

Women's Schooling and Men's Dominance in Reproductive Decisions: Structural and Cultural Influences on Female Bodies¹

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ABSTRACT

Despite widespread agreement that championing women's education will lower fertility, little is known about the extent to which men's dominance over reproductive decisions persists even when women's education is on the rise. Using data spanning the onset of fertility transition in Ghana, we show that men's relative influence among couples with discordant reproductive goals increased significantly, while the effect of women's education on contraceptive use decreased significantly. Overall, improvements in women's schooling do not seem to have enhanced their reproductive autonomy. Instead, fertility decline has been propelled relatively more by reductions in men's reproductive goals.

Improving the condition of women in the developing world—including sub-Saharan Africa—has involved the importation and adoption of traditional Western remedies for inequality: enhancing the educational and occupational aspects of women’s lives. Despite the obvious benefit of such interventions, a fundamental question regards how much they can improve equity in spheres of women’s lives that are governed by a patriarchal cultural umbrella, such as domestic violence and reproductive decision making.

A key problem for assessing socio-cultural issues in sub-Saharan Africa is the paucity of available data. Fortunately, however, the keen Western interest in developing world demography has generated a voluminous cache of information about fertility decision making. In this paper, we use fertility data to investigate the relative influences of women’s schooling and men’s culturally-based authority on women’s ability to make contraceptive decisions consistent with their reproductive preferences. Beyond the implications for improving women’s lives the recognition of the duality of structure (Sewell 1992) implicit in our consideration of resources and power as “simultaneously cultural and material” (Beisel and Kay: 503) promises an enhanced understanding of global fertility transition.

BACKGROUND

Fully two centuries after the social revolution that is fertility transition took root in Western Europe, we continue to debate the fundamental causes of a phenomenon that has contributed dramatically to the transformation of social life wherever it has occurred (Axinn and Yabiku 2001; Cleland 2001; Crenshaw, Christenson and Oakey 2000; Potter, Schmertmann and Cavenaghi 2002). Initial microeconomic explanations positing factors that influenced the parental demand for children have been overhauled by a cultural thesis highlighting the

significance of the diffusion of innovative ideas (Bongaarts and Watkins 1996; Caldwell 1997). While a focus on culture developed out of efforts to explain fertility decline, cultural explanations were, ironically, touted for why fertility could not be expected to decline in sub-Saharan Africa, the last frontier of high fertility (Bongaarts 1990; Caldwell and Caldwell 1990; Caldwell and Caldwell 1987; Frank and McNicoll 1987). As recently as the late 1980s, there were no empirical signs of fertility transition in the region, and it is not surprising that commentators informed by the cultural resistance thesis wrote off the first indications of transition on the continent as being an artifact of poor data (e.g., Blacker 1994; Caldwell and Caldwell 1990; see also discussion in Cohen 1998).

Despite the noted pessimism, fertility transition is widely acknowledged to be underway on the continent. Urban areas of virtually all countries have been touched, and significant decline in national fertility is evident in multiple countries (Cohen 1998; Garenne and Joseph 2002; Shapiro and Tambashe 2002). Yet, here too, a fuzzy cloud remains regarding the sources of transition, even when the intent is not to generate a global theory. Our understanding of the sources of historical transitions in Europe is constrained by having to reconstruct social life from relatively scant data. Despite the traditional weaknesses of contemporary data on Africa, an advantage of its recent transitions lies in our being able to solicit explanations directly from the still-alive actors who executed the transition. The implications of having valid explanations are also significant for the continent, in that they potentially hold prescriptive profit for policy: transition lessons can be applied to countries yet to experience widespread change.

In the developing world, gender equity is increasingly considered a necessary antecedent of social development. Indeed, over the past decade, even the entrenched family planning programs of the last half-century have been supplanted by a new policy thinking that presents

improvements in the circumstances of women as the fundamental precursor of developing world population and health goals. At the heart of this policy change is an improvement in the relative educational status of women; gender equity is frequently measured by this single indicator. The relationship between education and fertility decline accommodates both economic (demand) and cultural (diffusion) theoretical perspectives. Education changes the economic calculus within which childbearing is considered, for example, raising the opportunity cost of time spent in childrearing. Similarly, it improves knowledge of contraceptive availability in communities. Not inconsistent with the above, education also enhances the spread of ideas about access to, and use of, new forms of contraception and, perhaps, more importantly, facilitates the revision of the traditional norm of a large family (e.g., Rosero-Bixby 1999).

