The Influence of Wives' and Husbands' Fertility Preferences on Progression to High Parity Births in Nepal

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Abstract
As couples across the globe increasingly exercise conscious control over their reproduction, there is a growing need to examine the influence of both husbands' and wives' preferences on fertility outcomes. This study focuses on couples in rural Nepal, investigating which spouse's preference prevails in decisions about moving beyond the two-child norm. Using couple-level measures of spouses' family size preferences—followed by more than a decade of panel data on fertility outcomes—we investigate how each spouse's preference influences couples' rate of progression to third and fourth parity births. This longitudinal design advances research on couples' decision-making regarding fertility beyond commonly-used cross-sectional investigations, and extends analysis to a setting where total fertility rates have fallen dramatically in recent decades. Contrary to expectations based on women's relative disadvantage, we find that wives' preferences tend to drive couples' progression beyond two children, even when spouses' family size preferences are discrepant.

Introduction

As the prevalence of contraceptive use rises across the globe and married couples exert conscious control to limit their fertility, preferences regarding desired number of children become increasingly important predictors of fertility behaviors. Recent studies have demonstrated that a couple's fertility behavior is influenced by the preferences of both the husband and the wife (Ezeh 1993; Bankole 1995; Becker 1996; Bawah et al. 1999; DeRose and Ezeh 2005; Gipson and Hindin 2009). Often, husbands and wives have similar fertility goals because they are influenced by the same societal and family contexts, but they do not always agree on the ideal number of children for their family. Existing research finds that while men and women may have similar preferences at the aggregate level (Mason and Taj 1987, Ezeh et al. 1996), there can still be considerable discrepancy at the couple-level (Bankole and Singh 1998).

To understand the relationship between fertility preferences and fertility behavior, therefore, it is important to investigate couple decision-making and patterns of behavior in cases of couple discordance (Dodoo 1998; Voas 2003). Existing research shows that the influence of each partner varies by setting (Bankole and Singh 1998). The prevailing gender system, and the level of gender inequality, can affect how much each spouse's fertility preference influences the couple's fertility behavior (Morgan and Niraula 1995; Mason and Smith 2000; Takyi and Dodoo 2005). Average fertility levels and contraceptive prevalence may also be important contextual factors affecting the influence of each spouse. Much of the existing research on this topic has been conducted in sub-Saharan Africa, where fertility levels are generally comparatively high (United Nations 2011). Because patterns of decision-making are expected to vary by context, it is important to expand the geographic scope of these investigations.

Additionally, it is important to investigate the influences of wives' and husbands' fertility preferences with longitudinal data. Most existing studies on this topic use cross-sectional data to show associations between fertility preferences and behaviors. These studies are unable to make causal inferences about the associations because of the temporal ordering of the attitudinal and behavioral measures. Only a few studies have used longitudinal data to examine the influence of each spouse's fertility preferences, and these studies have somewhat inconsistent findings regarding when husbands' or wives' preferences prevail. For example, a study in southwest Nigeria found that husbands' preferences are more influential for lower parity births, but wives' preferences prevail at higher parity births (Bankole 1995). In contrast, in a demographic surveillance sight in rural Bangladesh, Gipson and Hindin (2009) found that the wives' preferences dominate childbearing behaviors, although over time wives become more likely to acquiesce to the desires of husbands.

This study advances the examination of fertility preferences by using more than a decade of panel data to compare the influence of each spouse's preferences on subsequent childbearing in Nepal. In contemporary rural Nepal, a majority of people state that two children is the ideal family size.[1] This family size has been widely accepted as the ideal, largely due to family planning initiatives that have been present in Nepal since the 1960s (Thornton et al. 2012). Couples that progress beyond two children—to having three or more children—are surpassing this widespread norm. We employ event history analyses to investigate this increasingly uncommon event of having high parity (i.e., third or fourth) births. Specifically, we investigate whether progression to high parity births is driven independently by each spouse's family size preference, by the difference between spouses' family size preferences, or by spouses' relative

1. This is based on data from the 1996 baseline Chitwan Valley Family Study (CVFS).

family size preferences. Through these analyses, we determine how spouses' fertility preferences each contribute to their experience of childbearing beyond the culturally-sanctioned average of two children.

Setting

Our conceptual framework is designed around the context of Chitwan, Nepal: a mainly agrarian district in the southern region of the country, near the Indian border. Arranged marriage, though gradually declining, is prevalent in this setting. The majority of married women (76 percent as of 1996 and 63 percent as of 2008) did not participate in choosing their spouse, while a greater proportion of married men (50 percent as of 1996 and 37 percent as of 2008) did participate in their spouse choice. Thus, many marriages are not initiated with an emotional bond. Instead, these arranged marriages typically involve the family's consideration of the ethnic identity and social standing of potential spouses for their offspring (Bennett 1983). Of course, emotional bonds are likely to grow between spouses over time. Still, even years after marriage, wives typically are expected to defer to their husbands – an expectation often enforced by co-residing in-laws (Bennett 1983; Link 2010).

