberson and Montez 2010). Specifically, spouses could have an impact on the well-being of pregnant women by encouraging and assisting them to seek prenatal care and to refrain from unhealthy behaviors such as smoking or drinking alcohol during the pregnancy (Kieran and Pickett 2006; Kimbro 2008). These factors appear to be stronger for formal marriages: studies consistently find an advantage of married mothers compared with cohabiting mothers, although the gap is not as large as between married and single mothers (Luo, Wilkins, and Kramer 2004; Raatikainen, Heiskanen, and Heinonen 2005; Schmeer 2011; Kane 2016).

These proposed mechanisms accounting for the marriage premium refer to *observed differences* between married and unmarried mothers and to a *causal effect* of marriage. Additionally, the association between marital status and birth outcomes could emerge from *unobserved differences* between married and unmarried parents (Buckles and Price 2013; Kane 2016). Parents who marry might be different from those who do not marry in a range of attributes that confer advantages to their children and that are hard to measure, such as resources, genetic makeup, behaviors, and preferences. Even if researchers control for demographic and socioeconomic characteristics of mothers, there is always a risk of unobserved selectivity inducing a spurious association between the mother’s marital status and infant health. Researchers have used a variety of causal inference techniques to alleviate the issue of unobserved selectivity in their estimation of the marriage premium for children’s outcomes at birth (Buckles and Price 2013; Raatikainen, Heiskanen, and Heinonen 2005) and later on in life (McLanahan, Tach, and Schneider 2013), and they have found that the marriage premium declines somewhat but for the most part does not disappear after accounting for the unobserved selectivity of mothers who marry.

2 THE NORMATIVITY OF MARITAL FERTILITY AND THE MARRIAGE PREMIUM

The observed association between mother’s marital status and infant health raises a critical question: Is there anything about marriage that produces a beneficial effect, net of the

observed and unobserved selectivity of married parents? Is marital status per se beneficial for children? Marriage promotion advocates assume that the answer of this question is affirmative: marriage is worth promoting because it is essentially good for those who marry and for their children, beyond the characteristics, resources, and identities—observed and unobserved—that people bring to the marriage. We suggest that the answer is not conclusive. Furthermore, we suggest that to address this question, we need to move beyond individual factors—the mother’s mental health, her behaviors, networks, and partnership status—and consider marriage as a social institution. Marriage has traditionally been regarded as a unique social institution with high symbolic value (Waite 1995; Popenoe 1996; Waite and Gallagher 2000), and it has been seen as a precondition for childbearing and a source of legitimate reproductive “license” (Rindfuss and Parnell 1989). We hypothesize that the benefits of marriage for children emerge at least partially from the status of marital fertility as a normative institution—a socially shared pattern of behavior that includes a prescriptive component about what people should do enforced by informal rules—which has traditionally been granted “rule-like status in social thought and action” (DiMaggio and Powell 1991, p. 9; see also Douglas 1986, pp. 46–48). We hypothesize that being born to married parents is better for children than being born to counterfactually identical unmarried parents at least partly because marital fertility is normative in society. In other words, the benefit of marriage for infant health is contextual: it emerges from the prevalence and normativity of marital fertility in society, and it would decline as marital fertility ceases to be a normative institution.

This hypothesis is relevant given recent changes in family formation in most Western societies. If marital fertility were universal or near universal, the normativity hypothesis would have theoretical interest but limited empirical implications. This is not the case. Since the postwar period, nonmarital fertility has increased dramatically across countries in the Western Hemisphere. This increase started in northern Europe in the 1950s and has been described as a component of a broader transformation of demographic and family behavior known as the second demographic transition. The second demographic transition is claimed to entail “sustained sub-replacement fertility, a multitude of living arrangements other than marriage, (and) the disconnection between marriage and procreation” (Lesthaeghe 2010:211). The context of the transition is said to be growing affluence, availability of modern birth control methods, and ideational change emphasizing secularization, individual autonomy, self-actualization, and postmaterialistic values (Van de Kaa 2001; Inglehart 2008). According to the second demographic transition approach, cohabitations will become increasingly stable and the fertility of married and cohabiting couples will converge, effectively resulting in the decoupling of marriage and childbearing (Van de Kaa 1987).

The second demographic transition approach has been criticized for proposing a unilinear and homogeneous worldwide transformation. It is now clear that this prediction is

Figure 1: Proportion of births to married women in selected countries between 1990 and 2016 (a), and proportion of births to married women in Chile in 1990–2016 (b). a, Data are from the United Nations Demographic Yearbook, “Foetal Mortality,” table 13 (<https://unstats.un.org/unsd/demographic/products/dyb/DYBNat/NatStatTab13.pdf>), for 1990, and the OECD Family Database (https://www.oecd.org/els/family/SF_2_4_Share_births_outside_marriage.pdf) for 2016. The 1990 data for Canada correspond to 1995. b, Data are from 1990–2016 birth records, Chilean Ministry of Health.

naive. The pattern proposed by this approach describes northern European nations more accurately than other countries—even advanced industrial ones—and different Western societies have experienced diverse demographic and cultural changes since the postwar period that only partially fit the theory (Raley 2001; Sobotka 2008; Lesthaeghe 2010; Zaidi and Morgan 2017). The fact remains, however, that the proportion of births that occur within marriage has declined substantially across the Western world over the past few decades (Chamie 2017). As shown in figure 1a, the proportion of marital births has dropped between 1990 and 2016 across Europe and the Americas. Along with growing prevalence, the meaning of nonmarital childbearing has changed: it has become more accepted, and the stigma attached to it has declined (Schoen and Tufis 2003; Kendall and Tamura 2010). The remarkable decline in marital fertility invites us to consider the benefits of marriage as the status of this institution changes across societies.

3 THE CONTEXTUAL EFFECT OF MARRIAGE

We have hypothesized that the benefits of marriage for infant health are at least partially contextual. The notion of contextual effect has been widely used by social scientists to capture relationships between characteristics of the macrosocial environment and

individual outcomes. The literature has used this concept to mean two kinds of macro-micro relationships. First, contextual effects capture the association between attributes measured at the aggregate level (schools, neighborhoods, counties, and countries) and individual outcomes that is net of the attributes measured at the individual level. For example, classroom-level poverty matters for students' attainment net of the students' own poverty status (Lauen and Gaddis 2013), and the proportion of conservative Protestants in the county of residence is associated with the probability of divorcing net of one's own religious affiliation (Glass and Levchak 2014). The second use of contextual effects refers to the variation of an individual-level association across contexts (in methodological terms, a "cross-level interaction"). For example, the association between individual religiosity and volunteering is stronger in secular countries than in religious ones (Ruiter and De Graaf 2006), the happiness deficit of parents compared with nonparents is greater in countries with weaker family-support policies (Glass, Simon, and Andersson 2016), and the association between educational attainment and support for the Tea Party varies depending on educational segregation in the county (McVeigh et al. 2014). It is the latter version of contextual effects that defines our inquiry. We propose that the *individual-level relationship between marital status of the parents and birth outcomes depends on the normativity of marriage in society*. In contexts where marriage is a normative institution, we will find a substantial marriage premium for children. As the normativity of marriage declines, the marriage premium will weaken and, in the extreme, disappear.