As in other parts of the developing world, structural improvements in women's education receive considerable credit for the emerging transitions in Africa (e. g., Kravdal 2002; Njogu 1991; Shapiro 1996). Meanwhile, a smaller, parallel 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 wave of transition and, by corollary, for the recent transitions (Adamchak and Mbizvo 1994; DeRose and Ezech 2001; Dodoo 1993a; Ezech 1993; Hollos and Larsen 2004; Isiugo-Abanihe 1994; Mbizvo and Adamchak 1992). Marriage across much of the region involves bridewealth payments that transfer authority about reproductive decisions from women to men (Bawah et al. 1999; Folbre 1988; LeVine et al. 1994; Mhloyi 1990). Contrary to those that credit women's education, male role proponents would argue that transition can be located in attitudinal changes of men, rather than women; in essence, the cultural factor trumps educational, occupational, and other structural considerations. These competing arguments no

doubt have varying policy implications. Yet, the existing data on Africa have typically precluded a direct assessment of their relative merits. A coincidence of timing of transition and availability of data in Ghana, however, appears to make this now possible, and the current paper constitutes an attempt to examine the relative viability of these cultural and structural influences on the fundamental source of social change that is fertility transition.

WOMEN'S STATUS, EDUCATION, DEVELOPMENT, AND FERTILITY

The literature on gender in Africa highlights the depth to which patriarchy is entrenched on the continent (Adomako Ampofo 2000; Folbre 1988; Kandiyoti 1988; Kritz and Gurak 1989; Mhloyi 1994; Oyewumi 2000; Sow 1997; Steady 1987; Tripp 2001; Vock 1988). A key manifestation of gender inequality is found in discussions about the extent of men's influence over (women's) fertility, with the question of how much control women have over their own bodies--and indeed their wombs--paramount in the discourse on this most fundamental of human rights (Dodoo 1998). Elsewhere, Beisel and Kay (2004) have shown the centrality of control over biological reproduction to the maintenance of gender (and racial) inequality in nineteenth century American society.

With the highest levels of fertility on the globe--and women, across space and at least the last four decades, indicating in surveys that they were having more children than they wanted to--considerable attention has been paid to African women's reproductive behavior. To a large extent, this has been a result of the presumed inverse relationship between fertility and development (Birdsall, Kelley and Sinding 2001). Much of the effort has been geared towards seeking ways to lower fertility, and raising levels of schooling has been, for most, considered the surest means to this end (Schultz 2002). Not surprisingly, the 1994 global decennial conference

on population, the International Conference on Population and Development, in calling for a rejection of the then current policy emphasis on demographic targets, suggested that a focus on improving the status of women would enhance the attainment of reproductive goals. The consensus and subsequent global policy as evidenced in, for instance, the 2000 United Nations Millennium Summit, was that educating the “girl child” to close the gender gap in schooling is a key mechanism for doing so (UN 2000).

The Education-Fertility Link

As early as 1980, Caldwell was already advocating an effect of mass education on fertility related behavior, and crediting that for being the “primary determinant of the timing of the onset of fertility transition” in Europe (p. 225). As basic education is introduced into communities, changing norms and laws undermine traditional family-based production by precluding child labor and making the education of children obligatory for parents. Simultaneously, the shift in locus of production to wage labor outside the home also facilitates a reversal in the direction of wealth flows across generations; prior to this revolution children helped create wealth for parental and grand-parental generations whereas, subsequent to the shift, parents benefit much less from children and actually are obliged to invest in them. This reversal in wealth flows is concomitant with a reorganization of roles within the family that is, in turn, consistent with a trend towards lower fertility (Caldwell 1980).

In addition to these macro-level effects associated with the spread of mass education that would seem to influence microeconomic or demand calculuses, the macro-level effects of education are also consistent with or ideational or diffusion explanations of fertility change. Kravdal (2002) clarifies how women’s fertility behavior might be influenced by the “education

of other women because of social learning, social influence, or (other) more indirect effects” (p. 235). In other words, community educational effects may stem from ideas that flow from women’s educated peers and/or evolutions in social arrangements that change the costs and benefits of childbearing for individual women.