The population of Chitwan is largely dependent on subsistence agriculture. In this kind of setting, children are highly valued for the work they can perform on the farm (Cain 1977). But, with an increase in schooling and an effort among policy-makers to decrease family sizes (Caldwell 1982; Thornton et al. 2012), fertility has drastically declined in the last half century (Dahal et al. 2008; Yabiku 2005). The total fertility rate fell from 6.1 in the early 1950s to 4.41 in the late 1990s, and then down to 2.6 by 2012 (Population Reference Bureau 2012; Thornton et al. 2012; United Nations 2011). In this majority Hindu setting, sons are particularly valued for their important role in religious rituals, and are depended upon for support in old age (Bennett

1983; Fricke 1986). Furthermore, sons typically maintain strong ties with their natal family, while daughters typically move in with or near to their husbands' family. In order to maintain these familial ties and to secure old age support, married couples often desire at least one son and continue to have children until their desired number of sons is reached (Cameron 1998; Stash 1996; Dahal et al. 2008). A desire for daughters, though often overlooked, is also prevalent: couples typically want at least one daughter, potentially pushing their achieved fertility even farther upward (Stash 1996).

Childbearing occurs almost exclusively within marriage in this setting (Jennings, Axinn, and Ghimire 2012). Moreover, marriage is universal, and married couples face great social pressure to have children soon after marriage (Jennings et al. 2012; Yabiku 2005). Once couples begin to have children, they typically do not adopt contraception until they are ready to stop childbearing (Axinn and Yabiku 2001; Brauner-Otto, Axinn, and Ghimire 2007). Female and male sterilization are the most commonly used methods of contraception (Dahal, Padmadas, and Hinde 2008; Labrecque et al. 2005; Link 2010; Tuladhar 1987). In this setting, it is important to examine each spouse's influence over the decision to continue childbearing beyond the two-child norm.

Fertility Preferences and Behaviors

Previous studies in low-income countries that explored the spousal dynamics of fertility limitation decisions have documented a variety of decision-making patterns. While many have found that husbands' preferences drive fertility (Casterline et al. 1997; Joesoef et al. 1988; Khalifa 1988), others have found that wives' preferences are also influential (Bankole and Singh 1998; Dodoo 1998; Maharaj and Cleland 2005). The decision rule—or which spouse's

preferences determine fertility—likely depends on the gender dynamics and social norms about fertility in the particular society (Voas 2003).

In many settings, men's preferences dominate because they have considerable power within their marriage to influence reproductive health behaviors (Casterline et al. 1997; Beegle et al. 2001; Blanc 2001). Furthermore, studies have documented women's disadvantage in decision-making authority regarding reproductive health (Jejeebhoy 2002; Furuta and Salway 2006; Allendorf 2007a; DeRose and Ezeh 2010). In this Nepalese setting, too, there are strong reasons to expect that husbands' preferences may outweigh wives' preferences in influencing couples' achieved fertility. Because men tend to hold authority in households and in marriages (Bennett 1983; Link 2010), husbands may have the ultimate decision-making power.

Not only are husbands in Nepal likely to hold the authority in decision-making, they may also have strong motivation to enforce their fertility preferences. In patrilineal systems, like this one, children are thought of as belonging primarily to the husband and his natal family (Goonesekere 1994). Thus, men may be likely to have more pro-natalist attitudes than women (Mason 1987; Mason 2001) and may be especially determined to see that those preferences are achieved. Moreover, studies have found that, in Nepal, husbands are more willing than their wives to pursue the birth of a son at the expense of a larger completed family size (Stash 1996). Thus, husbands' preferences may have an important influence on couples' progression to high parity births.

While these are strong reasons to expect that husbands' preferences will dominate in this setting, there are also some reasons to expect that wives' preferences will influence couples' fertility. Recent changes in gender systems in Nepal have led to some reductions in gender inequality. For example, female education has been increasing (Williams 2009), reducing

spousal discrepancy in education, and allowing wives more decision-making power. There have also been some recent legal advances in women's constitutional rights (Gilbert 1992). These changing laws and advancement in women's human capital may extend into the home to increase women's influence on decision-making.

Furthermore, wives, like husbands, may have strong motivation to achieve their fertility preferences. First, mothers hold primary responsibility for childrearing (Bennett 1983; Jennings et al. 2012; Paneru 1981). The burden placed on them in this domain may increase their desire to limit their family size, and their dominance in this domain may give them bargaining power in their fertility outcomes. Second, wives may depend on their children for support to a greater extent than husbands. Sons, especially, can act as a safety net for women, who are largely dependent on male relatives for access to property ownership (Allendorf 2007b; Brunson 2010). Thus, we expect that both wives' and husbands' fertility preferences will influence their rate of progression to high parity births.

