

LAURIE F. DEROSE* - LIJUAN WU** - F. NII-AMOO DODOO***

Inferring gender-power: women's schooling and relative spousal influence in childbearing in Ghana

1. INTRODUCTION

Gender continues to be a principal axis of stratification across global society, with the ramifications perhaps nowhere more insidious than in sub-Saharan Africa, where beyond its resonance in the public spheres of women's lives (i.e., the economic, social, and political realms), gender relations at the household level have sometimes been described in a language signifying male "ownership" of spouses "purchased" through bridewealth payment in the marriage process (Afonja, 1990; Isiugo-Abanihe, 1995). The manifestation of women's disadvantage in interpersonal relationships includes, among other things, domestic violence, coerced sexual relations, relative powerlessness to determine the quantum and timing of the fertility that issues from their own bodies, and inability to insist on protective behavior with partners who potentially have sexually transmitted infections, including HIV.

In spite of growing interest in gender inequality in the private spheres in sub-Saharan Africa in recent years, there is little empirical research that explicitly focuses on the power relation between men and women within marriage. Further, there have been no investigations of how relative power *changes* over time. The policy prescription of choice to foster gender equity and confer women's autonomy continues to be expanding women's schooling and occupational opportunities (Collins, 1971; Nathanson and Schoen, 1993; Schultz, 2002). The jury, however, remains out on whether these will translate into greater autonomy in private spheres of women's lives that are culturally proscribed (Pande *et al.*, 2005; Dadoo and Frost, 2008).

This study attempts to explore gender power within marriage and its change while women's education has been improving in sub-Saharan Africa by examining women's versus men's relative influence in reproductive decision making over time in Ghana. While both partners obviously have an important stake in childbearing decisions, their relative power is shaped by social and cultural factors. Decisions about childbearing, then, present a legitimate opportunity for investigating gender inequities in power, particularly in

* University of Maryland, U.S.A.

** Peking University, China

*** The Pennsylvania State University, U.S.A., and University of Ghana, Africa

Corresponding author: Lourie F. DeRose; e-mail: lderos@umd.edu

contexts where cultural understandings of marriage would seem to transfer authority over childbearing decisions to men.

We therefore consider marital childbearing decisions as a viable arena in which to explore women's autonomy in private sphere decision-making. We take advantage of the bountiful data on fertility in Africa to assess whether the improvement of women's education is necessarily associated with their empowerment in reproductive decision-making within marriage. The availability of multiple-year cross-sectional survey data across more than a decade makes Ghana an appropriate case to explore the change in the gender power relation between spouses over time as the education level is rising and the gender gap in education is closing. It is imperative to note that although we exploit available fertility data, our concern is *not* with explaining fertility decline. Rather, we simply use the available data for clues about the viability of women's schooling as a private-sphere intervention in a patriarchal context.

2. BACKGROUND

Generally speaking, there are two approaches to understanding gender power relations at the household level in sub-Saharan African societies. The first is the "development approach" that is rooted in the theories and practices of socioeconomic development. Here gender equity in employment and education are advocated as ends in themselves as well as the means to more equal gender relations in a society. Transplanted from the West, one associated hypothesis underlying such an approach is that closing the gender gap in economic activities and schooling will translate into elevated relational status *vis-à-vis* men. This approach is implemented via the policy machinery of international and local NGOs, as well as national and local governments. Beyond simply advancing the educational, occupational, and economic lot of women, there is a presumption that policy interventions of this nature further undercut men's advantage in the domestic realm and address, among others, the sexual and reproductive inequities women face (Lloyd *et al.*, 2000). According to this approach, more education and improved employment options will continue to enhance the status of women in both public and private spheres.

Guided by that approach, the idea of improving women's education is prevalent in policies and projects targeting gender inequality across developing countries. However, relatively few studies outside of South and Southeast Asia have systematically investigated the alleged linkage between schooling and women's autonomy in private sphere decisions (Pande *et al.*, 2005). One possible reason could be that interest in sub-Saharan Africa has been so problem oriented that the focus has been on biomedical, demographic, and health outcomes such as are associated with malaria, HIV, and high fertility, with little attention to precisely the "sociological" roots of these outcomes of inter-

est (Dodoo and Beisel, 2005). With regard to the realm of childbearing, much more attention has been paid to how effective the improvement of women's education is in lowering fertility. And as in other parts of the developing world, improvements in women's education receive considerable credit for the nascent fertility transitions in Africa (e.g., Kravdal, 2002).

The achievement in fertility decline, nonetheless, could be misleading when the association between increased schooling and women's autonomy in reproduction is asserted without careful examination on the empirical evidence. The extensive literature on fertility decline identifies multiple mechanisms linking education to fertility, and the enhancement of women's autonomy within households is just one of them (e.g., Beckman, 1983; Abadian, 1996; Bankole and Singh, 1998). Hence, without disentangling the effects of different mechanisms, even if fertility decline is confirmed to be associated with the expansion of education, the process does not necessarily involve women's empowerment at the household level (e.g., Saleem and Bobak, 2005).

In addition, the education-fertility relationship is "context-dependent and may be less or even reversed if socioeconomic development is low enough, male influence great enough, and female education low enough" (Behrman, 1996, p. 790). Thus, to better understand the power underlying childbearing decisions, and the intervening effect of women's education, it is necessary to focus on the gendered relations between sexual partners, which have long been sidelined by the dominant concern about high fertility in sub-Saharan Africa.