Leaning heavily on the demographic literature of the last few years, Axinn and Barber (2001) identify “at least five distinct, but related, mechanisms” (p. 483) linking education to fertility. Education: raises the odds of contraception by making individuals “more calculating”; reduces fertility demand by spreading the small “Western family size” norm; undermines “traditional family ties” and associated large family pressures by creating physical distance as well as social and emotional nucleation from families, thereby reducing interaction between the educated and their less educated, more traditional kin; “raises consumption aspirations”, which are generally more incompatible with traditional levels of fertility; and spreads knowledge about contraceptive methods.

Still, it is more typically the case that assessments of the influence of education on fertility center on the effects of individual women’s schooling. Demand theories rooted in a microeconomic perspective highlight pathways through which women’s own education can influence their fertility behavior. Schooling raises the occupational chances and wages of women, and thereby the opportunity cost of their fertility because that competes with wage earnings and status attainment (Axinn and Barber 2001; Kasarda, Billy and West 1986). It is not unheard of for women to lose their employment or professional rank because of pregnancy or childbirth (Edwards 1988; Geisler 1987; Neumark and McLennan 1995; Suda 2002). As well as affecting the demand for fertility and contraception, higher levels of education also alter the supply and costs of fertility regulation (Casterline, Sathar and ul Haque 2001; Easterlin 1975;

Easterlin and Crimmins 1985). Education is further seen to be a key vehicle for enhancing the autonomy of women, with improvements in such enhancing women's ability to negotiate with spouses whose interests are at a disjuncture with their own (Bankole and Singh 1998; Beckman 1983; Hollerbach 1983).

Men's Dominance and Reproductive Decisions

The literature on fertility clearly recognizes the role of men in reproductive decision making. Even studies of the education-fertility link clarify the significance of men. Axinn and Barber, for instance, state that "a husband's (education) may even be a more important determinant of fertility limitation than his wife's" (Axinn and Barber 2001, p. 483). Likewise, the education-fertility relationship is "context-dependent and may be less or even reversed if socioeconomic development is low enough, male dominance great enough, and female education low enough" (Behrman 1996, p. 790, describing Jejeebhoy 1995). However, the body of work that champions the centrality of education for fertility change is much larger than that which contests the effectiveness of closing the gender gap in education absent the tackling of the cultural mores that cede power over women's reproduction to men.

The influence of men in fertility decisions is reportedly even more entrenched in sub-Saharan Africa, where an older, established, and more anthropological literature reveals both the disjuncture of women's and men's reproductive goals and their relative power within marriage to resolve such disagreements (Bongaarts, Frank and Lesthaeghe 1984; Caldwell and Caldwell 1987). A patriarchal culture has been the acknowledged logic for men's dominance in this area, with bridewealth payments seen as the culprit that transfers women's decision making authority over their own wombs to men and their families. The latter make these payments to the bride's

family as compensation for the loss of her productive and reproductive labor; in return, in the proliferation of patrilineal societies, men appropriate decision making control over women's fertility and gain kinship rights over the women's children in addition to, typically, exclusive sexual rights and household labor (Bawah et al. 1999; Folbre 1988; LeVine et al. 1994; Mhloyi 1990; Mvududu 2002). Thus, even though women controlled spheres like their economic earnings, the sexual and reproductive domains especially in marriage were outside the purview of their control.

Until recently, however, the lack of data has made it virtually impossible to assess the relative influence of women and men on reproduction, let alone the cultural bases for this inequity. Information--from men--on their fertility behavior and related attitudes was not collected in nationally-representative samples until 1988. Since the early 1990s, these and similar data have yielded growing empirical evidence of men's role (Bankole 1995; Dodoo 1993a, 1993b, 1995; Dodoo and Seal 1994; Ezeh 1993), arguing that the culture (e.g., bridewealth payment in marriage) essentially gave men overriding powers over women's sexuality, wombs, and fertility. Increasingly, this body of work has argued that the incongruity of women's and men's goals--related to different costs and benefits of childbearing for women and men--coupled with men's cultural authority or rights constitute the principal bottleneck to women's ability to attain their optimal reproductive rights. Said alternately, improving women's educational and occupational opportunities without addressing the inequities in the cultural domain will hardly yield the desired ends.