This claim requires that we specify plausible mechanisms linking the macrolevel normativity of marriage with the microlevel association between marriage and birth outcomes (Coleman 1990, p. 12). Several theoretical approaches provide explanations of why the individual-level effect of certain statuses or practices should vary depending on their social normativity, including theories of stigma (Goffman 1963), looking-glass self (Cooley 1922), and relative deprivation (Stouffer et al. 1949; Merton and Kitt 1950). The stigma approach focuses on the negative social responses to individual attributes considered deeply discrediting in a particular society because they violate a "norm of a social unit" (Goffman 1963, p. 2; Stafford and Scott 1986, p. 80). The sources of stigma are socially constructed and contextually specific. However, once established they have important consequences for individual well-being. Stigmatized individuals are vulnerable to negative responses in the form of labeling, separation, status loss, and discrimination (Link and Phelan 2001) as well as less overt but still harmful responses such as withdrawing access or privilege that otherwise would have been conferred. These responses not only operate at the interactional level. Rather, they can shape institutional practices and policies in a wide range of domains including health care, education, housing, and employment, with important consequences for individual opportunity, resources, and well-being (Link and Phelan 2001; Phelan et al. 2014; Hatzenbuehler 2016). In a context where marriage is normative, nonmarital fertility is likely to be stigmatized with

harmful consequences for infant health mediated by stress, depletion of resources and opportunities, and social isolation (Hatzenbuehler, Phelan, and Link 2013).

The relative deprivation approach adds that the subjective evaluations of individuals' situations are shaped by the comparison to normative standards and that individuals' sense of adequacy and well-being emerges from an assessment of the circumstances of others (Stouffer et al. 1949; Merton and Kitt 1950). In contexts where marital fertility is expected and prevalent, being unmarried can contribute to a sense of inadequacy and disadvantage with consequences for physical and mental health. This perspective emphasizes that mothers' assessment of self-worth and status is explicitly comparative and may depend on the prevalence of marriage in their reference groups.

The "looking-glass self" approach (Cooley 1922) contributes an understanding of the ways in which negative social feedback against unmarried mothers could affect infant health. According to this approach, people rely on the messages they receive in social interactions to define and evaluate their worth. The model emphasizes internalization, the tendency to incorporate consistent social messages onto the concept of the self. To the extent that nonmarital fertility is devalued in society, everyday interactions experienced by unmarried pregnant women would contribute to a diminished sense of self, inducing anxiety, stress, and avoidance of interactions and institutions that would provide beneficial services such as the health care system.

These theoretical approaches provide plausible explanations for the premium associated with marital fertility, or, more precisely, for the penalty attached to nonmarital childbearing. All of them assume that the marital status of women is a visible attribute that others in society can observe and judge. While marital status is less blatantly visible than other documented sources of stigma such as obesity or racial and ethnic minority status (Williams and Mohammed 2009; Brewis 2014), it is still discernible in most interactional and institutional settings beyond fleeting anonymous encounters. Extended families, friends and acquaintances, coworkers, neighbors, and service-providing institutions are usually aware of the marital status of individuals, and in many instances they explicitly ascertain it if not self-evident. Because marriage is the most private and the most of public institutions (Cott 2000), marital status is actively and constantly displayed in social interactions through numerous deeply gendered signals such as wedding bands, changes in surnames, changes in salutation pronouns, and explicit requests to report it in interactions with formal institutions such as health care providers.

Even if there are plausible mechanisms for the contextual effect of marriage on infant health, the hypothesis that we have offered is bold. Could the normativity of marriage play such a critical role in shaping the consequences of marriage for infant health? We rely on recent scholarship suggesting that social normativity of different practices and statuses could indeed be a powerful contextual factor shaping their consequences for individuals to support the plausibility of this hypothesis. The most consistent evidence emerges

from research on the consequences of obesity on individual attainment and well-being. Research suggests that body weight is more harmful for well-being in U.S. counties where obesity is less common (Wadsworth and Pendergast 2014) and among socioeconomic, racial, and ethnic groups in which it is less prevalent, possibly because in these contexts obesity represents a stronger violation of normative standards and is more likely to be stigmatized (Pinhey, Rubinstein, and Colfax 1997). The same finding has been obtained for young people. Being obese has more negative consequences for educational outcomes in schools where “everyone is thin” (Crosnoe and Muller 2004; Crosnoe 2007).

The consequences of other statuses and practices could also vary on the basis of their social normativity. For example, the effect of disruptive events such as parental divorce, job displacement, or paternal incarceration on children’s educational attainment and social-psychological well-being is more detrimental among the children with the lowest probability of experiencing these events, conceivably because they are more likely to be embedded in social networks where the events are unanticipated and stigmatized (Brand and Simon-Thomas 2014; Turney 2017; Brand et al. 2019). Similarly, the negative association between parental divorce and children’s health is stronger in contexts where divorce is less prevalent (Smith-Greenaway and Clark 2017). First sex has been found to affect adolescents’ well-being when it happens nonnormatively early, that is, earlier than peers defined by gender, race/ethnicity, and socioeconomic status (Meier 2007). In an inquiry closely related to our question, Zeitlin, Saurel-Cubizolles, and Ancel (2002) found that the association between the marital status of the mother and the risk of preterm birth varies across European countries with different levels of nonmarital fertility.

These studies provide *prima facie* evidence for the contextual effect of the normativity of statuses and practices by exploiting cross-sectional variation across contexts. However, many features of societies or social groups other than the normativity of the practices in question vary across contexts, and it would be naive to attribute differences in outcomes to normativity only. An alternative literature exploiting temporal change within contexts also points to the contextual effect of social normativity on individual outcomes. By comparing the same unit over time, these studies by definition rule out heterogeneity across contexts. For example, research has shown that, in the United States, children of same-sex parents were more likely to be behind in school in 2008 than in more recent years, probably because of a decline in discrimination, stigma, and institutional obstacles faced by same-sex families as they have become more common (Boertien and Bernardi 2019). Similarly, Schwartz and Han (2014) find a large shift over time in the association between a wife’s educational hypogamy and the probability of divorce in the United States. In the 1950s, marriages in which wives had more education than their husbands were more likely to dissolve, but this association had disappeared by the early 21st century, as these couples have become more prevalent and visible. Similarly, the decline in individuals’ well-being upon becoming unemployed is less sharp in contexts where unemployment is

high, likely because unemployment represents a smaller deviation from the social norm (Clark 2003). In probably the inquiry closest to our question, Castro-Martín (2010) found that the health advantage of children born to married mothers has declined in Spain as nonmarital births have become more prevalent. These studies provide suggestive evidence, but they also face a limitation: factors other than the normativity of the focal practice of interest likely change over time, inducing a spurious temporal association.

The growing sociological literature examining the consequences of statuses as diverse as obesity, parental divorce, same-sex parenting, and wives' educational hypogamy as their normativity changes across place or over time renders our question theoretically relevant and empirically plausible. It also poses a methodological challenge. Given that both cross-sectional and temporal comparisons are vulnerable to bias, we need to combine both sources of variation to offer persuasive findings. To date, very few studies use this dual strategy exploiting cross-sectional and temporal variation to assess contextual effects (Clark 2003; Frye and Lopus 2018). Those that do provide a sobering note of caution. For example, in an insightful analysis, Frye and Lopus (2018) evaluate the variation in the association between women's education and age of marriage across contexts characterized by different levels of women's educational attainment, exploiting variation across countries and over time in Africa. They find opposite effects in the cross-country and over-time analysis. The divergence of findings highlights the vast risk of confounding by factors shaping different dimensions of variation. It also demands a robust empirical strategy not restricted to a single source of variation.