The second approach is the "culture approach" that emphasizes the unique culture of marriage and gender norms in the context of sub-Saharan Africa. This approach recognizes the multiple dimensions of women's autonomy and therefore potential for disjuncture in improvements in gender equity. It is argued that men's dominance in the domestic and sexual arenas in those societies is based on a cultural contract associated with marriage, wherein payment of bridewealth conveys, to men, authority and control over women (Mhloyi, 1990; LeVine *et al.*, 1994; Folbre, 1988; Bawah *et al.*, 1999; Dodoo and Frost, 2008). That transaction presumably compensates women for their labor, including the domestic labor they give to their husbands' households and their reproductive labor: it transfers the children to their husbands' lineage (Fortes, 1962; Bawah *et al.*, 1999; Mvududu, 2002). Some have argued that implicit therein is the loss of women's control over their reproduction (Dodoo, 1998), and there is an asymmetrical transfer to men (but not to women) of exclusive sexual rights to their partners. Furthermore, considering the incongruity of women's and men's fertility goals due to different costs and benefits of childbearing for women and men, men's cultural authority or rights constitute the principal bottleneck to women's ability to attain their optimal reproductive rights (Dodoo and Frost, 2008). Said alternately, improving women's educational and occupational opportunities without addressing the inequities in the cultural domain will hardly yield the desired ends.

The influence of men in childbearing decisions is reportedly even more entrenched in West Africa than on the rest of the continent. This is the only region in the world where men systematically want more children than women (Bankole and Singh, 1998). An older, established, and more anthropological literature reveals both differences in women's and men's reproductive goals and women's relative powerlessness within marriage to resolve such disagreements (Bongaarts *et al.*, 1984; Caldwell and Caldwell, 1987). Thus, even though West African women managed to advance in spheres like economic earnings and years of schooling, the sexual and reproductive domains especially in marriage could remain outside of their purview.

Inspired by the culture approach, and parallel to studies of the education-fertility linkage, a smaller literature has argued that the cultural phenomenon that places decision making control about women's fertility, and control over their wombs, squarely in the hands of their male partners and their families, is responsible both for Africa's tardiness in joining the world-wide wave of fertility transition and, by corollary, for the recent transitions (Mbizvo and Adamchak, 1992; Ezeh, 1993; Adamchak and Mbizvo, 1994; Isiugo-Abanihe, 1994; Hollos and Larsen, 2004; DeRose and Ezeh, 2005; Frost and Dadoo, 2009). According to this view, Africa only began experiencing fertility decline when structural changes impacted men's lives – impacting women's lives was insufficient to provoke change. For example, improved child survivorship increased the child care burden of West African women who are responsible for providing food for their families (Guyer, 1995), but men who are responsible for providing education had incentive to limit childbearing come later when schooling costs rose under structural adjustment. Contrary to those that credit women's education, proponents of this approach argue that development that affects primarily women does not effect change because of men's authority.

To sum, the development approach argues a positive effect of women's education on even the private sphere in all societies. The advancement of women's reproductive autonomy is considered as the 'natural' consequence of the expansion of women's education. Conversely, the culture approach emphasizes that the unequal distribution of power between women and men in marital reproductive decisions in sub-Saharan Africa is supported by the unique culture of marriage. Doubtful about the intervention effects of education in this context, the culture approach suggests that a fundamental change in the social contract (i.e. marriage) may be necessary to achieve gender equity in private spheres.

Our study builds on the culture approach in recognizing men's role in reproductive decisions. However, we also acknowledge the long-established associations between women's education and reproductive attitudes and behaviors. Considering the persistence of the traditional culture of marriage and the constant efforts to improve women's education levels in sub-Saharan

Africa, we ask whether increased schooling result in greater autonomy for women in their marital lives. To address the question, we examine women's and men's ability to act according to their respective childbearing preferences, i.e., specifically the relative influence of women's and men's childbearing preferences in contraceptive use. Different from previous studies that focused on demonstrating the significance of men's role in shaping the reproductive attitudes (Ezeh, 1993; DeRose and Ezeh, 2005) and behaviors (Dodoo, 1998), we are more interested in the *change of the relative power* of women and men in reproductive decision making over time, especially when the gender gap in education is closing.

Lack of nationally representative longitudinal data compromises our ability to estimate the causal relationships between schooling, gender inequity within household, and decisions related to childbearing. Yet, given how little is known about education and couple decision-making in sub-Saharan Africa, it seems quite worthwhile to assemble even suggestive evidence. Our empirical analysis, therefore, does not pretend to estimate the causal relation between schooling and women's empowerment in reproduction. Rather, we limit our goals to a depiction of the *changes* of the influences of schooling and men's power in childbearing behavior over time, as this provides suggestive evidence about the effect of education on private sphere autonomy.

3. RESEARCH DESIGN

3.1 Data

Global interest in Africa's high fertility has spawned a considerable volume of demographic data. Such data, however, can give us insight into our study question. We use four nationally representative Demographic and Health Surveys (DHS) fielded in Ghana in 1988, 1993, 1998, and 2003. The Ghana DHS data are ideal for the study: there are *four surveys* at five year intervals that *include men's interviews* and *also straddle the onset* of very rapid fertility decline. Fertility declined 34% from 1988 to 2003: women were having 6.5 children on average at the time of the first survey, and 4.3 children on average only 15 years later.

Although we are concerned with explaining what influences women's ability to act accordingly with their own wishes on childbearing rather than explaining fertility decline, the timing of decline provides variance in the reproductive behavior and, at the same time, insight into relative influences of women and men on the progress of fertility decline. It should be noted that although the persistent global interest in developing world fertility has yielded standardized survey data on women's reproductive behavior and attitudes, men's information was not collected in the popular nationally-representative demographic samples

until 1988. As a result, in other African countries like Kenya, the onset of decline occurred before the first data collection that included men, which makes them less suitable for the current study. The Ghanaian experience fortuitously affords a confluence of factors that permit analysis of the contribution of men's dominance and its relative influence – *vis-à-vis* women's education – in reproductive decision-making.