So far, we have focused on the potential for spouses' preferences to have independent influences on their fertility outcomes. But, the relative spousal influences may not be entirely straight-forward. These influences may also depend on the extent to which spouses' family size preferences match. The direction of spousal disagreement and the total amount of disagreement about family size may be a driving force in fertility outcomes. For example, in some settings, inertia may contribute to relatively slower parity progression in couples that disagree on whether and when to have another child (Voas 2003). Furthermore, spouses' relative preferences—as defined by both spouses having a preference for a large family, husband preferring a large family while wife prefers a small family, vice versa, or both spouses preferring a small family—can potentially be important determinants of achieved fertility.

In cases of discordance in spousal preferences we anticipate that a couples' fertility behavior will follow husbands' preferences (instead of wives' preferences), given the patriarchal nature of Nepalese society. However, we expect that a greater total disagreement in spouses' preferences (ignoring *which* spouse desires more children) will lead couples to progress to high parity at a slower rate. Moreover, we expect that couples in which both spouses have relatively high fertility preferences will progress to high parity at a faster rate, whereas couples in which both spouses have low fertility preferences will progress at a relatively slower rate.

Data

The Chitwan Valley Family Study (CVFS), conducted in rural Nepal, provides couple-level, panel data on spouses' fertility preferences and subsequent fertility behavior. The data collection began in 1996 with 72-minute, face-to-face baseline interviews. These interviews were conducted with all household members, aged 15–59 and their spouses (even if outside this age range or living elsewhere), of every household in 151 sampled neighborhoods. Special care was taken to interview spouses simultaneously in two different locations to enhance the independence of their responses. Beginning in 1997, monthly follow-up interviews were conducted that collected information about household members on a range of demographic events, including pregnancy and childbearing.

Our analytic sample consists of all women ages 15 to 34 in 1996 who were at risk of having another birth after their second or third live birth (N=371), and whose husbands were also interviewed during the 1996 survey. We exclude women over the age of 34 because these women are close to or have surpassed the completion of their childbearing years. Our independent variable of interest – a measure of family size preference – comes from the baseline

study conducted in 1996, while the dependent variable for high parity births comes from the monthly interviews that began in 1997.

Measures

Dependent. The dependent variable is a time-varying dichotomous variable indicating whether the respondent had a high parity birth in each month. This variable is coded as 0 for every month up to the ninth month prior to the birth, and 1 in the ninth month prior to giving birth. Respondents do not contribute to person-months of exposure to risk of birth for the eight months prior to the birth month and for three months after the birth.

Independent. We measure family size preference using the most widely-investigated measure of this concept: the Coombs scale (Coombs 1974, 1979). This measure allows for more variance in respondents' reports of family size preference than a single-item measure of fertility preference. The Coombs scale allows us to differentiate between those respondents who want two children *at most* and those who want two children *at least*. Respondents were first asked "If you could have exactly the number of children you want, how many children would you want to have?" Next, respondents were asked how many children they would like to have if they could not have their first choice. (Respondents who already had children were asked how many children they would like to have if they could start life over.) Finally, they were asked how many children they would have if they could have neither of their first two choices. Originally, this item was coded on a scale of 1 to 25. This Coombs scale measure for husbands and their wives are only moderately correlated, at r=0.21.

We use the Coombs scale to measure wives' and their husbands' family size preferences. We then coded a measure that was calculated as husbands' preference subtracted from wives' preference to measure the difference in spousal preferences. Next, we used an absolute value of

that difference to measure total difference (regardless of which spouse prefers a larger family) in spousal preferences.

To create measures that reveal agreement and disagreement in spouses' preferences, we have dichotomized the Coombs scale so that a person with a value of 7 or greater is considered to have a preference for a relatively large family (a "high" preference). These are respondents whose first choice regarding the ideal number of children is three or more, or whose first choice was for two children but their subsequent choices were for three or four children. Likewise, a person with a value of 6 or less on the Coombs scale is considered to have a preference for a relatively small family (a "low" preference). These respondents had a first preference of zero, one, or two children, and never indicated that they would want as many as four children. This coding, illustrated in Figure 1, allows for nearly equal split in distribution of preferences. We then created four dummy variables to indicate four categories of relative spousal preferences: the first coded 1 if both spouses have high preference, the second coded 1 if the wife has a high and husband has a low preference, the third coded 1 if the wife has a low and husband has a high preference, and the fourth coded 1 if both spouses have a low preference. Figure 2 provides a visual illustration of this coding scheme.