4 CHILE AS AN ADJUDICATIVE CASE STUDY

We suggest that assessing the contextual effect of marital fertility normativity on the marriage premium for infant health requires a setting in which marital fertility varies extensively over time and across place. Chile provides such a setting. The proportion of births to married women dropped sharply from 66% of all births in 1990 to 27% in 2016, effectively decoupling fertility from marriage over a quarter century (fig. 1*b*). As a result, Chile is currently one of the countries with the lowest marital fertility in the world, with levels comparable to Iceland—a country that epitomizes the second demographic transition (fig. 1*a*). While the decline in marital fertility is widespread in the Western world, Chile's pace is remarkably fast.

Research focusing on affluent countries identifies two distinct patterns of nonmarital childbearing. In the first one, typical of Scandinavian countries, nonmarital childbearing occurs largely within stable cohabiting unions and is seen as an expression of new value orientations based on individual autonomy and self-actualization (Van de Kaa 1987, 2001; Lesthaeghe 2010). A second pattern describes settings such as the United States, in which a substantial proportion of nonmarital births are to single women with low levels of

education and is related to socioeconomic vulnerability (Wu and Wolfe 2001; McLanahan 2004; Edin and Kefalas 2005; Perelli-Harris and Gerber 2011).

These patterns offer ideal types that do not fully describe any empirical national context. Chile, and Latin America more generally, is no exception. Fertility outside of marriage has deep historical roots in Latin America dating back centuries. Historical factors including the cultural traditions of indigenous populations, the uneven gender ratio among the Spanish colonizers that resulted in forced sexual contact between colonizers and indigenous women, the difficulties imposing Catholic marriage during colonial times, restrictions to marriage emerging from strict endogamy codes, limited geographic coverage of civil registration systems, and the high cost of religious weddings all account for the high levels of childbearing outside of marriage and the prevalence of informal unions in the region (De Vos 2000; Castro-Martín 2002; Montecino 2007; Castro-Martín et al. 2011). Describing Latin America as a region of homogeneously high nonmarital fertility would be erroneous, however (Castro-Martín et al. 2011). Along with other Southern Cone countries, Chile featured low levels of nonmarital fertility until the 1970s, with only 18% of births occurring outside of marriage that year. This proportion increased moderately until 1990 and rapidly after that (Díaz, Gallego, and Lafortune 2016).

The increase in nonmarital fertility in Chile has occurred in the context of broad economic, institutional, demographic, and cultural transformations, including economic growth, the reestablishment of democracy, and educational expansion. In this period, the country also experienced a decline and postponement of fertility and ideational changes that destigmatize behaviors previously subject to strong normative restrictions such as nonmarital fertility, premarital cohabitation, divorce, abortion, and homosexuality (Binstock et al. 2016; Esteve et al. 2016). Normative liberalization is evident from attitudinal change. Even though no long-term attitudinal time series exists for Chile, the World Values Survey provides evidence of attitudinal change on family and gender roles, social issues, and secularization on the basis of comparable questions in 1990 and 2006 (Inglehart et al. 2014).

As shown in figure 2, the share of the population agreeing with the statement “the church provides answers to the problems of families” declined from 82.5% to 46.8% between 1990 and 2006, and the proportion regarding homosexuality as never justified dropped from 76.9% to 24.8% over this period. Probably the most relevant indicators for our inquiry are the proportion of the population agreeing with the statement “marriage is an outdated institution,” which almost doubled from 15.1% in 1990 to 28.1% in 2006, and the proportion believing that is it “OK for a single woman to have a child as a single parent if she does not want to have a stable relationship with a man,” which increased from 60% to 75%. Similar ideational change was observed in other Latin American countries, but the Chilean transformation has been described as a “landslide” because of its speed and comprehensiveness across domains (Esteve et al. 2016, p. 46).

Figure 2: Attitudinal value change in Chile. Data are from the World Values Survey, Chile, waves 2 (1990) and 5 (2006).

Legal reforms have reinforced the destigmatization of nonmarital fertility in Chile. Until 1998, children born to unmarried women had rights different from children born in marital unions, regulated by a legal distinction between “natural,” “illegitimate,” and “legitimate” children. Children born out of wedlock and recognized by both parents were considered “natural,” while those not legally recognized by their fathers were considered “illegitimate.” These distinctions were widely acknowledged in everyday interactions and by institutions; for example, “illegitimate” children had no child support or inheritance rights, and Catholic schools did not grant them admission. In 1998, a legal reform established that all children were considered equal under the law, abolishing discrimination based on the marital status of the parents (Chilean Congress 1998). As is usually the case, this legal reform followed and reinforced social changes in practices and ideas rather than exogenously preceding them (Axelrod 1986; Ellickson 1994). Revealingly, figure 1*b* shows no discrete increase in nonmarital fertility following the 1998 law.

As marital fertility becomes less normative in society, the changing selection into marriage could have direct consequences for the observed marriage premium. For example, highly educated women could become increasingly more likely to have children out of wedlock, which in turn would result in improved birth outcomes of unmarried women driven by this compositional change. Nonmarital fertility was historically concentrated among young women with low levels of education and limited socioeconomic resources in Chile, in a pattern that more closely resembles the U.S. “pattern of disadvantage.” Since 1990 the proportion of births outside of marriage has increased in all sociodemographic groups, but the increase has been most pronounced among highly educated women. In 1990 there

Figure 3: Change over time in the percentage of married and unmarried births across women’s educational attainment categories in Chile, 1990–2016. Data are from 1990–2016 birth records, Chilean Ministry of Health.

was a marked educational gradient in nonmarital fertility, with 42.2% of women with primary education but only 14.6% of women with postsecondary education experiencing a birth outside of marriage (fig. 3). Between 1990 and 2016 the proportion of nonmarital births almost doubled from 42% to 83% among women with primary education. More impressively, among women with postsecondary education, nonmarital fertility increased more than fourfold, from 15% to 62%. These trends depict a growing convergence in nonmarital fertility across levels of education. They also highlight the need to control for the changing composition of unmarried women in order to examine the effect of the normativity of marriage over time net of these compositional changes.

Along with the sharp increase in the proportion of nonmarital births and the changing educational composition of unmarried mothers, the partnership status of unmarried women could have changed between 1990 and 2016. In a context of growing acceptability of cohabitations, it is possible that a larger share of unmarried births had taken place within cohabitations rather than among single women, as happened in the United States since 1980 (Manning, Brown, and Stykes 2015). This trend could have important implications for our hypothesis: given that the birth outcomes of cohabiting women are better than single women, a compositional change of unmarried fertility favoring cohabitations

Figure 4: Fertility by marital status distinguishing married, cohabiting, and single mothers in Chile, 1990–2015. Data are from the 1990–2015 National Socioeconomic Characterization Survey (CASEN). Fertility calculated using a modified version of the “own children” method (Cho, Retherford, and Choe 1986). The household roster was used to match children one year old or younger with their mother. When mother-child pairing was not self-evident from roster information (2.6% of infants), we selected the woman between 15 and 40 years old residing in the household. If there was more than one woman in that age group residing in the household, we selected the oldest woman in the group. Single mothers include never-married, separated, widowed, annulled, and divorced women who do not have a coresident partner.

would, *ceteris paribus*, result in a decline in the marriage premium. If cohabitations are “marriages without a piece of paper” (McLanahan and Sawhill 2015:4), then a compositional switch from singlehood to cohabitations among unmarried mothers could explain the decline in the marriage premium.