We use data from married couples, where partners were individually interviewed by the Ghana DHS team. Each of the surveys is based on a nationally representative sample of reproductive aged women (15 to 49 years). In 1988, a random sub-sample of husbands (of both consensual and formal unions) of female respondents was interviewed, producing 1010 matched husband-wife pairs. There were substantially fewer matched pairs in 1993 and 1998, despite relatively comparable numbers of interviewed men, because the men's samples were drawn such that not all male respondents were married to female respondents (or even married). Although the sampling procedure varied across the period, it is important to note that each survey still yields a random sample of couples. The result was 547 couple records in 1993 and 629 in 1998. In 2003, the size of the men's sample was increased substantially, resulting in 2,133 couples being available.

We restrict analysis to the monogamously married because of the lack of clarity about which wife a polygamous husband's fertility preferences should be indexed to. Further, couples in which either spouse is infecund, or the wife is pregnant or post-partum abstinent are dropped from the study because contraceptive use would be irrelevant for them, regardless of their fertility inclinations. We also drop five dyads where the fertility preference of one of the partners is missing. The result is a study sample of 2099 couples (403 in 1988, 276 in 1993, 306 in 1998, and 1114 in 2003).

While our sample selection criteria are logical, they do introduce issues of differential selectivity over time. With polygyny decline (the percent of women polygynously married fell from 31% to 21% between 1988 and 2003) and fertility decline (described above), a greater share of interviewed couples meets the monogamous non-pregnant non-abstinent requirements for entering the analytic sample. Immediately after the onset of fertility decline (1993), the sample was particularly selective of urban residents since those with higher fertility in the countryside were more likely to be pregnant or post-partum abstinent. With the progress of fertility decline, selection still favors more modern couples, but not as heavily as earlier. Therefore, our *change over time* analysis continually includes Ghanaian couples that potentially have need for contraception and, over time, this is a larger share of all couples from nationally representative data. The potential for conflict over reproductive decisions thus increases, but we remain focused on whether there are differences over time in how conflict is resolved. If, for instance, men with high fertility desires become more likely to stay monogamous they may exert more authority within a particular

dyad than they would have across two. However, our analytic sample accurately reflects what is going on over time for women within monogamous marriage (see also note 11 for a description of results that include those in polygynous unions).

3.2 *Dependent variable*

Our outcome variable is a dichotomous measure of women's contraceptive use. We focus on women's use because men use contraception outside the marriage more than women do¹. Further, the literature on men's dominance suggests that it is the woman's contraceptive use that is under contestation (e.g., El Dawla *et al.*, Hadi and Wahab, 1998; Hollos and Larsen, 2004; Maharaj and Cleland, 2005). We excluded folkloric contraceptive methods because of their low efficacy (Jinadu and Ajuwon, 1997). Non-folkloric methods reported by respondents included pills, intra-uterine devices, injections, diaphragms, condoms, sterilization, periodic abstinence, withdrawal, Norplant, lactational amenorrhea, and foams/jellies. In the analytic sample, women's contraceptive use nearly doubled from 21.5% to 40.1% between 1988 and 2003 (Table 1); most of the expansion came from uptake of pills and injections (not shown). These are methods that do not require cooperation from the male partner, but his preferences may still be quite relevant for whether they are used.

3.3 *Measuring relative spousal influence*

The most straightforward approach to measuring the relative power of married partners in reproductive decisions is to evaluate which partner is more likely to get their way when fertility preferences differ: our central analysis does exactly this. Women and men were both asked whether or not they wanted any or more children². We distinguished those who wanted to continue childbearing from those who did not and cross-tabulated spousal responses to generate a four-category couple measure: both wanted to continue childbearing, both wanted to stop childbearing, and the discordant categories in which either the husband wanted to stop childbearing but the wife wanted to continue, or the wife wanted to stop childbearing but the husband wanted to continue (Dodoo, 1993 and 1998). From the two categories where couples disagree about preference to stop childbearing, we can distinguish where contraceptive use is more in

¹ For example, in the 2003 Ghana DHS 3.3% of currently married men reported using a condom with an extramarital partner during the past 12 months, and only 0.3% of currently married women reported having an extramarital partner in the past 12 months.

² "Would you like to have a (another) child or would you prefer not to have any (more) children?" was the question asked in all four surveys.

concert with men's inclinations – our proxy measure for relative male influence – and where women apparently have greater wherewithal to implement their preferences (Dodoo, 1998). Both women and men face barriers to contraceptive use even when they desire to stop childbearing (see 2006 review by Campbell *et al.*, 2006), and gender differences in preference implementation may arise from different barriers for women or different degrees of success in overcoming barriers. In either case, they reflect something about relative power in the ability to act on reproductive goals.

However, relative spousal power may also shape fertility preferences, and important influences may be missed when we treat preferences as independently given. In the current study, failing to measure relative spousal influence on the formation of preferences actually biases our analysis away from identifying men's dominance. This is the case from 1988-1998, Ghanaian women's fertility preferences became increasingly influenced by husband's education, but not their own (DeRose and Ezeh, 2005; see also Folbre, 1983). Further, men's fertility preferences were largely independent of women's characteristics. Therefore, when we focus on discordant couples, the couples we omit are more likely to have become concordant because of the husband's influence than the wife's.