Unfortunately, the data constraints have also generally proscribed assessment of the relative influence of schooling and men's dominance. Longitudinal data are for all intents of purposes nearly non-existent in sub-Saharan Africa, hamstringing the opportunity for causal

analyses of African phenomena. Even in arenas as obviously important as fertility, where there have consistently been national level fertility surveys, the best available data constitute a series of national cross-sectional surveys. Compounding this is the fact that nationwide fertility transition has occurred in only a handful of countries, and in Kenya, for instance, the onset of transition occurred before the first data collection that included men, thereby precluding the analysis of how relevant respective factors may have been for the *initiation* of transition. 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: there are *four surveys* at five year intervals that *include men's interviews* and *straddle the onset* of what has been one of the most rapid fertility transitions on the globe.

These data enable us explore the extent to which education empowers women in a context where reproductive decisions have been under patriarchal control. As well, they speak to another yet unsubstantiated question in the literature, that of whether improvements in women's reproductive autonomy are necessary to propel fertility transition. The current paper attempts to advance the existing discussion by: (1) clarifying the relative contributions of women's schooling and men's reproductive preferences on the *onset* of fertility transition; (2) examining how these respective influences change over time; and (3) decomposing the extent to which changes in levels of schooling versus changes in the “effect” of schooling or men's preferences contribute to changed behavior over the course of a transition.

RESEARCH DESIGN

The problem-oriented public health approach to studying Africa—and the data this approach has spawned—would seem to explain the invisibility of Africa in the discourses recorded in the main sociology journals. Generally, it is the case that the available data preclude direct study of culture, social structure, identity, emotions, or other staples of sociological concern. The irony is that on a continent beset with some of the most pressing global problems of our time, many of which are arguably derivative of fundamental sociological concerns such as gender and ethnic inequality, the nature of the existing data and, to some extent, the lack of longitudinal data compromise the ability to empirically interrogate causal hypotheses.

The rare opportunity to investigate the relative influence of men's dominance and women's education that we exploit here derives from the availability of four nationally-representative cross-sectional surveys that straddle a fertility transition that began in the 1990s. With fertility having declined 34%—from women, on average, having 6.5 children at the time of the first survey, in 1988, to 4.3 children by 2003—we can examine whether there have been changes in women's schooling and in the extent of men's influence that are concomitant with the transition. This should yield some insight into, first, the viability of causality as an explanation and, also, the relative importance of these factors for the onset and progress of fertility transition.

Data

Despite the data constraints that have always inhibited the study of social behavior in Africa, persistent global interest in fertility in the developing world has yielded standardized survey data of much higher quality than those available for studying other social phenomena. These data generally measure the levels and trends of marriage, fertility, and mortality as well as those of

associated variables including sexual behavior, contraceptive use, and related attitudes. The data for the current study come from the four nationally representative Demographic and Health Surveys (DHS) executed in Ghana in 1988, 1993, 1998, and 2003. The Ghanaian scenario is useful for the study of the relationship between women's education and fertility change because of the country's closing gender gap in education and the recentness of its fertility transition.

We tap data from married couples, where each partner was 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 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 independently of women's, such that not all male respondents were married to women in the sample (or even married). 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.

Conceptual Framework and Key Measures

We examine three categories of women's education: no schooling, some primary schooling, and having attended secondary school or beyond. Table 1 portrays an increasing trend in women's education, with those who have had no schooling falling consistently across the four surveys, from 44.4% of the sample in 1988 to 29.7% in 2003. Correspondingly, those with secondary or more schooling increased from 6.0% to 10.0% in the same time frame. **Table 1 about here.**

Our measure of men's dominance in reproductive decisions is a bit more contrived, relying on the relationship between discordant reproductive preferences of couples and fertility behavior. Borrowing from Dodoo (1993b, 1998) we construct a joint measure to reflect couple preferences for subsequent children. Individual respondents—both women and men—were asked whether or not they wanted any or more children. We distinguished those who wanted to continue childbearing from those who did not and cross-referenced spousal responses to get 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 she wanted to continue, or the wife wanted to stop childbearing but he wanted to continue. Table 1 also presents the trends in this couple construct, the most evident being a virtual doubling in couple concurrence to cease childbearing from 15.1% of the sample in the earliest survey to 29.2% 15 years later. There is also a growing incidence of couples where only the husband reports a preference to cease childbearing—from 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.