We use information from the Socioeconomic Characterization Survey (Encuesta de Caracterización Socioeconómica [CASEN]) survey, a large, representative household repeated cross-sectional survey fielded every two or three years between 1990 and 2015, to ascertain trends in the partnership status of new mothers using a modified version of the “own children” method (Cho, Retherford, and Choe 1986). Figure 4 displays the estimated proportion of mothers of infants younger than 1 year of age by partnership status, distinguishing married, cohabiting, and single mothers.

Figure 4 shows that the proportion of nonmarital births increased from 25% in 1990 to 69% in 2015, a trend that closely aligns with population-level figures from birth certificates. Importantly, the increase in nonmarital births is virtually equally distributed between cohabiting and single mothers. In 1990, the proportions of births to cohabiting mothers and single mothers were respectively 14% and 16%. In 2013, they were 35% and 37%. A small increase in the proportion of cohabiting births ensued very recently after 2013, such that in 2015 40% of births occurred within cohabitations and 35% were to single mothers. Thus, along with a “cohabitation boom” (Covre-Sussai et al. 2015; Binstock et al. 2016; Esteve et al. 2016, p. 34) a similar “singlehood boom” has occurred as a context for childbearing since 1990. The decline in marital fertility has resulted in an increase in cohabiting and single fertility in equal proportions. As a result, any change in the marriage premium cannot be attributed to a compositional change in nonmarital fertility favoring cohabitations.

5 DATA, VARIABLES, AND ANALYTIC STRATEGY

We use administrative data from the Chilean birth registry database established by the Chilean Ministry of Health, which records all births in the country. This database is based on live-birth certificates, a form completed by the professional (MD or certified midwife) who attends the delivery or by the parents in the small proportion of cases in which the birth did not take place in a medical facility. The birth certificates contain information about the parents, such as age, education, marital status, and municipality of residence, and about the infant, including sex, birth weight, birth length, and weeks of gestation. Our data include years 1990–2016.

We consider measures of infant health known to predict mortality, morbidity, and developmental outcomes (Conley, Strully, and Bennett 2003; Behrman and Stith-Butler 2007). These include low birth weight (births weighing <2,500 grams), preterm birth (births occurring before 37 weeks of gestation), and small-for-gestational-age birth (births below the 10th percentile of the gestational age- and sex-specific birth weight distribution). All analyses are restricted to the 98.2% of births that are singleton because the etiology of birth outcomes is different for multiple births. The central predictor is the marital status of the mother at time of birth, distinguishing married and unmarried mothers. Given that birth records contain no information on the partnership status of the mother if she is unmarried, we cannot distinguish births that occur within a cohabitation from single motherhood. In spite of this limitation, administrative records provide population-level information on births occurring in the country with virtually no selectivity and offer data free from recall bias and measurement error plaguing self-reported

retrospective information available in surveys.

6 HYPOTHESES AND RESEARCH PLAN

We hypothesize that the marriage premium for infant health will decline as marital fertility becomes less normative. To address this hypothesis, we exploit change over time, across place, and between births of the same mother and conduct a falsification exercise.

We operationalize the normativity of marital fertility by means of its prevalence, that is, the proportion of births that are outside of marriage in a particular social context. This decision requires elaboration. Scholars have made the distinction between descriptive norms (observed regularities in behavior that characterize what most people do) and prescriptive (or injunctive) norms—shared expectations for appropriate behavior that convey a sense of “what people ought to do” (Axelrod 1986; Cialdini, Reno, and Kallgren 1990; Bicchieri 2012; Horne and Mollborn 2020). This distinction matters because practices that are prevalent may not be socially normative, and behavior that is unusual may not violate a social norm (Marini 1984). In practice, however, there is substantial overlap between the descriptive and prescriptive dimensions of norms (Thøgersen 2008; Brauer and Chaurand 2010). Descriptive and prescriptive norms are not just congruent; they are mutually constitutive. Prescriptive norms give rise to empirical regularities, which in turn generate and reinforce rules and expectations for behavior (Eriksson, Strimling, and Coultas 2015; Horne, Tinkler, and Przepiorka 2018). As established by social psychology, the connection between the prescriptive and descriptive dimensions of norms is deeply rooted in people’s perceptions and cognition. People depend on others’ behaviors for evidence of what is right and wrong, and therefore “concepts of what ‘ought to be’ tend to drift toward conceptions of what ‘is’” (Kelley 1971, p. 298). The evidence suggests that this is the case in the setting we examine. As we have shown, the increase in the prevalence of nonmarital fertility aligns with its growing acceptability in society.

The first analytic step evaluates the marriage premium, defined as the difference in infant health between marital and nonmarital births between 1990 and 2016, through year-specific linear probability models predicting each outcome of interest.¹ We present two models: Model 1 predicts birth outcomes using marital status of the mother only. Model 2 predicts birth outcomes on the basis of marital status and observed sociodemographic characteristics of mothers. The covariates include mother’s age (12–15 years old, 16–18, 19–20, 21–23, 24–34, 35–40, 41–59), education (primary, secondary, postsecondary), parity (1, 2–5, 6 or more), rural/urban residence, and region of residence, and infant’s sex. Model 1 captures the total marriage premium over time, while model 2 captures the marriage premium net of observed sociodemographic characteristics of the

¹Dichotomous logit models yield virtually identical results.

mothers, thus accounting for changes over time in the composition of mothers who marry.

The second analytic step exploits cross-sectional variation in the prevalence of non-marital fertility across local contexts, operationalized as the municipality of residence of the mother, and captures potential variation in the normativity of marriage across more proximate social settings of pregnant women. With an average population size of 45,000, municipalities are geographically and administratively bound units that serve as recognized markers of socioeconomic status in Chile. They provide a plausible operational measure of local sociospatial settings that embed normative expectations about marital fertility, but they certainly do not exhaust the definition of local sociospatial contexts. Ideally we would consider additional ecological scales—for example, the more immediate neighborhood context measured by street blocks or census tracts or local contexts defined by individuals’ embeddedness in social networks of actual or symbolic influence and interaction (Chaskin 1995; Raudenbush and Sampson 1999; Massey 2005). We are constrained, however, by data availability: birth records only contain information about municipality of residence.

We estimate multilevel models (births nested within municipalities) allowing for random intercepts and random slopes, to examine whether the association between the mother’s marital status and children’s birth outcomes varies depending on the prevalence of nonmarital fertility in her municipality. Because the proportion of marital births in the municipality could be related to other sociodemographic characteristics of the locality (Hauser 1970), we also control for the municipal-level overall educational attainment (proportion of adults with a high school diploma or more) and economic well-being (proportion of households below the poverty line) and let the marriage premium vary on the basis of these attributes. Using Raudenbush and Bryk’s notation (2002, pp. 80–81), the multilevel model is expressed as follows:

$$Y_{jl} = \beta_{0l} + \beta_{1l}\text{married}_{jl} + \gamma\mathbf{x}_{jl} + \delta\mathbf{m}_l + \varepsilon_{jl} \quad (1)$$

$$\beta_{0l} = \lambda_{00} + \eta_{0l} \quad (2)$$

$$\beta_{1l} = \lambda_{10} + \lambda_{11}\text{prop}_{\text{unmarried}_l} + \lambda_{12}\text{prop}_{\text{unmarried}_l}^2 + \sum_k \lambda_{1k}\mathbf{m}_{kl} + \eta_{1l}, \quad (3)$$

where Y_{jl} is the birth outcome of interest (low-weight birth, preterm birth, small-for-gestational-age birth) for child j born in municipality l , married_{jl} is marital status of the mother at the time of birth in the municipality l , $\text{prop}_{\text{unmarried}_l}$ is the proportion of children born to unmarried parents in the municipality l using a quadratic formulation to allow for nonlinearities in the association with the outcomes, $\mathbf{x}_{jl}$ is a vector of observed characteristics of the child and the mother at the time of birth, $\mathbf{m}_{kl}$ is a vector of municipality-level characteristics indexed by k including the proportion of adults with

at least a high school diploma and proportion of households below the poverty line, η_{0l} and η_{1l} are independent error terms at the municipality level ($\eta \sim \mathcal{N}(0, \sigma_\eta)$), ε_{jl} is an idiosyncratic error term at the individual level ($\varepsilon \sim \mathcal{N}(0, \sigma_\varepsilon)$), and standard errors are clustered at the municipality level. Parameter estimates λ_{11} and λ_{12} jointly describe variation in the marriage premium β_{1l} across levels of marital fertility normativity in the municipality, controlling for variation in the marriage premium across other attributes of municipalities. Given the normativity hypothesis, we expect to find a negative association between the local prevalence of nonmarital fertility and the marriage premium for infant health. Specifically, the marriage premium should decline as nonmarital fertility becomes more common in the municipality of residence.