But even while we have good reason to believe that our analysis underestimates the effect of men's power in reproductive decision-making, it is also the case that we underestimate the effect of education in most of our models. This is because when controlling for fertility preferences, the coefficient for education no longer includes the contribution of education to lower fertility preferences; it instead reflects factors like ability to implement preferences. Therefore, we do not estimate the total effect of education. This is less of a concern than it might seem because our main focus is how the effects of education and relative spousal power change over time. Nonetheless, we also estimate change in the effect of women's education over time in models that do not include fertility preferences.

Finally, we supplement our central analysis that uses joint preferences with individual preference models because women's reproductive autonomy can also be measured by whether they are able to act on their own fertility preferences – irrespective of their husband's preferences. As agreement to stop childbearing has increased with the progress of Ghana's fertility decline, women could be facing less conflict over contraceptive use: individual preference models let us test whether more women are getting their way. The individual preference models also serve as an important robustness test for our findings from the couple models. As discussed above and as is apparent in the descriptive statistics presented below, results from the couple models could be questioned on the basis of sample size and composition. In the individual preference models, we no longer focus on small samples of select couples with discordant preferences.

3.4 *Other independent variables*

We examine three categories of women's education: no schooling, some primary schooling, and secondary school attendance or beyond³. We control for husband's education, measured in an identical fashion as for wives. Given the powerful effect of education on fertility demand anticipated from the literature (Jejeebhoy, 1995; Basu, 1999; Axinn and Yabiku, 2001; DeRose and Ezeh, 2005), incorporating women's schooling but not men's might bias the results towards finding dominant male reproductive preferences because education would asymmetrically soak up some of the influence of women's preferences.

Finally, we consider the effect of women's education at the community level. Considering only individual education would fail to measure the ways in which having greater proportions of women educated can change the social context of reproduction including – but not limited to – norms of sending children to school (which heavily influence childbearing costs) and the acceptability of discussing family planning. Therefore, excluding community education would bias the analysis toward discounting the role of education relative to the influence of relative spousal preferences. Our community education variable reflects the mean number of years of schooling among wives in the region⁴. We control for many unobserved community variables by including a set of dummy variables for region; thus fixed effects of regions are held constant when we estimate how community education affects contraceptive use. We do not include community education in models estimated separately by survey year because there would not be sufficient degrees of freedom to include the fixed effects. Rather, following Firebaugh (1997), we pool the data and use interactions between our key independent variables and survey year to measure change over time. Our final pooled-data model includes both the regional fixed effects and the community education measure. The effect of mean schooling in 1988 is given by the main effect, and the change over time in the effect of mean schooling is given by the interaction between the main effect and survey year.

Our control variables include number of surviving children and the ages

³ Grouping education provides for more easily interpretable results. Analysis using single years of education revealed a marked difference in the effects of the first eight years of education and higher education. Nonetheless, because sample size is small for women with secondary and higher education we also ran models combining those women with those with less education: the results were consistent with what is reported below.

⁴ Kravdal (2002) experimented with multiple measurements of community education and found no threshold effects; we therefore use this continuous variable. We also follow DeRose and Kravdal (2007) in measuring community education at a fairly high level of aggregation; see discussion therein.

of both spouses. Even among monogamous couples in Ghana, the number of surviving children is not as highly correlated between spouses (0.72) as one might expect because of children from previous unions⁵. We also control for ethnicity (representing Akan, Ga-Adangbe, Ewe, Mole-Dagbani, and Other ethnicity). We include a set of eight dummy variables representing the major geographic regions in Ghana⁶ and an indicator of urban residence. Together, these spatial/residence variables help control a number of influences, such as availability of contraception, which could confound our assessment of education and fertility preferences.

We recognize that there are other characteristics of communities besides the influence of women's education that may have changed over time. Employing fixed effects does not control for these time-varying aspects and, given the profound decline in fertility over the 15-year period of the study, it is logical to question whether availability of family planning may have improved differentially across communities. Unfortunately, survey items about the availability of, and access to, contraception are inconsistent across the four surveys, precluding the representation of the supply side in our modeling. Oddly, the supply of contraception seems to have played a surprisingly small role in the Ghanaian fertility decline (Blanc and Grey, 2002). Although more facilities in Ghana offer contraceptive supplies, these are not necessarily well stocked: actual availability declined between 1996 and 2002 (Hong *et al.*, 2005). Condom prescriptions and IUD insertions remained low during the decline (Hong *et al.*, 2005)⁸. Finally, the DHS data reveal that the proportion knowing where to obtain modern contraceptive did not increase over the 15-year period under study⁹.

⁵ Our use of a continuous control for surviving children was supported by analysis that stratified the sample by the wife's surviving children: only among women having seven or more children do the results differ from what we present below, and the greater influence of these women within their dyads over time is not statistically significant.

⁶ There are 10 regions in Ghana, but the sampling frame for the 1988 GDHS combined the sparsely populated Upper East and Upper West regions with the Northern region, and did not draw representative samples from each of the three. Therefore, we combine those regions in all survey years and distinguish eight regions.

⁷ In 1988 and 1993 respondents were asked a single question about whether they knew where to obtain contraceptives, but in 1998 and 2003 they were asked if they knew a source for each of a variety of specific methods, thus making it more likely that respondents in later years who were familiar with where to obtain services but not what specific methods were available at a given dispensary would report "no".

⁸ Condom use among the married in the DHS is reported at 0.3% in 1988, 2.2% in 1993, 2.7% in 1998, and 3.1% in 2003. IUD use among the married went from 0.5% to 0.9% to 0.7% to 0.9% in the respective years.

⁹ Comparing proportions who know where to obtain modern methods across survey years is difficult (see note 7). But even between 1998 and 2003 where the question structure is identical, fewer report knowing a source for any modern method.