Controls. We also account for characteristics of the respondents that may influence both the family size preference and the rate of high parity birth. First, we control for various indicators of couples' childbearing experiences. We control for wives' age at the time of first birth, as women who begin childbearing later in life may be inclined to speed the succession of their births. We also include a time-varying covariate for the respondent's monthly parity status (i.e., whether they have had two or three live births). Next, we include measures indicating whether the couple's achieved fertility consists of either all sons or all daughters. Nepalese couples may

be especially likely to progress to high parities if they are lacking either a son or a daughter (Dahal et al. 2008; Stash 1996). We include two dummy measures as indicators of couples' achieved fertility as of 1996: the first is coded 1 if the couple has only sons and 0 otherwise; and the other coded 1 if the couple has only daughters and coded 0 otherwise. Furthermore, many couples will have an additional child in an attempt to reach their preferred number of sons in spite of having met their family size preference. Therefore, we also control for wives and husbands' level of son preference. This preference measure comes from a survey item, specifically designed for this Nepalese population, in which respondents were asked to agree or disagree with a common Nepali phrase: "Yota aka, ke aka? Yota chora, ke chora?" This roughly translates to "Having only one son is the same as having only one eye," meaning it is good to have an extra son, just in case. Responses are coded from a scale of 1 to 4: strongly disagree, disagree, agree, and strongly agree. Additionally, we include a measure to indicate the number of children the respondent gave birth to that had died as of 1996. Experiencing the death of a child may motivate couples to increase or exceed their family size preference to help ensure that infant mortality does not cause them to fall short of their completed family size goal.

Next, we account for characteristics of the couples' household and community. First, as an indicator of wealth, we control for farmland ownership. This measure receives a code of 1 if the couple's household own any farmland, and 0 otherwise. Additionally, we account for community characteristics that can impact fertility preferences and behaviors. To do so, we include a measure that indicates the number of nonfamily services that are within a five-minute walk from the couple's neighborhood (including health centers, schools, and bus stops).

Additionally, we account for husbands' and wives' nonfamily experiences. Exposure to activities and ideas outside of the family home can influence the value women place on having a

(large) family and can affect their fertility experiences (Barber and Axinn 2004; Ghimire et al. 2006). We include measures indicating both the wife's and the husband's accumulated years of education in 1996. We also include a dummy variable for whether the wife ever had a wage labor job as of 1996, coded 0 to indicate that she never had a wage labor job and 1 to indicate that she ever had a wage labor job.

We also control for demographic characteristics. To control for fecundity, we use a monthly time-varying covariate of wife's age (in years). We also control for ethnicity. Ethnicity in Nepal is complex, multifaceted, and related to religion. A full description of the ethnic groups residing in this setting is beyond the scope of this paper (for detailed descriptions of these groups see Acharya and Bennett 1981; Bennett 1983; Cameron 1997; Fricke 1986; Gellner and Quigley 1995; Guneratne 1994; Gurung 1980; MacFarlane 1976). We control for five classifications of ethnicity, coded as dummy variables, because of their different propensities to have large families: Brahmin/Chettri (high-caste Hindu), Dalit (low-caste Hindu), Newar, Terai Indigenous, and Hill Indigenous. Brahmin/Chettri ethnicity is the omitted category; influences of the other four groups are relative to this group.

Finally, to account for the duration of the exposure to pregnancy risk, we control for the duration of time, in months, since the first monthly interview.

Analysis

We use event history methods with logistic regression to model the risk of having a third or fourth birth within 147 months of data. Our time-varying measures of respondent characteristics are measured in the month prior to the month in which a birth is captured (i.e., lagged by one month). Because the data are precise to the month, we use discrete-time methods to estimate these models, with person-months of exposure as the unit of analysis. The discrete

time approach yields results similar to a continuous approach because the incidence of having a birth in any one month is quite low, but the discrete time approach allows us to avoid making any parametric assumptions regarding the distribution of the underlying baseline hazard (Yamaguchi 1991). We consider women to be at risk of a high parity birth after they are married and have two or three children. Women are removed from the risk set during the months that they are not exposed to the risk of becoming pregnant with their third or fourth child. Women who have a third child are removed for the eight months following the first month of their pregnancy and for a three-month period of amenorrhea following the birth. Women pregnant with their fourth child are removed completely as of the eighth month prior to the birth. Sterilization is treated as a competing risk: women who are sterilized or whose husbands are sterilized after the start of the hazard cease to contribute to the person-months of exposure to risk of birth as of the first month of sterilization.

Women who are at risk of a third- or fourth-parity birth are included in our sample, allowing for repeatable events in the hazard. In the sample, 168 women had at least one birth (either third or fourth birth), and, of these, 25 women had two births (a third *and* fourth birth), for a total of 193 births. These data allow for parity variation both within and between individuals (Teachman 2011). The repeated birth events can introduce potential bias in the estimates. To account for this potential bias, we estimate three-level models: births nested within individuals, nested within neighborhoods. We discuss the results as odds ratios, which is the anti-log of the coefficient. These odds ratios can be interpreted as the amount by which the odds are multiplied for each unit change in the respective independent variable. If the odds ratio is greater than 1, the effect is positive and if the odds are less than 1, the effect is negative.