Examining variation across municipalities as the locus of a normativity effect provides a “nontrivial replication” (Rosenbaum 2001) of the first analytical step exploiting variation over time because the unobserved factors driving change in nonmarital fertility across municipalities at one point in time are unlikely to be the same as the sources of unobserved heterogeneity over time. Still, there could still be unobserved heterogeneity in the contextual effect of the normativity of marital fertility if, for example, municipalities with high proportions of nonmarital fertility differ in terms of factors not accounted for by the socioeconomic characteristics included in the model and if women select into specific municipalities on the basis of unobserved characteristics that affect their birth outcomes.

The third analytical step directly addresses the role of unobserved selectivity of women who marry as a determinant of birth outcomes. We create a matched sample of children born to the same mother, which we call the siblings sample. This sample includes all mothers with more than one birth during the period of observation.² We apply fixed effects models to examine the association between marital status and birth outcomes over time. The fixed effects models are expressed as follows:

$$Y_{ij} = \alpha + \beta_1 \text{married}_{ij} + \beta_2 \text{year}_t + \beta_3 \text{year}_t^2 + \beta_4 \text{married}_{ij} \times \text{year}_t + \beta_5 \text{married}_{ij} \times \text{year}_t^2 + \gamma \mathbf{x}_{ij} + A_i + \varepsilon_{ij}, \quad (4)$$

where Y_{ij} is the birth outcome (low-weight birth, preterm birth, small-for-gestational-age birth) for child j born to mother i , married_{ij} is the marital status of the mother at the time of birth of each sibling, $\mathbf{x}_{ij}$ is a vector of time-varying characteristics of the child and the mother at the time of birth, A_i is a mother fixed effect, and ε_{ij} is an error term. The variable “year” and its square capture temporal variation in the outcome that may be correlated with birth outcomes and that affect all infants born in year t (e.g., the

²Birth data with masked identifying information for the mother are not available for years 1990 and 1991; hence, we create a sibling sample starting in 1992.

economic cycle, maternal care policy changes) allowing for nonlinear trends. Estimates of β_4 and β_5 are the focal quantities of interest. In combination with β_1 , they capture the change in the effect of a mother’s marital status over time.

The term A_i captures all—observed and unobserved—attributes of mother i that remain constant across births. The fixed effect estimator is known as a “within estimator” because it captures the association between each mother’s change in marital status and the change in birth outcomes across births. Given that only within-mother variation is used to identify the effect of marriage, the model accounts for all time-invariant characteristics of the mother, such as her personality, ability, and social networks, to the extent that they are stable over time. The marriage normativity hypothesis predicts a significant effect of marriage on birth outcomes in the early period when marital fertility was still normative and a weakening effect of marriage over time, as marital fertility had lost its normative status.

As a final analytical step, we implement a falsification strategy. We exploit the fact that, in spite of the vast social transformations occurring in Chile between 1990 and 2016, the prevalence of being born to an unknown/absent father did not change over this period. If the factor driving the penalty associated with having an unknown/absent father at birth is its normativity rather than unobserved individual or societal factors, we expect no changes in the penalty of this placebo status over time, in spite of the vast social transformations occurring during this period.

7 RESULTS

7.1 The Marriage Premium over Time: Change in the Association between Marital Status and Birth Outcomes

In order to place our findings in context, we first describe trends in birth outcomes between 1990 and 2016. Low birth weight remained relatively constant at 5% over this period. Stability is accounted for by divergent trends in its two proximate determinants: small-for-gestational-age birth and preterm birth. Small-for-gestational-age birth declined from 13.1% to 7.6% between 1990 and 2016, while preterm birth increased from 4.9% to 6.9%. The increase in preterm births is aligned with trends in most countries in the world. In both high-income and developing nations, preterm birth has increased in the recent past, partially driven by increased maternal age and associated comorbidities (Joseph, Demissie, and Kramer 2002; World Health Organization 2012; Zeitlin et al. 2013; Chawanpaiboon et al. 2019).

Figure 5 shows the results of the year-specific linear probability models capturing the marriage premium for the three measures of infant health—low birth weight, preterm

birth, and small-for-gestational-age birth—between 1990 and 2016 without any controls.³ Figures 5*a*–5*c* display the predicted probability of each birth outcome for married and unmarried mothers along with 95% confidence intervals; figures 5*d*–5*f* depict a point and interval estimates of such differences, directly capturing the marriage premium. For all three outcomes, the total marriage premium was substantial in 1990, but it has declined significantly since then to fully or nearly disappear in 2016. In the case of low birth weight, the percentage of infants born low weight in the early 1990s was 4.5% among married mothers but 6.0% among unmarried mothers, a 1.5 percentage point gap that amounts to a 33% increase in the chances of low birth weight (fig. 5*a*). By the mid-2010s, the marriage advantage had dropped to 0.5 percentage points, a decline by about two-thirds of its initial value.

The marriage premium for preterm birth was also substantial in 1990 (fig. 5*b*). Infants born to married women had a 4.5% chance of being born preterm in the early 1990s. This chance increased to 5.5% for births to unmarried mothers, a 1 percentage point gap that amounts to a 23% increase in the chances of a preterm birth. By 2016, the marriage protection against preterm birth had fully disappeared, and in fact married mothers experienced a slight disadvantage compared to their unmarried counterparts. While not too much should be read into this slight “marriage penalty” as no controls for the sociodemographic composition of mothers have been included, the estimate makes clear that, by 2016, marriage did not bring the benefits that it once did. Similarly, the chances of being born small for gestational age in the early 1990s were 11.8% for married mothers but 15.7% for unmarried mothers, a large 4 percentage point difference. By the mid-2010s the difference in the proportion of small babies between married and unmarried mothers was only 1.5 percentage points (fig. 5*c*).

To put the marriage premium in the early 1990s in perspective, we can compare it with the effect of major stressors or policy interventions on birth outcomes globally. For example, exposure to a strong earthquake early in pregnancy resulted in an increase in the chances of low birth weight from 5.4% to 7.1%, a 1.7 percentage point rise amounting to a 31% increase (Torche 2011). A substantial expansion of the Earned Income Tax Credit in 1993 resulted in a decline in low birth weight from 10.2% to 6.6% among single women with low education, a 3.6 percentage point difference amounting to a 35% decline (Hoynes, Miller, and Simon 2015). The introduction of the Women, Infant and Children nutrition program targeted at low-income women resulted in a decline in the proportion of low birth weight by a statistically insignificant 0.14 percentage points among low-education mothers (Hoynes, Page, and Stevens 2011). Using these exposures as benchmarks, the association between marriage and the probability of low birth weight observed in Chile in 1990 was substantial.