4. FINDINGS

4.1 Descriptive statistics

Table 1 portrays an increasing trend in women's education, with the proportion having no schooling falling consistently across the four surveys, from 44.7% in 1988 to 29.7% in 2003. Correspondingly, those with secondary or more schooling increased from 5.9% to 10.0% in the same time frame.

 Table 1 – *Distribution of study variables*

	1988	1993	1998	2003
<i>Couple Fertility Preference</i>				
Both want to continue childbearing	67.99	55.07	57.29	52.37
Both want to stop childbearing	15.06	29.14	26.92	29.16
Only wife wants to stop	11.41	9.42	6.99	9.35
Only husband wants to stop	5.46	6.16	8.80	9.10
<i>Individual Fertility Preference</i>				
Wife wants to stop childbearing	26.73	38.99	33.91	38.50
Husband wants to stop childbearing	20.54	35.38	35.72	38.28
<i>Level of Education</i>				
Wife				
None	44.69	36.69	33.48	29.72
Primary	49.38	54.32	57.11	60.26
Secondary & higher	5.93	8.99	9.41	9.97
Husband				
None	26.42	23.02	17.17	16.50
Primary	51.11	52.16	63.33	58.02
Secondary & higher	22.47	24.82	19.49	25.49
Mean years wife's schooling in region	4.23 (1.12)	5.47 (2.00)	5.59 (1.94)	5.84 (1.83)
<i>Dependent Variable</i>				
Wife currently using contraception	21.48	33.09	36.57	40.07
<i>Control variables</i>				
Wife's age	31.63 (8.13)	31.78 (7.73)	31.58 (7.68)	32.73 (7.78)
Wife's surviving children	3.60 (2.39)	3.17 (2.14)	3.01 (2.18)	3.19 (2.09)
Husband's age	38.44 (9.57)	38.40 (9.35)	38.36 (9.18)	38.68 (8.81)
Husband's surviving children	4.08 (2.92)	3.73 (2.88)	3.42 (2.54)	3.54 (2.49)
Region				
Ashanti	15.56	14.39	12.08	18.57
Western	11.85	10.79	16.48	10.27
Central	13.58	6.47	9.30	7.49
Greater Accra	15.80	16.19	17.20	16.36
Eastern	16.79	15.47	15.09	12.14
Volta	8.64	10.07	9.48	9.00
Brong-Ahafo	11.36	7.55	7.58	12.78
Northern, Upper East, and Upper West	6.42	19.06	12.79	13.39

...Cont'd...

Table 1 – *Cont'd*

	1988	1993	1998	2003
Urban residence	29.38	38.13	33.21	42.98
Ethnicity				
Akan	55.31	49.64	51.34	51.67
Ga-Adangbe	12.10	12.95	8.35	9.13
Ewe	15.56	11.87	15.11	15.33
Mole-Dagbani	7.41	16.55	6.24	9.77
Other	9.63	8.99	18.95	14.10
N	403	276	306	1114

Source: Demographic and Health Surveys, weighted data.

Note: Percentages given for categorical variables, means for continuous variables with standard deviations in parentheses.

Childbearing preferences of couples have changed radically over this 15-year period. The most evident change was a virtual doubling in couple concurrence to cease childbearing from 15.1% of the sample in the earliest survey to 29.2% by 2003. There is also a growing incidence of couples where only the husband reports a preference to cease childbearing – almost doubling from a scanty 5.5% in 1988 to 9.1% in 2003 – against the backdrop of, at best, a level proportion of couples in which it is only the wife who wants to cease childbearing. These trends among couples emerged as men became just as likely as women to want to stop childbearing. In 1988, 20.5% of men and 26.7% of women wanted to stop, and by 2003, 38.3% of men and 38.5% of women wanted to stop. Men's fertility desires were falling more rapidly than women's across this time span. The substantial transition in reproductive behavior observed in Ghana was accompanied by a definitive expansion in contraceptive use – from 21.5% of the sample in 1988 to 40.1% in 2003 (Table 1).

The multivariate results that we present later in the article confirm the descriptive results from bivariate relationships shown in Tables 2 and 3. Table 2 documents the base relationship between contraceptive use and the key variables – reproductive preferences and education – and how these changed over the period. Beyond the improvements in schooling noted earlier, use of contraception generally also increased across the educational spectrum. Differentials in contraceptive use by schooling declined however; although schooling was strongly related to contraceptive use in all four surveys, use became seemingly less dependent on the education of women (or for that matter men, whose data exhibit similar trends), than it did prior to the onset of the revolution, when contraceptive users comprised a more select group of innovators.

Table 2 – Trends in contraceptive use by fertility preference and education

	Percent of wives using contraception			
	1988	1993	1998	2003
<i>Fertility Preference</i>				
Joint				
Both want to continue childbearing	16.79	23.03	33.09	32.45
Both want to stop	32.79	50.62	47.57	50.90
Only wife wants to stop	41.30	30.77	29.97	40.23
Only husband wants to stop	9.09	35.29	30.80	49.34
Individual				
Wife wants to stop	36.11	46.30	43.94	48.31
Husband wants to stop	26.51	47.96	43.44	50.53
<i>Level of Education</i>				
Wife				
None	11.05	8.82	21.70	30.71
Primary	29.50	43.05	41.43	42.85
Secondary & higher	33.33	72.00	59.97	51.21
Husband				
None	8.41	9.38	20.07	29.51
Primary	27.05	33.10	36.05	40.89
Secondary & higher	24.18	55.07	52.80	45.05
Total	21.48	33.09	36.57	40.07
Number of contraceptive users	87	92	112	447

Source: Demographic and Health Surveys, weighted data.