Because true longitudinal data are not available, we are unable to link any of these variables with actual fertility outcomes. Still, the logic that people who do not want any more children in the future should be using contraception in the present is sufficient to make us consider the relationship between couple preferences and current contraceptive use in the cross-section.² The corollary is that, from the two couple disagreement categories we can distinguish

² Contraception is used by those who do not want to limit childbearing for a variety of other purposes (Bledsoe 2002), but other ends are more easily attained by traditional means and

where contraceptive use is more in concert with the male spouse's inclination—our proxy measure for men's dominance—and where women apparently have a greater wherewithal to implement their preferences (Dodoo 1998). The outcome variable is a dichotomous measure of *women's* contraceptive use.³ Table 1 reveals an upswing in women's contraceptive use in Ghana from 21.6% in 1988 to 40.1% in 2003.

We restrict this analysis to the monogamously married because of the lack of clarity about which wife a polygamous husband's fertility preferences should be indexed to. We recognize that this decision made on technical grounds has theoretical implications because the composition of the monogamous sample has changed as polygyny has declined; we return to this issue when interpreting the results. 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). Our control variables

therefore “need” for modern contraception is greatest among those desiring reproductive cessation. We test whether use is higher in these cases of greatest contraceptive need.

³ We focus on women's use because men have a greater propensity to use contraception outside the marriage; further, the literature on male dominance suggests that it is the woman's contraceptive use that is under contestation. We excluded folkloric contraceptive methods because of their low efficacy, but counted pills, intra-uterine devices, injections, diaphragms, condoms, sterilization, periodic abstinence, withdrawal, Norplant, lactational amenorrhea, and foams/jellies.

include those typically employed in fertility and contraceptive analyses: number of surviving children and the ages of both spouses. We also include a 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 (Axinn and Yabiku 2001; Basu 1999; DeRose and Ezech 2001; Jejeebhoy 1995; Njogu 1991), incorporating women's schooling, but not men's, schooling might bias the measurement of the male dominance effect by inequivalently soaking up some of the female influence.

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 educated can change the social context of reproduction including (but not limited to) norms for 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 men's dominance. Our community education variable reflects the mean number of years of schooling among wives in the region.⁴ Effects of community characteristics are notoriously suspect for picking up unobserved heterogeneity across communities, and we therefore use a set of dummy variables to control for regional fixed effects.⁵ We cannot, of course, include the fixed effects in models

⁴ Kravdal (2002) experimented with multiple measurements of community education and found no threshold effects; we therefore use this continuous variable.

⁵ 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

estimated separately by survey year because there would not be enough degrees of freedom remaining to estimate anything else about those regions. We therefore pool the data and use interactions between our key independent variables and survey year to measure change over time (following Firebaugh 1997). Our final pooled data model includes both the regional fixed effects and the community education measure.

We recognize that there are other characteristics of communities that may have changed over time besides the influence of women's education. Employing fixed effects does not control for these time-varying aspects. Given the profound decline in fertility over the 15 year period, it is logical to assume that availability of contraception may have increased and question whether supply improved differentially across communities. However, supply of contraception seems to have played a surprisingly small role in the Ghanaian fertility transition. Although more facilities in Ghana offer contraceptive supplies, these are not necessarily stocked: actual availability declined between 1996 and 2002 (Hong et al. 2005). Condom prescriptions remained stable and IUD insertions declined between 1993 and 2002 (Hong et al. 2005). Finally, the DHS data reveal that the proportion knowing where to obtain modern contraceptive did not increase over the fifteen year period.⁶

draw representative samples from each of the three. Therefore, we combine those regions in all survey years and distinguish eight regions.