³We offer results in graphical form throughout the article. A full set of parameter estimates, standard errors, and significance tests supporting all figures can be found in the appendix (available online).

Top panel: Predicted probabilities

Bottom panel: Effect estimates

Figure 5: *Top*, difference in proportion of low-weight births (a), preterm births (b), and small-for-gestational-age births (c) between married and unmarried mothers in Chile, 1990–2016. Circles are parameter estimates from year-specific linear probability models predicting the probability of a low-weight birth, preterm birth, and small-for-gestational-age birth among married mothers (hollow circles) and unmarried mothers (filled circles). Vertical lines are 95% confidence intervals. *Bottom*, effect estimates of the marriage premium on low-weight births (d), preterm births (e), and small-for-gestational-age births (f). Filled triangles are parameter estimates, vertical lines are 95% confidence intervals. Analysis restricted to singleton births. Models include only mother’s marital status as a predictor. See tables A1–A3 in the online appendix for full models.

Top panel: Predicted probabilities

Bottom panel: Effect estimates

Figure 6: *Top*, difference in proportion of low-weight births (a), preterm births (b), and small-for-gestational-age births (c) between married and unmarried mothers adjusted by sociodemographic characteristics of mothers in Chile, 1990–2016. Circles are parameter estimates from year-specific linear probability models predicting the probability of a low-weight birth, preterm birth, and small-for-gestational-age birth among married mothers (hollow circles) and unmarried mothers (filled circles). Vertical lines are 95% confidence intervals. *Bottom*, effect estimates of the marriage premium on low-weight births (d), preterm births (e), and small-for-gestational-age births (f). Filled triangles are parameter estimates, vertical lines are 95% confidence intervals. Analysis restricted to singleton births. Models add controls for mother’s education, mother’s age, urban residence, region of residence, parity, and infant’s sex. See tables A4–A6 for full models.

Married mothers are less likely to be teens, they have higher educational attainment, and live in more advantaged areas than their unmarried counterparts, and so part of the benefits of marriage could be due to these characteristics. As we showed, the sociodemographic composition of married mothers changed over time such that the observed decline in the marriage premium could be entirely driven by compositional change. If, for example, more highly educated women increasingly decide to bear children outside of marriage, it is the shifting balance of educational attainment rather than any effect of marriage that could be changing over time. Figure 6 captures the marriage premium accounting for characteristics of mothers, including age, education, parity, region of residence, and urban/rural residence, and infant sex.

The absolute magnitude of the marriage advantage declines somewhat after we account for mothers' characteristics, but the trend remains unchanged: for all birth outcomes, there is a pronounced decline in the marriage premium over time. In the early 1990s there was a significant advantage associated with marriage in terms of low birth weight, preterm birth, and small-for-gestational-age birth. By the mid-2010s, this advantage had become substantively negligible in the case of low birth weight, fully disappeared for preterm birth, and declined by about two-thirds in the case of small-for-gestational-age birth.

This descriptive analysis yields two conclusions. First, the total marriage premium for infant health has declined dramatically since 1990, virtually disappearing by 2016. Infants born outside of marriage in 2016 are only slightly more likely to be low weight and small for gestational age than children of married mothers, and there is no marital advantage for preterm birth. The findings support the hypothesis that the marriage premium declines as marital births become less normative. Second, sociodemographic differences between married and unmarried mothers account for a portion of the marriage advantage for birth outcomes. However, their role does not appear to have changed over time, and once these factors are controlled, there is still a clear indication of a declining marriage premium over time.

7.2 Variation in Marital Fertility and the Marriage Premium across Local Contexts

Temporal change provides the first descriptive evidence on the association between the normativity of marital fertility and the marriage premium. An alternative source of contextual variation emerges from cross-sectional differences in the prevalence of marital fertility across local contexts where women reside. We exploit variation in the prevalence of nonmarital fertility across municipalities and estimate multilevel models to capture variation in the marriage premium. The analysis is restricted to 1990–99, when the marriage premium for birth outcomes was still substantial, and thus meaningful cross-

Figure 7: Association between marital status and birth outcomes across proportion of nonmarital births in the municipality of mother’s residence, Chile 1990–99. Multilevel models with random intercept and random slope predicting low-weight birth (a), preterm birth (b), and small-for-gestational-age birth (c) births, with robust standard errors clustered at the municipality level. Filled circles are parameter estimates; shaded areas are 95% confidence intervals. Analysis restricted to singleton births. Models include controls for mother’s education, mother’s age, urban residence, region of residence, parity, infant’s sex, year of birth, municipality-level proportion of adults with a high school diploma or more, and municipality-level proportion of households below the poverty line. The values of proportion of births to married women across municipalities of the country range between the 1st and 99th percentile of the variable, providing a meaningful range for the parameter estimates. See table A7 for full models.

sectional variation is likely to be found.⁴

Figure 7 plots predicted differences between married and unmarried mothers in the probability of low birth weight, preterm birth, and small-for-gestational-age birth across localities with different proportions of nonmarital fertility obtained from multilevel models. There is substantial variation in the marriage premium as the proportion of nonmarital births increases across municipalities. Unmarried mothers are 1.5 percentage points more likely to have low-weight births than married mothers (.052 vs. .037) in municipalities with the lowest share of nonmarital births in the country (17% of births in the municipality outside of marriage). The marital advantage declines as the municipal proportion of unmarried births increases, to only 0.3 percentage points in municipalities with the highest levels of nonmarital fertility (57% of births outside of marriage). The same is the case for preterm birth: unmarried mothers are about 1.2 percentage points more likely to have preterm births than married mothers (.051 vs. .038) in municipalities where unmarried births are rare, but the marriage premium fully disappears in contexts where nonmarital fertility is prevalent. The only outcome for which convergence in the marriage

⁴Models for 2000–2009 and 2010–16 are shown in figs. A1a and A1b. As expected given the decline in the marriage premium over time, patterns are similar but attenuated in 2000–2009 and mostly insignificant in 2010–16, a period when the marriage premium had virtually disappeared.

Figure 8: Fixed effects estimates of marriage premium for low-weight births (a), preterm births (b), and small-for-gestational-age births (c) in Chile, 1992–2016. Solid triangles are parameter estimates, vertical lines are 95% confidence intervals. Based on sample of matched children of the same mother (sibling sample) born between 1992 and 2016. In addition to mother’s fixed effects, models account for mother’s age, mother’s education, parity, infant’s sex, urban residence, region of residence, and year of birth.

premium across local contexts is small in magnitude and lacks statistical significance at conventional levels is small-for-gestational-age birth.⁵

We have shown that the marriage premium weakens as marital fertility becomes less normative, both over time and across place. This associational evidence is suggestive but does not rule out the threat of changing unobserved selectivity of women who experience a nonmarital birth driving the results. For example, if unmarried mothers were increasingly positively selected in terms of health status over time, this could induce a spurious decline in the marriage premium. To address individual sources of unobserved selectivity, we link births of the same women over time and estimate sibling fixed effects models of the marriage premium. If the hypothesis about normativity is correct, we expect to find a decline in the effect of marriage over time, even when births of the same mother are compared.