Changes over time in contraceptive use according to discordant fertility preferences reveal a story that is differentiated by gender. The relationship between couple preferences and contraceptive use – also observed in Table 2 – provides some evidence of declining female advantage in the ability to translate own fertility goals into behavior. Patterns of change over time among discordant couples in the earlier years, suggest that men's unilateral preference to cease childbearing matters more over time while women's, at best, stays unchanged¹⁰.

From another perspective, by 2003 wives' preferences did not seem to matter when their husbands wanted no more children: among men who wanted to stop and whose wives concurred (i.e., where both spouses wanted to stop), 50.9% had wives who used contraception, while among those (men

¹⁰ Discordant couple categories are not very substantial in the earlier surveys and this is particularly true for the category in which it is the man who wants no more children; for instance, in 1988 and 1993 this category presents 22 and 17 couples, respectively.

who wanted to stop but) whose wives wanted to continue, 49.3% were using contraception. In contrast, husbands' preferences did matter when their wives wanted no more children: only 40.2% of wives wanting to stop whose husbands wanted to continue were using contraception (again compared with 50.9% whose husbands concurred). Apparently, men were able to translate their goals into contraceptive use at equal rates regardless of their wives' preferences, whereas women's ability to act is depreciated considerably when their husbands do not share their inclination to stop.

Because the couple discordant samples are small in the earlier surveys, it is useful to also consider what individual preferences reveal. The findings relate a similar story to that noted from couple preferences; contraceptive use appreciated more over time when men wanted to stop compared to when women wanted to stop. Only 26.5% of men who did not want another child had a wife using contraception in 1988, whereas over half did by 2003, an increment of 91%. Women, on the other hand, were more likely than men to use contraception if they wanted to cease childbearing in 1988: 36.1%. But, this percentage only grew by 34% (to 48.3%) by 2003. What started out as a substantial women's advantage in translating own preferences into behavior changed to slightly favor men over the period.

Table 3 – *Contraceptive use (percentage) by wife's education and couple fertility references. N in parentheses.*

	Percent of wives using contraception			
	1988	1993	1998	2003
<i>Only wife wants to stop childbearing</i>				
Wife has no education	20.83 (24)	0.00 (13)	25.71 (6)	41.03 (44)
Wife has primary education	60.00 (20)	50.00 (10)	34.27 (14)	37.68 (51)
Wife has secondary or higher education	100.00 (2)	100.00 (3)	0.00 (1)	56.38 (6)
<i>Only husband wants to stop childbearing</i>				
Wife has no education	10.00 (10)	0.00 (2)	20.45 (10)	15.96 (23)
Wife has primary education	9.09 (11)	30.77 (13)	41.96 (12)	56.84 (60)
Wife has secondary or higher education	0.00 (1)	100.00 (2)	0.00 (1)	75.27 (12)
<i>Both partners want to stop childbearing</i>				
Wife has no education	11.11 (27)	16.67 (24)	31.04 (28)	48.44 (59)
Wife has primary education	51.61 (31)	61.36 (44)	50.01 (43)	50.87 (203)
Wife has secondary or higher education	33.33 (3)	76.92 (13)	100.00 (7)	54.55 (42)

Source: Demographic and Health Surveys, weighted data.

Before turning to the multivariate analysis that employs a full set of controls, we present one more descriptive picture of change over time. Table 3 reveals that contraceptive use was becoming more common among uneducat-

ed wives as Ghana's fertility transition unfolded. This was particularly among couples where both partners wanted to stop, but use also vastly increased when only the uneducated wife wanted to stop. We do not see this same kind of expanded contraceptive use among educated wives. The numbers are too small for the secondary and higher category to make meaningful comparisons over time, but the pattern is largely the same as for primary educated wives: contraceptive use has *decreased* when only the wife wants to stop, *increased* when only the husband wants to stop, and stayed largely the same where both partners agree to stop. Contraceptive use rates are higher among the more educated just as we would expect, but educated wives are more influenced by their husbands' fertility preferences than are uneducated wives, and this is at odds with education increasing women's reproductive autonomy.

4.2 Multivariate analysis

Table 4 presents results of multivariate logistic regressions that predict women's current contraceptive use for each of the four survey years. Women's schooling remains a significant predictor of use across the period, although the magnitude of the association is greatest in 1993 – the first survey after the onset of the Ghanaian fertility transition – and then diminishes over time. With respect to couple preferences, we make the case where only the husband wants to stop childbearing our omitted category, meaning that we can interpret the coefficient for only the wife wanting to stop as reflecting how much *more* or *less* likely contraceptive use is among discordant couples when it is the wife who wants to stop. In 1988, contraceptive use was more likely when only the wife wanted to cease childbearing, a finding that is statistically significant at the 0.05 level. By 2003, women are no longer significantly more likely to use contraception when they have a unilateral cessation inclination, versus when it is their husbands who want to stop¹¹.

Given the small sizes of some of the cells in the analysis of discordant (joint) preferences, we also explored whether the effects of individual preferences told the same story. They did: women's desire to stop childbearing had a significantly *weaker* effect on contraceptive use over time while men's desire to stop had a significantly *stronger* effect (not shown).

To assess whether the decline over time in women's relative power was

¹¹ Polygynous couples should be excluded from the analysis because older DHSs did not index men's fertility preferences to a particular wife. Nonetheless, as a sensitivity check we ran the models in Table 5 using the full sample of couples to assess whether changes in selection into monogamy over time seemed to drive the results. The pattern for all couples is the same as reported above for the monogamous subsample: in 1988 discordant couples were significantly more likely to use contraception if it was the wife who wanted to stop, but by 2003, they were insignificantly more likely to use contraception if it was the husband who wanted to stop.