Results

Descriptive statistics, presented in Table 1, indicate that both husbands and wives averaged a score a little greater than 6 on the Coombs scale. The dummy variables for relative preferences show that husbands and wives have similar fertility preferences in two-thirds of the couples: in 50 percent of couples, both the husband and the wife have low fertility preferences; and in 17 percent of the couples both the husband and the wife have high fertility preferences. Couples with discordant preferences are split about evenly between wife high and husband low (17 percent) versus wife low and husband high (16 percent).

Odds ratio results from logistic regression analyses are displayed in Table 2. In Model 1, we investigate the potential for both wives' and husbands' family size preferences to have independent influences on their fertility outcomes. We find that wives' fertility preferences have a strong influence on fertility outcomes that is independent of their husbands' preferences. Holding husbands' preferences constant, couples progress to high parity about 43 percent faster for each unit increase in wives' preferred family size. Given that the Coombs Scale ranges from a value of 1 to a value of 25, this influence is large. For example, couples in which the wife wants two children and two is the minimum number she would prefer progress to high parity at a rate 2.92 times faster than couples in which the wife wants two children as the maximum number she would prefer. Model 1 also reveals that husbands' preferences do not influence couples' fertility outcomes when holding their wives' preferences constant.

Model 2 displays the influence of spouses' disagreement about preferred family size. This model reveals a moderately significant, positive influence of this difference, indicating that couples progress to high parity births about 18 percent faster with each unit increase in the amount that wives' preference exceeds her husbands'. Put more simply, couples progress to high parity at a faster rate when wives' prefer larger families than their husbands. In Model 3, we test

whether this influence is due to total spousal difference in preferences. This absolute value measure reveals that there is no statistically significant influence of total disagreement. All in all, Table 2 reveals that wives' preferences have an important independent influence; and it is not about whether or not spouses' agree on family size, but whether the *wife*, in particular, wants a larger family than her husband.

Table 3 then reveals a closer look at the influence of spouses' relative preferences. In Model 1, we have excluded couples in which both spouses have low fertility preferences as the reference category. The other three coefficients indicate the rate at which these couple-categories will have a third or fourth birth relative to this excluded category. First, the model reveals that couples in which both spouses have high fertility preferences progress to high parity births at a rate 8.04 times as fast as couples in which both spouses have low fertility preference. The second coefficient indicates that, even when husbands have low fertility preference, if the wife has a high preference, the couple progresses to high parity birth at a faster rate than couples in which both spouses have a low preference. Specifically, these couples in which the wife has high and husband has low preferences progress 4.30 times as fast as couples in which both spouses prefer small families. We fail to find evidence that the same is true when husbands' preference is high: couples in which the husband has high but the wife has low preferences progress to high parity births no more quickly than couples in which both spouses have low fertility preferences.

Models 2 through 4 of Table 3 reveal further support for the finding that wives' preferences drive couples' fertility. In each model and in each category of couple preferences, the rate of couples' progression to high parity is in the direction of wives' preferences. Among coefficients that reach statistical significance—regardless of which category is used as the reference and regardless of husbands' preference—wives' fertility preferences appear to drive

couples' progression to high parity. Thus, these results reveal evidence that wives' fertility preferences drive high-parity fertility at the couple-level in this Nepalese setting.

In analyses not shown, we ran models using similar measures of husbands' and wives' relative fertility preferences, but coded from a single-item measure of preferences rather than from the Coombs scale. We coded this measure so that a desire for two or fewer children is coded as "low" and a desire for three or more children is coded as "high". A large majority express a desire for 2 or fewer children, increasing the standard errors of our key coefficients. Still, this sensitivity exercise revealed that using the single item measure yields similar results.

The control measures operate as expected in both Tables 2 and 3. Couples that have already reached third parity progress to high parity births at slower rates than couples with two children. Likewise, couples that have only sons progress to high parity more slowly. Couples that have experienced the death of a child progress at a significantly faster rate. Exposure to nonfamily experiences and services also influences progression to high-parity fertility. Specifically, couples in which wives have greater years of education (relative to women with fewer years of education) progress more slowly to high parity, as do couples in which husbands have greater educational attainment. Furthermore, living in neighborhoods with more exposure to nonfamily services generally tends to suppress the rate of high parity progression. Among the ethnic groups, only the Hill Indigenous people progress to high parity at a significantly slower rate, relative to Brahmin/Chettri people. Finally, the parameter we use to specify the baseline hazard (time) is also significant, meaning that the rate of progressing to high parity births increases over time.

Conclusion

As couples across the globe increasingly exert conscious control of their fertility through the use of modern contraception, it has become ever more important to understand fertility preferences as drivers of achieved fertility. Patterns of couple-level decision-making about fertility can have an important impact on aggregate-level fertility trends (Ezeh 1993; Bankole 1995; Becker 1996; Bawah et al. 1999; DeRose and Ezeh 2005; Gipson and Hindin 2009). This study has examined the role that wives' and husbands' preferences about ideal family size play in couples' fertility behavior. We use couple-level data on preferences to investigate the rate of progression to high parity over the subsequent decade. Overall, we find that wives' preferences tend to drive couples' progression to high parity births.