Figure 8 shows a substantial decline in the marriage premium over time, based on fixed effects models. The within-mother comparison shows that the disadvantage associated with marriage for low birth weight, preterm birth, and small for gestational age was substantial and significantly different from zero in the early 1990s. Experiencing an unmarried birth increased the probability of low birth weight and preterm birth by approximately 1 percentage point and increased the probability of a small-for-gestational-age birth by 2.7 percentage points. The absolute magnitude of these effects is similar to those obtained in the multivariate models (compare with figs. 6d–6f), suggesting that

⁵Models with group-centered version of mother’s marital status yield substantively identical results.

unobserved heterogeneity among mothers is not a sizable source of bias in capturing the marriage premium.

As a back-of-the-envelope calculation, consider that 274,147 singleton babies were born in Chile in 1992. The fixed effects estimates suggest that there were 2,872 infants who would have not been born low weight, 2,647 infants who would not have been preterm, and 7,050 infants who would not have been small for gestational age had their mothers been married that year. Given the substantial impact on infants and their families and the social cost of low birth weight in terms of health and human capital later in life (Behrman and Rosenzweig 2004), the effect of marriage in the early 1990s had important consequences for population health and well-being. Strikingly, the positive effect of being born to married parents declined over time for all three outcomes. The marriage premium for low birth weight and preterm birth fully disappeared during the 2000s and shrank to about a third of its value (from 2.7 to 0.7 percentage points) in the case of small for gestational age. Given that fixed effects models account for unobserved time-invariant characteristics of women who marry, they provide additional evidence of a decline in the effect of marriage on birth outcomes as marriage loses its normative status.

7.3 Falsification Strategy

While fixed effects models account for all time-invariant characteristics of mothers, they are not free from bias. Fixed effects estimation relies on the assumption of strict exogeneity, which rules out any kind of dynamic relationship between changes in the treatment and unobserved changes captured by the error term (Wooldridge 2002, pp. 252–54). At the microlevel, the strict exogeneity assumption would be violated if there are unobserved changes in mothers' lives leading to selection into or out of marriage with consequences for their children's health at birth. For example, health improvements or financial gains may make women who had a prior unmarried birth more attractive spouses and may increase their chances of experiencing their second birth as married. In this case, it would be the change in health status or financial circumstances that prompts both a marital change and better infant outcomes. Conversely, if a decline in a woman's health led to marital dissolution, a transition from marital to nonmarital fertility could be spuriously associated with worse birth outcomes. These sources of bias are unlikely to affect our findings because our methodological strategy relies in changes in the marriage premium over time. In order to induce bias, the role of any unobserved changes in mother's lives associated with a marital transition would need to monotonically and substantially vary over time, an unlikely expectation.

Another source of bias in the estimated effect of the normativity of marriage emerges from unobserved social trends. If both the decline in marital fertility and the disappearance of the marriage premium were caused by unobserved social changes, we would

Figure 9: Proportion of births to unmarried women with unknown/absent fathers in Chile, 1990–2016. Data are from 1990–2016 birth records, Chilean Ministry of Health. Unknown/absent fathers defined by missing information about father but valid information about mother in the birth certificate.

observe an artifactual temporal correlation. This possibility is a serious challenge to our hypothesis because the declining normativity of marriage did not occur in a historical vacuum. Instead, it was part of a broader ideational and cultural transformation toward greater individual autonomy and tolerance of diverse lifestyles, as shown in figure 2. It is then possible that this broader ideational change resulted in both a decline in the normativity of marriage and the reduction of the marriage premium. While this possibility does not rule out a contextual effect on the marriage premium, it would redirect the search for its root cause.

In order to address this potential source of bias, we exploited a counterfactual falsification scenario in which the normativity of a practice or status does not change over time while other features of the social context—including ideational change and greater social tolerance—do change. We find such a falsification case in the proportion of infants born to unknown/absent fathers over 1990–2016. Following prior literature, we operationalize births to unknown/absent fathers as infants born to unmarried mothers in which information about the father is missing in the birth certificate, a group that has been shown to be highly disadvantaged and at a high risk of adverse health outcomes (Gaudino, Jenkins, and Rochat 1999; Tan et al. 2004).

While nonmarital births increased dramatically since 1990, the share of births to unknown or absent fathers remained remarkably constant over time (fig. 9). In 1990, 11% of all infants born in the country had unknown or absent fathers. By 2016, this proportion was 9%, with a near flat trend until 2010 and a small decline thereafter. If the factor driving the unknown/absent father penalty for infant health is indeed the

normativity of these births, we should not observe a decline in this penalty over time. If, instead, what drives the birth outcomes of this group is the broader ideational and social change experienced in Chile, we will observe that the penalty associated with unknown/absent fathers declines even if the prevalence of these births did not change over time.

Figure 10 shows year-specific results of regression models predicting the penalty associated with having an unknown/absent father, that is, differences in the birth outcomes of mothers with unknown or absent fathers and all other mothers, controlling for sociodemographic characteristics of mothers, analogous to figure 6. As expected, we observe a substantial penalty associated with an unknown/absent father for all birth outcomes. Critically for our inquiry, the low birth weight penalty is stable over time with trendless oscillation between 1 and 1.5 percentage points. Such stability is accounted for by the trends in the two proximate determinants of birth weight: a slight increase in the unknown/absent father penalty for preterm birth is offset by a slight decline of the penalty for small-for-gestational-age birth. The unknown/absent father penalty persists over time in spite of the vast ideational and other transformations between 1990 and 2016, suggesting that the decline in the marriage premium over time emerges from the changing normativity of marriage itself rather than from the broader macrosocial transformations that embedded it.⁶

8 CONCLUSION

The effect of marriage for children’s outcomes is a relevant and contentious question with important implications for social policy. Some scholars argue that a stable legal marriage is critical for children’s well-being and attainment, and no other family configuration compares to it (Popenoe 1996; Waite and Gallagher 2000). Others argue that the benefits of marriage emerge mainly from observed and unobserved advantages of those who marry rather than from their marital status itself. We shift the debate from the individual attributes of unmarried parents to the standing and meaning of marriage in society and test the hypothesis that the effect of marriage on infant health is contextual, that is, that the marriage premium depends on the normativity of marriage in society and will decline as marital fertility loses its status as a normative institution.

⁶The increase in all nonmarital births (fig. 1b) combined with temporal stability in the proportion of nonmarital births with an absent/unknown father (fig. 9) results in a declining proportion of unmarried births with an unknown/absent father. Given that these births have a higher risk of adverse outcomes, it is possible that this compositional change accounts for the closing gap between married and unmarried births. To address the potential effect of this compositional change, we replicated all analyses in figs. 5–8 excluding unmarried births with unknown/absent fathers (figs. A2a–A2d). As expected, these models show a smaller marriage premium throughout the period of observation. However, the main findings remain unchanged: in all analyses the marriage premium declines (and in the case of preterm birth it reverses) as marital fertility becomes less normative.

Top panel: Predicted probabilities

Bottom panel: Effect estimates

Figure 10: *Top*, difference in proportion of low-weight births (a), preterm births (b), and small-for-gestational-age births (c) between unmarried mothers with unknown/absent fathers and births to all other mothers in Chile, 1990–2016. Circles are parameter estimates from year-specific linear probability models predicting the probability of a low-weight birth, preterm birth, and small-for-gestational-age birth among married mothers (hollow circles) and unmarried mothers (filled circles). Vertical lines are 95% confidence intervals. *Bottom*, Filled triangles are parameter estimates of the marriage premium on low-weight births (e), preterm births (f), and small-for-gestational-age births (g). Filled triangles are parameter estimates, vertical lines are 95% confidence intervals. Analysis restricted to singleton births. Models include controls for mother’s education, mother’s age, urban residence, parity, and infant’s sex. See tables A8a–A8c for full models.