Table 4 – Log-odds of contraceptive use, individual years:
 Couple preferences (Standard errors in parentheses)

	1988	1993	1998	2003
<i>Couple Fertility Preference (ref=only husband wants to stop)</i>				
Only wife wants to stop	1.793* (0.883)	0.263 (0.881)	0.032 (0.762)	-0.166 (0.309)
Both want to stop	1.127 (0.865)	1.172 (0.726)	0.972 (0.609)	0.195 (0.260)
Both want to continue	0.468 (0.817)	-0.377 (0.700)	-0.293 (0.565)	-0.703** (0.252)
<i>Level of Education (ref=none)</i>				
Wife				
Primary	1.000** (0.354)	1.901*** (0.474)	0.592 (0.366)	0.406* (0.172)
Secondary & higher	1.717** (0.644)	2.871*** (0.688)	1.047 (0.597)	0.887** (0.284)
Husband				
Primary	0.929* (0.480)	0.201 (0.601)	0.068 (0.510)	0.200 (0.210)
Secondary & higher	0.101 (0.544)	0.953 (0.649)	0.946 (0.599)	0.208 (0.247)
Constant	-3.841*** (1.183)	-1.379 (1.149)	0.816 (1.016)	0.136 (0.450)
N	403	276	306	1114

Source: Demographic and Health Surveys, weighted data.

Note: See table 1. Models included controls for the age and number of surviving children of both partners as well as region, urban residence, and ethnicity.

* p≤0.05; ** p≤0.01; *** p≤0.001 (two-tailed tests)

significant, we pooled the four data sets and run a model with dummy variables for survey year, as well as for interactions between the independent variables and the survey year dummies. We present here, however, a more parsimonious model with only the two endpoint years (1988 and 2003)¹². The first set of results show that relative spousal influence among couples with discordant fertility preferences shifted significantly over time (Table 5, Model 1).

¹² Although, as indicated in the text, we ran the analysis on a pooled sample of the four datasets, Table 5 only reports results from an analysis of just 1988 and 2003 data because (i) the results were similar in both sets of analyses, and (ii) the fewer interactions (when 1993 and 1998 are excluded) yield a simpler presentation.

The coefficient for only wife wants to stop*2003 was -2.084, $p \leq 0.01$, suggesting that the wives' preferences in discordant couples became significantly less important relative to husbands' preferences between 1988 and 2003.

Table 5 – Log-odds of contraceptive use, pooled 1988 & 2003 samples:
Couple preferences (Standard errors in parentheses)

	Model 1	Model 2	Model 3
<i>Couple Fertility Preference (ref=only husband wants to stop)</i>			
Only wife wants to stop	1.890* (0.859)	1.843* (0.869)	2.901* (1.212)
Both want to stop	1.160 (0.847)	1.119 (0.855)	2.012 (1.170)
Both want to continue	0.509 (0.804)	0.559 (0.813)	0.992 (1.110)
<i>Level of Education (ref=none)</i>			
<i>Wife</i>			
Primary	1.175*** (0.338)	1.052** (0.345)	
Secondary & higher	1.731** (0.610)	1.508* (0.619)	
<i>Husband</i>			
Primary	1.057* (0.448)	0.949* (0.452)	1.547 (0.820)
Secondary & higher	0.374 (0.519)	0.251 (0.524)	0.793 (0.849)
<i>Community education</i>		0.429 (0.251)	0.812** (0.324)
<i>Interactions</i>			
Only wife wants to stop x 03	-2.084* (0.910)	-2.030* (0.920)	-3.792** (1.271)
Both want to stop x 03	-1.004 (0.885)	-0.952 (0.893)	-2.197 (1.207)
Both want to continue x 03	-1.192 (0.842)	-1.262 (0.850)	-2.230* (1.147)
Wife's primary x 03	-0.794* (0.377)	-0.649 (0.384)	
Wife's secondary & higher x 03	-0.902 (0.670)	-0.632 (0.680)	
Husband's primary x 03	-0.877 (0.486)	-0.745 (0.491)	-1.198 (0.892)
Husband's secondary & higher x 03	-0.192 (0.569)	-0.042 (0.575)	-0.390 (0.925)
Community education x 03		-0.440** (0.164)	-0.702** (0.223)
Year 2003	4.093*** (1.116)	5.816*** (1.357)	7.894*** (1.943)
Intercept	-4.016*** (1.060)	-5.713*** (1.505)	-7.484*** (2.102)

Source: Demographic and Health Surveys, weighted data. N=403 for 1988; N=1114 for 2003.

Note: Models included controls for the age and surviving children of both partners as well as interactions between these variables and survey year. Region, urban residence, and ethnicity are also controlled.

* $p \leq 0.05$; ** $p \leq 0.01$; *** $p \leq 0.001$ (two-tailed tests)

At the same time, the effect of women's schooling – both primary and secondary – declined over time, calling attention to the fact that education may have raised the likelihood of contraceptive use far more at the beginning of our observation period than at the end¹³. Change over time is significant only for primary education. Contraception was 3.2 times more likely among women with primary education than those with none in 1988, but the odds ratio had declined to 1.5 by 2003 ($e^{1.175-0.794}=1.46$). The change over time associated with men's education was quite similar with the odds ratio dropping from 2.9 to 1.2. Change over time in the effects of secondary and higher education was statistically insignificant, but higher levels of education also mattered less by 2003.

¹³ This is also the case in models that did not include variables for fertility preferences (not shown).

Contraceptive use was becoming more common and less differentiated by education.