⁶ Comparing proportions knowing where to obtain modern methods across survey years is difficult because in 1988 and 1993 respondents were asked a single question about knowledge of a source, but in 1998 and 2003 they were asked for a variety of specific methods, thus making it more likely that respondents in later years would report "no". But even between 1998 and 2003

FINDINGS

The substantial transition in reproductive behavior observed in Ghana has been accompanied by a definitive expansion in contraceptive use from 21.6% of the sample in 1988 to 40.1% in 2003 (table 1). 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 the level of education noted earlier, use of contraception has also increased across the educational spectrum, at the same time that schooling differentials in contraceptive use have declined. Seemingly, use has come to depend less on the education of women (or for that matter men, the data for whom exhibit similar trends), than it did prior to the onset of the revolution, when contraceptive users were a more select group of innovators. **Table 2 about here.**

Changes over time in use according to fertility intentions reveal a story that is more differentiated by gender. The relationship between couple preferences and contraceptive use—also observed in table 2—provides some evidence of an emergent men’s advantage in the ability to translate own fertility goals into behavior. Patterns of change over time among discordant couples, although based on small samples in the earlier years, suggest that men’s unilateral preference to cease childbearing matters more over time while women’s, at best, stays unchanged.

where the question structure is identical, fewer report knowing a source for any modern method. The data inconsistencies preclude modeling effects of known service availability within communities.

From another perspective, by 2003 wives' ability to effect their preferences into contraceptive use was invariant 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), 51% had wives who used contraception, while among those (men who wanted to stop but) whose wives wanted to continue, 49% were using contraception. In contrast, wives' contraceptive use in 2003 did vary significantly by their husbands' preferences: only 40% of those whose husbands wanted to continue childbearing were using contraception. Seemingly, men are able to act on their goals 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.

Turning from couple to individual preferences reveals that while contraceptive use increased over time, it appreciated more for men. Only 27% of men who did not want another child had a wife using contraception in 1988, whereas over half did by 2003, an increment of almost 91%. Women, on the other hand, were more likely than men to use contraception if they wanted to cease childbearing in 1988: 36%. But, this percentage only grew by 33% (to 48%) by 2003. What started out as a substantial women's advantage in translating own preferences into behavior changed to favor men over the period. While these descriptive statistics are certainly provocative, they potentially overlook other confounding changes that were occurring.

To better clarify the picture, table 3 presents results of multivariate logistic regressions that predict wives' 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 reduces over time. With respect to couple preferences, in 1988, contraceptive use was significantly more likely when only wives wanted to cease childbearing—compared to the omitted category, where both partners were inclined to continue having children—but not when

only husbands wanted to. By 2003, husbands' unilateral cessation inclinations significantly predicted use among discordant couples, whereas wives' own preferences did not.⁷ Also by 2003, the predicted odds of contraceptive use were 97% higher among couples when only the husband wanted to stop childbearing, but only 53% higher when the wife alone was inclined towards cessation. **Table 3 about here.**

More importantly, the relative effects of unilateral preferences were moving in different directions over time: in couples with conflicting goals, men became more influential while women became less so. This is not a zero-sum game: in an environment where contraceptive use was becoming increasingly acceptable, both partners could have received more support for implementing their preferences over time. Instead, women's ability to effect use when their partners wanted to continue childbearing evidently declined (the odds ratio dropped from 3.67 to 1.53).

To test the hypothesis that the relative power of women in discordant couples declined over time, we pool the data and run a model with dummy variables for survey year as well as interactions between the independent variables and the survey year dummies. In the pooled data model, "only the husband wants to stop childbearing" is the omitted preference category, and thus the coefficient on "only the wife wants to stop" reflects how much more (less) likely contraceptive use is among discordant couples when it is the wife who wants to stop. (In the

⁷ The observed pattern is not driven by differences in statistical power across surveys: if sample sizes in previous years had been as large as in 2003, the significant effect of women's unilateral intention to stop would have disappeared by 1998 instead of by 1993, and the significant effect of men's unilateral intention to stop would still have emerged only by 2003.

previous models with “both want to continue” as the reference category that coefficient reflected whether the wife’s unilateral intention to stop elevated use.)

These results, in model 1 of table 4, show that the difference between his coefficient and hers changed significantly over time. This suggests that the relative power of husbands in couples with conflicting fertility intentions increased significantly. **Table 4 about here.**

We also call 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 end. Change over time is significant only for women's primary education, but the same pattern holds for women's higher education (with women with secondary and higher education being about 6.5 times more likely to use contraception in 1988, but only 3.3 times more likely by 2003), as well as for men's education (odds ratios going from 2.65 to 1.41 for primary education, and from 1.57 to 1.28 for secondary and higher education). Contraceptive use was becoming more common and less differentiated by education.