Couples in which wives' prefer larger families progress to high parity at a faster rate, even while husbands' preference is held constant. Closer investigation reveals that a wife's preference not only seems to drive fertility, but the amount by which her desired family size preference exceeds her husband's preference is an important predictor of the couples' fertility. This influence of spousal difference is particularly about the wife's preference over her husband's preference, rather than being about the presence of any type of disagreement about preferred family size.

Additional analyses reveal the importance of spouses' relative preferences: whether one has a greater preference than the other, or both have a similar preference (either for a large or for a small family). Couples in which spouses' preferences were discordant only progress to high parity if the wife had a relatively high fertility preference. If the husband had a high fertility preference and the wife had a relatively low fertility preference, the couple progressed at no more quickly to high parity births than couples in which both spouses had low fertility

preferences. Across these models, wives' preferences are the dominant influence on the rate of couples' progression to high parity.

We expected husbands' preferences to prevail in this Nepalese setting, given their authority in households and their likely motivation to have many children in order to ensure the continuation of the family lineage (Allendorf 2007a; Bennett 1983; Link 2010). Yet, our findings are inconsistent with this hypothesis. The results suggest that men's authority, at least contemporarily, does not extend into this realm of fertility decision-making. Instead, regardless of husbands' preferences for large or small families, and regardless of the difference between his and his wife's preference, couples' speed of progression to high parity births follows wives' preferences.

It appears that women find ways to regulate their fertility to meet their own family size preferences. Further research is needed to explore the mechanisms through which women exert control over progression to high parity births. Women might achieve their fertility goals through negotiation with their husbands, and/or through unilateral use of contraception. In fact, women have multiple options of contraceptive methods that are invisible to their husbands (e.g., oral contraceptive pills, depo provera, norplant, and female sterilization). It is possible that women control the use of these methods in order to achieve their desired fertility. Most of the couples in our analytic sample live within a 20-minute walk from a health center, suggesting that wives have relatively easy access to contraception. Additional research in this setting on the ways in which women go about influencing high parity progression has the potential to shed light on the couple-level decision-making and gender dynamics that influence fertility behaviors.

The findings in this paper suggest that family planning initiatives in this Nepalese and other similar settings should be geared toward women at least as much as they are geared toward

men. As wives' family size desires appear to be more important predictors of fertility outcomes than husbands' desires, any initiatives to further reduce fertility should focus primarily on reducing the family size desires of women. While it is undoubtedly also important to include men in these discussions, the role of women in determining achieved fertility should, at minimum, not be ignored.

While the findings here offer important insight into couple-level decision-making, we want to point out a couple of important limitations to these data and analyses. First, the measure of family size preferences comes from a single time point in 1996. This measure is used to predict fertility behaviors over a long period of time (13 years). It would be ideal to have time-varying measures of family size preferences, as preferences are subject to change (Krosnick and Alwin 1989). However, there is evidence that preferences seem to be stable over time (Freedman, Coombs, and Bumpass 1965). Furthermore, it is likely that time-varying measures of preferences would reveal even stronger associations than what we have found here. A second limitation is that we do not account for the family size preferences of other family members or friends, whose preferences are also likely to have important influences on a couple's fertility outcomes (Barber 2000; Jennings and Barber 2013). Finally, future work would benefit from studying the changes over time in husband-wife fertility decision-making. It is possible that women have gained decision-making power over time, and that they are still gaining this power. Comparisons to either past and/or future associations would provide interesting insight into these kinds of changing dynamics.

This paper contributes important empirical evidence to the study of couple-level influences on fertility behavior. During a period of fairly dramatic fertility decline in Nepal during the late 1990s and early 2000s (Population Reference Bureau 2012; Thornton et al. 2012;

United Nations 2011), our data show that wives' preferences were influential on couples' progression beyond two children. There is evidence that a similar gender dynamic operates in other parts of South Asia: Gipson and Hindin (2009) also found wives' preferences to be important drivers of fertility in Bangladesh. Although gender inequality means that husbands have considerable authority in the South Asian setting, our findings indicate that husbands who desire more than two children are unable to impose their preferences on their wives. Instead, this paper has revealed that wives' preferences seem to drive couples' high parity fertility.