Even when the effects of community education levels are considered (Model 2 of Table 5), the results still suggest a significantly lower importance of education over time. For each additional year of wives' average schooling in the region, odds of contraceptive use increased 54% in 1988 ($p < 0.09$); this effect significantly attenuates over time such that, by 2003, no net effect of community education remains. The decline over time in the effect of primary schooling (captured by the interaction between primary schooling and the 2003 year dummy) lost statistical significance ($p < 0.09$) when community education was added to the model, but the magnitude of the reduction remained large.

Finally, we consider the hypothesis that although education has become less important as a determinant of contraceptive use as Ghana's fertility decline has progressed and fertility limitation has become widespread, education may still enhance individual women's bargaining power within their unions. If that were the case, then relative spousal influence should not have declined for *educated* women over time, even if men became more likely to get their way with uneducated wives. Model 3 in Table 5 shows this is clearly not the case. In Model 3, the sample excludes wives with no education. We find that the coefficient associated with the wife's unilateral cessation preference is larger than in the previous models indicating that, as would be expected, educated women in discordant couples had greater influence over contraceptive outcomes than their uneducated counterparts in 1988. Still, the shift over time where women in discordant couples lost influence was highly significant even in this educated sub-sample.

We repeat the analyses shown in Table 5 using individual preferences. The results were again fully consistent with the joint preference model, easing concern that changes in sample selection over time were driving the results.

5. DISCUSSION AND CONCLUSIONS

Our study was motivated by the question of whether women's schooling represents a viable intervention to improve their relative status within marriage. We investigated this by exploiting the available data on reproduction to examine change in the effects of spousal childbearing preferences and schooling on reproductive behavior early in Ghana's fertility decline. We found that women's relative influence in fertility decisions – i.e., their ability to translate their childbearing preferences into contraceptive use – faded even as fertility fell and contraceptive use increased. That is, men had increased ability to manifest their goals in reproduction over time. While women's education still contributed to contraceptive use, it became less important over time. Further, these two trends occurred in a period when women's education was improving and fertility started declining.

Three plausible explanations exist for our finding of men's increasing influence in reproductive decisions as fertility declined. The first two are consistent with cultural understandings of marriage limiting returns to women's education. The third acknowledges that the development approach may still be consistent with the data (though we argue why this is less likely).

First, the trend might reflect the process of a male-driven fertility transition. That is, it is men's, not women's, desire to have fewer children that has driven down fertility. There could be many reasons for men to want to have a smaller family, and some have attributed this to the rising costs of children's education; this cost is culturally men's responsibility to bear in many sub-Saharan African societies.

A second explanation is that it is really only in periods of lower fertility that men exert their culturally bestowed power in this realm, because in high fertility regimes men's goals are being met without their having to intervene. This is consistent with the argument that, probably aware of the low viability of traditional methods, men do not remain passive actors about contraception when modern family planning methods are introduced into societies (Oheneba-Sakyi and Takyi, 1997; Short and Kiros, 2002).

Third, it is possible that still more expansion of women's education in Ghana is necessary to promote private sphere autonomy. Pande and her colleagues (2005) concluded that primary schooling promotes a wide variety of development goals, but that secondary schooling is necessary to reduce gender inequality. Even in 2003, less than 10% of Ghanaian women had secondary or higher education. The effect of a woman having secondary schooling on contraceptive use did not decline significantly over time in our data as did the effects both individual primary schooling and community average schooling. However, the pattern of the estimated effects indicates that this difference may be attributable to smaller sample size rather than secondary education continuing to have the same strong effect during the early stages of fertility decline in Ghana. Thus we maintain that the evidence is suggestive of cultural bottlenecks to the development paradigm.

The fact that we observed the increased influence of men in reproductive decision during a period when women's education was expanding and the gender gap in schooling was closing has some implications on the intervening effect of education in improving women's autonomy in making decisions on childbearing. These data would seem to suggest that the viability of women's education as an effective policy tool for increasing women's autonomy within marriage should be considered skeptically. Whether the effect we observe here – men's preferences becoming more salient while women's became less – should be labeled male *dominance* is open for discussion. Such a reference would seem to have face validity given the focus on discordant-preference categories. However, we acknowledge that our construction of a dominance measure is quite contrived. Further, we do not observe shifting power within the same

couples over time; our repeated cross-sectional data indicate different power dynamics at the aggregate level. Finally, despite the seeming insignificance of contraceptive availability factors in Ghana's fertility decline, we would have felt less cautious about our conclusions if we had been able to include measures such as access to contraception in the study. Still, the findings clearly cast doubt on the assumption that when women's education becomes more common, women's influence in reproductive decisions increases.

Our analysis clearly suggests that we must be cautious about policies and interventions that focus on improving the condition of women in relational spheres of their lives that do not simultaneously tackle the cultural foundations upon which their partners' advantage is predicated. Specifically, these findings should provoke concern about research and policy on reproductive and sexual behavior in sub-Saharan Africa, a realm in which men seem to have authority. More significantly they question the validity of analysis that exclude, or only cursorily include, men. Further, *how* men get their way – i.e., the wellspring of their authority – can not be answered here. Although plausible hypotheses exist about the contribution of bridewealth payment to this form of gender inequity our data did not permit tests of the validity of that argument. The corollary is that there is an evident need to interrogate the bases of this men's apparent authority and develop sounder theory about men's behavior. Also, data collection, analyses, and policy all need to extend beyond the more facile measures of education and occupation – for women and men – and strive to incorporate cultural predictors such as bridewealth payments, “chop money,” etc. (Dodoo, 1998; Adomako Ampofo, 2000), which have been theoretically and conceptually linked to gendered behavior.

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