Even when the effects of community education levels are considered (model 2, table 4), the results still suggest a significantly lower importance of education over time. For each additional year of average schooling in the region, odds of contraceptive use increased 43% in 1988 ($p < .08$); this effect significantly attenuates over time such that, by 2003, no net effect of community education remains.⁸ The reduction over time in the effect of wife’s primary schooling

⁸ As a methodological point, the coefficients for community education were nearly identical in models that did not control for fixed effects (not shown). This means that where data from more than one point in time is not available, the estimated effects of community education may still be reliable. Kravdal (personal communication) has re-estimated the effects of

also lost its statistical significance ($p < .09$) when community education was added to the model, but the magnitude of the reduction remained large.

To further explore the observed temporal changes we consider a decomposition analysis and, particularly, the extent to which the changes in contraceptive behavior can be linked to variances in levels of education and/or couple intentions per se, versus changes in how these are translated into contraceptive use (changes in population composition versus behavior within subgroups; see Cancio, Evans and Maume 1996). These findings are presented in table 5 and show that having a more educated population would have accounted for a somewhat modest four percent of the overall increase in contraceptive use between 1988 and 2003. Most of this (3.4%) is attributable to improvements in *women's* schooling. However, given that returns to education dropped over time, the overall effect of change attributable to education (including both levels and rates) would have been to *decrease* contraceptive use. **Table 5 about here.**

Changes in the proportion of couples in the discordant fertility preference categories—from which we proxy our measure of male dominance—contribute less than one percent to the total increase in wife's contraceptive use. Yet, here too, behavior change within subgroups is the more interesting story: there was a reduction in the rate of contraception in dyads where only women want to cease childbearing, to the magnitude of 3.8 percent (reduction) of the overall change. Additionally, contraceptive use increased where only husbands wanted more children; a contribution of 3.3 percent of the total change. Both trends point to an increasing ability of husbands, relative to wives, to implement their goals.

community education in sub-Saharan Africa using fixed effects and found significant effects as in his 2002 work.

In sum, these findings suggest that changes in the proportions of educated wives contributed more to contraceptive uptake between 1988 and 2003 than did changes in the proportions of men who unilaterally wanted to stop having children. But, the fall in contraceptive returns to schooling coupled with men's greater ability to implement their fertility goals meant that men's increased power contributed more to contraceptive uptake than did women's improved educational status. Combining the level and rate effects, we also see that, overall, men's unilateral stopping goals worked to increase contraceptive use whereas women's schooling worked in the opposite direction.

DISCUSSION

The last 15 years have evidenced a considerable revolution in reproductive behavior in Ghana, and this has come with concomitant changes in social and familial arrangements. Levels of schooling have risen dramatically, while the gap between women's and men's fertility preferences has narrowed with the rapid decline in men's fertility desires. This paper set out to weigh the evidence about the relative importance for fertility decline of increasing women's education and men's dominance in reproductive decision making. This question is relevant for the debate about the extent to which structural improvements in women's position are necessary, or even sufficient, to propel fertility transition, or whether the cultural influence of men's dominance regarding fertility decisions aggravated by bridewealth payments trumps the structural considerations.

Our evidence seems to quite clearly favor the latter argument. Men's dominance over reproductive decisions appears to override improvements in women's education, at least in this case of the Ghanaian transition; shifts in gendered power in reproductive decision-making that

avored men contributed to contraceptive uptake while education became a less important determinant of contraceptive use. Despite increases in women's education, a narrowing of the gender gap in education, and increases in the proportion of couples where men want no more children over this period of rapid fertility decline, we find that the relationship between women's schooling and contraceptive use actually weakened over the period, whereas fertility cessation behavior seemed to reflect men's preferences much more than women's over the period. Of course, even though we cannot pretend an exhaustive explanation of the transition in Ghana when couples with discordant fertility preferences comprise a minority (about 18%) of the population, these patterns are consistent with the thesis that cultural factors have mattered more than structural ones during the course of this profound social transformation.