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Figures

Figure 1: Family Size Preference Coding Scheme

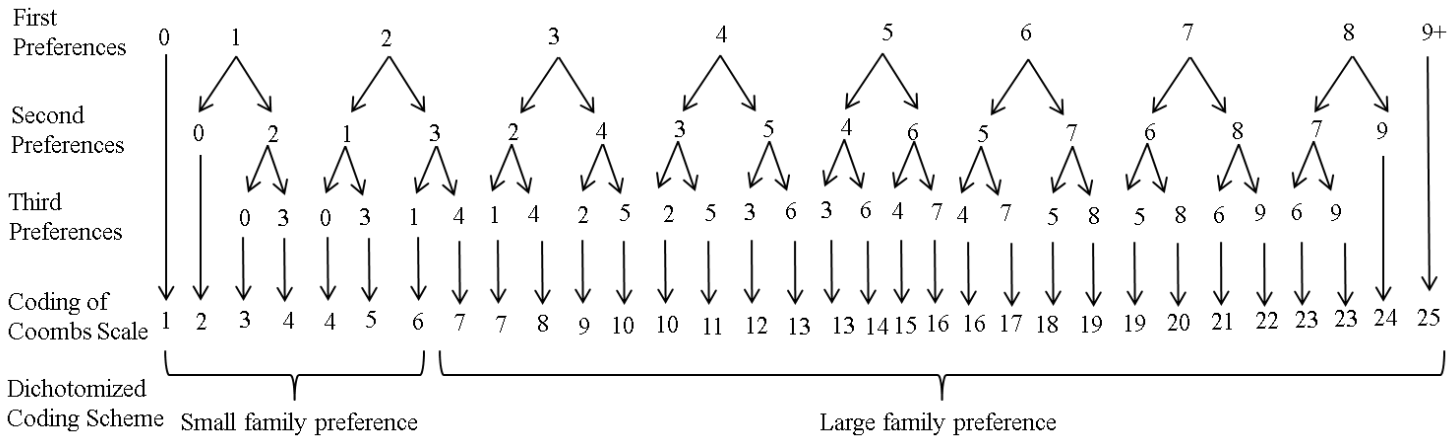

Figure 2: Coding of Spouses' Fertility Preference Combinations

		Husband	
		Low fertility preference	*High fertility preference*
Wife	*Low fertility preference*	Both have low fertility preference	Wife has low, husband has high fertility preference
	High fertility preference	Wife has high, husband has low fertility preference	Both have high fertility preference

Tables

Table 1: Descriptive Statistics				
	Mean	**Standard Deviation**	**Minimum**	**Maximum**
Family Size Preferences				
Wives' preference	6.12	1.92	2.00	16.00
Husbands' preference	6.07	2.25	2.00	22.00
Difference in Preferences (Wife-Husband)	0.05	2.71	-17.00	12.00
Absolute Value of Difference in Preferences	1.82	2.00	0.00	17.00
Wife high, husband high	0.17	0.38	0.00	1.00
Wife high, husband low	0.17	0.38	0.00	1.00
Wife low, husband high	0.16	0.37	0.00	1.00
Wife low, husband low	0.50	0.50	0.00	1.00
Fertility Experiences				
Wife's age at first birth	19.71	2.73	13.00	33.00
Parity (has four children)	0.23	0.42	0.00	1.00
All children are sons	0.42	0.49	0.00	3.00
All children are daughters	0.25	0.43	0.00	1.00
Wife's son preference	2.76	0.86	1.00	4.00
Husband's son preference	2.67	0.92	1.00	4.00
Number of children that died	0.10	0.34	0.00	2.00
Household and Community Context				
Household owns farmland	0.78	0.42	0.00	1.00
Number of services (health center, school, bus stop) within five-minute walk	1.23	1.13	0.00	3.00
Experiences and Demographics				
Wife's years of education	4.35	4.13	0.00	14.00
Husband's years of education	6.65	4.38	0.00	16.00
Wife ever worked for wages	0.44	0.50	0.00	1.00
Wife's Age	24.57	3.75	17.00	38.00
Brahmin/Chettri	0.43	0.50	0.00	1.00
Dalit	0.10	0.30	0.00	1.00
Hill Indigenous	0.16	0.36	0.00	1.00
Terai Indigenous	0.25	0.44	0.00	1.00
Newar	0.06	0.23	0.00	1.00
Length of exposure				
Time (months)	17.96	26.45	0.00	140.00
Sample and dependent variable description				
Total women in sample		371		
Total births		193		
Proportion of women having third parity birth		0.33		
Proportion of women having fourth parity birth		0.19		
Proportion of women having third *and* fourth parity births		0.07		

Table 2: Odds ratios from Logistic Regression of The Influence of Spouses' Preferences on High Parity Progression (third and fourth births)