Our research exploits variation in nonmarital fertility over time, across local contexts, and within mothers to demonstrate the effect of the normativity of marital fertility on the marriage premium for birth outcomes. Combining multivariate and multilevel models with mother fixed effects models and a falsification strategy, we consistently find that being born to married parents pays off when marital fertility is normative and has little or no benefit when it is not. We are, naturally, not claiming that married and unmarried women are identical on the basis of observed and unobserved factors. In most contexts observed to date, married women are more advantaged than their unmarried counterparts in terms of socioeconomic and other resources that matter for birth outcomes. However, after we control for observed and unobserved sources of selectivity, the marriage premium is substantial when marital fertility is the norm, and it declines or fully disappears in contexts in which marital fertility has ceased to be normative.

At the empirical level, this finding is relevant for child well-being given the substantial increase in nonmarital fertility in many countries of the world. At the theoretical level, it has implications for the consequences of a wide range of practices and statuses socially defined as nonnormative in specific contexts—sexual identities and orientations, religious beliefs, interracial unions, and online dating, among many others—on individual outcomes. As with being married, the consequences of these identities or practices could at least partly depend on how normative they are in society and could change—dramatically in some cases—as the normativity of these practices changes.

Importantly, we acknowledge that our analysis is not a perfect test of the role played by normativity in the consequences of marriage for children. Short of a massive experiment in which marital status were randomly and persistently allocated to women in varying proportions across aggregate units, probably no research design exists that would offer a bulletproof test of a contextual effect—and even such an implausible experiment would not be perfect, as uncontrollable externalities would likely induce interference across units defined by treatment status (Cox 1958, p. 19; Rubin 1986). What we have offered is a series of analyses exploiting distinct sources of “real world” variation that offer nontrivial replication (Rosenbaum 2001) to provide an as robust as possible test of the effect of marriage as its social normativity declines.

We have focused on the dichotomous distinction between married and unmarried parents. While this single distinction provides analytical clarity, it does not exhaust the dimensions of family structure that vary in normativity and that matter for birth and children’s outcomes. Scholars of the family have shown that different sources of complexity in family structure including different types of family configurations beyond marital status—such as cohabiting versus single mothers—and family transitions matter for children’s outcomes (Albrecht, Miller, and Clarke 1994; Bird 1997; Cherlin 2004; Fomby and Cherlin 2007; Brown 2011; Craigie, Brooks-Gunn, and Waldfogel 2012). It is not possible to examine these types of family structure and transitions using birth

registry data. However, hypotheses about the contextual effect of normativity could certainly be extended to these forms, as their social prevalence and acceptability changes across societies and over time.

While we have examined the contextual benefits of marriage on infant health—the earliest measure of children’s well-being that can be observed—it is possible that similar contextual effects of parents’ marital status exist for children as they grow up, affecting their socioemotional development and educational achievement and attainment. In fact, the mechanisms we have suggested as potential drivers of the contextual effect of marriage—stigmatization of unmarried births, with consequent labeling, separation, status loss, and discrimination, and the internalization of such negative responses—are likely to operate for children’s outcomes later in their lives, possibly even more strongly. A stronger negative effect of growing up with unmarried parents could emerge if the stress and isolation experienced by the mother had a cumulative effect over time or if its stigmatization extended from the mother to the child through social networks (e.g., bullying or isolation for having unmarried parents) or through institutional responses (e.g., teachers discriminating against or favoring children on the basis of the marital status of their parents).

We have measured the normativity of nonmarital fertility as the share of births that are outside of marriage in a particular social context. This decision amounts to using a descriptive norm (what most people do) as a measure of prescriptive norm—a shared expectation for appropriate behavior that represents “what people ought to do” (Axelrod 1986; Cialdini, Reno, and Kallgren 1990; Bicchieri 2012; Horne and Mollborn 2020). While the descriptive and prescriptive components of the norm are tightly coupled in most empirical settings, this overlap is not necessary in every social setting (Marini 1984). Practices that are nonnormative might be prevalent in some contexts (think of evading taxes), and behavior that fulfills a social norm might be rare in some contexts (think of voting). Furthermore, scholars have shown that descriptive norms can have effects on individual outcomes, independent of any prescriptive component, driven by an “everyone is doing it” motivation alone (Gerber and Rogers 2009; Irwin and Simpson 2013).

This opens the question about the root cause of the contextual effect of normativity that we have documented. Is it the fact that nonmarital fertility is increasingly accepted and expected in society (the prescriptive component of the norm), or is it merely the fact that increasingly “everyone is doing it” (the descriptive component of the norm)? Are both components necessary for an effect to emerge? Do they reinforce each other in interactive ways? Addressing these questions is a formidable task, given that prescriptive and descriptive components of norms are usually tightly coupled in real social settings. However, recent trends in nonmarital fertility in many countries are ripe with theoretical opportunity. Consider that in 2016 only 27% of all births in Chile occurred within marriage. Under a strictly descriptive understanding of norms, it could be argued

that marital fertility has already become nonnormative and thus might start incurring a penalty in terms of infant health. A prescriptive understanding of norms would refute this expectation: so far, the declining prevalence of marital births has not been accompanied by any indication that marital fertility is regarded as a violation of “what people ought to do” in Chile or any country we are aware of. This and similar changes, increasingly common around the world, could allow us to further explore the mechanisms for the contextual influence of normativity of institutions, distinguishing their prescriptive and descriptive components.

A related question is about the shape of the association between the normativity of marriage and the marriage premium. A simple expectation is that this association is linear: as normativity of marriage declines, the marriage premium weakens at a constant rate. But the contextual effect of normativity might severely depart from linearity. There might be tipping points above which practices become perceived and enacted as normative, such that further expansion does not alter their influence. For example, if a vast majority of births occur outside of marriage, would further increases make a difference for the marriage premium for children’s outcomes? Would an increase from 5% to 10% make a difference? To further complicate matters, the normativity of practice likely interacts with the status of those engaging in nonnormative behavior. If it the most influential groups are the ones at the vanguard of challenging social norms, then a lower threshold might be required for the declining power of normativity (Paluck and Shepherd 2012; Paluck, Shepherd, and Aronow 2016). These questions cannot be addressed by any single case study, but a systematic comparison of settings could uncover empirical regularities with high theoretical value.

Our research suggests an important mechanism for the contextual effect of social practices and statuses: in contexts where it is nonnormative, having an unmarried birth could be stigmatized, and stigmatization could shape how unmarried mothers are treated and how they see themselves and behave as a result. This is not the only possible mechanism for the consequences of the normativity of a practice. For example, Bearman and Brückner (2001) found that making a virginity pledge delays first sex among adolescents only in schools where there are some but not too many pledgers. Given this finding, an alternative mechanism for the contextual effect of an individual decision emerges: pledging creates a moral community only in settings where it is partially nonnormative. Beyond specific mechanisms, the corollary of our analysis is that the consequences of being born out of wedlock do not depend solely on the individual-level advantages of unmarried parents or on an essentialized understanding of the meaning of marriage in society. Rather, the understanding of non-marital fertility should consider a critical contextual—and contingent—attribute: its social normativity. Given that the normativity of marital fertility has declined over time in much of the world and will likely continue to do so, the advantages of marriage for children, net of the characteristics of married

parents, could wither or fully disappear over time in many societies. This finding, as intuitive for sociologists as it might be, has consistently been neglected both by empirical analyses about the consequences of nonmarital fertility and by policy debates about how to address it.

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