	Model 1		Model 2		Model 3	
	OR	*T-ratio*	*OR*	*T-ratio*	*OR*	*T-ratio*
Family Size Preference						
Wife's Preference	1.43**	2.74				
Husband's Preference	0.99	-0.09				
Difference in Preferences (Wife-Husband)			1.18+	1.77		
Absolute Value of Difference in Preferences					1.04	0.31
Fertility Experiences						
Wife's age at first birth	1.12	1.01	1.14	1.18	1.14	1.19
Parity (has four children)	0.01***	-22.43	0.01***	-22.46	0.01***	-22.46
All children are sons	0.05***	-4.31	0.04***	-4.70	0.04***	-4.68
All children are daughters	2.74	1.57	2.47	1.41	2.53	1.44
Wife's son preference	1.33	0.97	1.37	1.07	1.37	1.06
Husband's son preference	1.40	1.26	1.45	1.38	1.38	1.21
Number of children that died	10.44***	3.57	9.31***	3.40	9.05***	3.34
Household and Community Context						
Household owns farmland	0.85	-0.27	0.80	-0.37	0.71	-0.56
Number of services (health center, school, bus stop) within five-minute walk	0.68	-1.59	0.63+	-1.85	0.60*	-2.05
Experiences and Demographics						
Wife's education (total years) in 1996	0.77**	-2.82	0.76**	-2.99	0.76**	-2.96
Husband's education (total years) in 1996	0.77***	-3.41	0.76***	-3.55	0.76***	-3.57
Wife ever worked for wages as of 1996	0.52	-1.22	0.56	-1.08	0.58	-1.00
Wife's age	0.92	-1.24	0.92	-1.24	0.92	-1.22
Low Caste Hindu*	0.39	-1.00	0.44	-0.87	0.43	-0.91
Hill Indigenous*	0.12*	-2.55	0.11*	-2.57	0.10**	-2.74
Terai Indigenous*	0.98	-0.03	1.18	0.22	1.02	0.03
Newar*	0.32	-0.99	0.33	-0.97	0.31	-0.99
Length of Exposure						
Time	1.04***	7.32	1.04***	7.29	1.04***	7.25
Total person-months	26090		26090		26090	
Total persons	371		371		371	
Total births	193		193		193	

Two-tailed tests, +p<.10 *p<.05 **p<.01 ***p<.001

Table 3: Odds ratios from Logistic Regression of The Influence of Spouses' Relative Preferences on High Parity Progression (third and fourth births)

	Model 1		Model 2		Model 3		Model 4	
	OR	*T-ratio*	*OR*	*T-ratio*	*OR*	*T-ratio*	*OR*	*T-ratio*
REF: Wife Low, Husband Low								
Wife high, husband high	8.04**	3.04						
Wife high, husband low	4.30*	2.14						
Wife low, husband high	1.04	0.06						
REF: Wife Low, Husband High								
Wife high, husband high			7.72*	2.55				
Wife high, husband low			4.13+	1.74				
Wife low, husband low			0.96	-0.06				
REF: Wife High, Husband Low								
Wife high, husband high					1.87	0.80		
Wife low, husband high					0.24+	-1.74		
Wife low, husband low					0.23*	-2.14		
REF: Wife High, Husband High								
Wife high, husband low							0.54	-0.80
Wife low, husband high							0.13*	-2.55
Wife low, husband low							0.12**	-3.04
Fertility Experiences								
Wife's age at first birth	1.11	0.97	1.11	0.97	1.11	0.97	1.11	0.97
Parity (has four children)	0.01***	-22.41	0.01***	-22.41	0.01***	-22.41	0.01***	-22.41
All children are sons	0.05***	-4.37	0.05***	-4.37	0.05***	-4.37	0.05***	-4.37
All children are daughters	2.87	1.64	2.87	1.64	2.87	1.64	2.87	1.64
Wife's son preference	1.29	0.87	1.29	0.87	1.29	0.87	1.29	0.87
Husband's son preference	1.35	1.12	1.35	1.12	1.35	1.12	1.35	1.12
Number of children that died	8.97***	3.34	8.97***	3.34	8.97***	3.34	8.97***	3.34
Household and Community Context								
Household owns farmland	0.88	-0.21	0.88	-0.21	0.88	-0.21	0.88	-0.21
Number of services (health center, school, bus stop) within five-minute walk	0.66+	-1.72	0.66+	-1.72	0.66+	-1.72	0.66+	-1.72
Experiences and Demographics								
Wife's education (total years) in 1996	0.77**	-2.85	0.77**	-2.85	0.77**	-2.85	0.77**	-2.85
Husband's education (total years) in 1996	0.77***	-3.39	0.77***	-3.39	0.77***	-3.39	0.77***	-3.39
Wife ever worked for wages as of 1996	0.53	-1.17	0.53	-1.17	0.53	-1.17	0.53	-1.17
Wife's age	0.92	-1.16	0.92	-1.16	0.92	-1.16	0.92	-1.16
Low Caste Hindu*	0.36	-1.09	0.36	-1.09	0.36	-1.09	0.36	-1.09
Hill Indigenous*	0.10**	-2.78	0.10**	-2.78	0.10**	-2.78	0.10**	-2.78
Terai Indigenous*	0.73	-0.42	0.73	-0.42	0.73	-0.42	0.73	-0.42
Newar*	0.33	-0.98	0.33	-0.98	0.33	-0.98	0.33	-0.98
Length of Exposure								
Time	1.04***	7.28	1.04***	7.28	1.04***	7.28	1.04***	7.28
Total person-months	26090		26090		26090		26090	
Total persons	371		371		371		371	
Total births	193		193		193		193	

Two-tailed tests, +p<.10 *p<.05 **p<.01 ***p<.001