Three plausible explanations exist for our findings. First, this may reflect a male-driven transition where fertility fell when men—for one reason or another, and some have attributed this to the rising costs of children's education, a cost that is culturally men's to bear—decided they wanted fewer children; women had presumably always wanted lower fertility. Such an argument would be consistent with theories that posit crises-driven transitions (Elondou-Enyegue, Stokes and Cornwall 2000; Shapiro and Tamashe 2002). 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, our results may be influenced by changes in sample selection over time. Part of the reason that schooling is thought to contribute to innovative fertility behavior is that families that chose to

send their girls to school are different in other ways that may include less traditional gender role and reproductive expectations (e.g., Thomas 1999). As educational expansion progresses, educated girls would become less select on family income and attitudes, and therefore one of the forces contributing to the education/fertility relationship would be weakened. Selection issues also pertain with respect to discordant couples because during a period of polygyny decline, the monogamous sample is likely to contain men who might have been polygynous if their fertility desires had been slightly higher. Thus, discordant couples where the wife wants to stop may increasingly over time include fairly traditional men who may be more likely to exercise authoritative reproductive control.

Finally, in addition to the apparent weakening of the influence of women's schooling, the evidence that transition occurred—and did so very rapidly—at the same that men's relative authority rose suggests that structural improvements for women may not be a necessary condition for fertility change as elsewhere purported (Caldwell, Orubuloye and Caldwell 1992; Drèze and Murthi 2001; Lloyd 1994; Rodriguez and Aravena 1991). Because we use repeated cross-sectional data covering a time span when the gender gap in education was closing (see table 1), we would have expected to see growing equality in reproductive decision making if education-enhancing women's autonomy were a causal explanator of fertility transition; but, we do not.

What does this all mean? For one, our findings should provoke concern about research and policy on reproductive and sexual behavior in sub-Saharan Africa where the evidence is that men have authority over this realm. More significantly they question the validity of analysis that exclude, or only cursorily include, men. Despite increasing acknowledgement of men's influence in substantive discussions, the normative study of fertility and sexual behavior on the continent

generally continues to exclude men, or even when it incorporates men includes them only marginally (e.g., Gupta and Mahy 2003; Kravdal 2002; Lloyd, Kaufman and Hewett 2000; Murthi 2002). Simply, data, analysis, and policy need to extend beyond the more facile structural measures of education and occupation—for women and men—and strive to incorporate cultural factors such as bridewealth payments, “chop money,” etc. (Adomako Ampofo 2000; Dodoo 1998), which have been theoretically and conceptually linked to gendered behavior.

The question of the robustness and validity of our finding on women’s education—as for other factors purported to increase reproductive autonomy such as occupation—is critical for policy and the fundamental economic and social transformations these poorest of the world’s countries need. The ability of these variables to meaningfully influence fertility is questionable in the context of a cultural umbrella that continues to govern the marital bond. Fertility has major implications for development via a number of mechanisms including population growth rates and the well being of both mother and child. As well, concerns about the invalidity of the presumed argument that social development (in which women’s education improvements play a large role) would yield fertility declines may be fostering a return to the old coercive population policy regimes (Drèze and Murthi 2001).

Beyond all this, we could speculate about what findings of this nature imply about the older, more established transitions, such as those of two centuries ago in Western Europe. Interestingly, despite what seemed, by all accounts, to be an extremely patriarchal era there has been little attempt to understand the role of gender in the European transitions. Did the wealth flow reversals that accompanied the industrial revolution and its concomitant laws governing child labor and schooling provoke men’s reproductive preference downturns in a period where women worked relatively less outside the home? Or, would gender have been irrelevant in that

context because men's and women's fertility preferences were more concordant than they were in sub-Saharan Africa, given the rich soils that made fertility take "second place to ensuring the right (marriage) match by the outlawing of women's sexual activities outside marriage and to maintaining indisputable inheritance by identifying and anathematizing illegitimacy" (Caldwell 1990: 123)? Indeed, access to any existing data on women's and men's reproductive preferences in pre-transition Europe might yield interesting fodder for students of gender inequality. Despite the paucity of good quality data on sub-Saharan Africa, it is clear that careful organization of the available data can enhance the contributions Africa makes to global scholarship.

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TABLE 1
DISTRIBUTION OF STUDY VARIABLES

	1988	1993	1998	2003
Couple Fertility Preference				
Both want to continue childbearing	67.99	55.07	57.29	52.37
Both want to stop childbearing	15.14	29.35	26.92	29.18
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
Level of Education				
Wife				
None	44.42	36.96	33.48	29.72
Primary	49.63	53.99	57.11	60.30
Secondary & higher	5.96	9.06	9.41	9.98
Husband				
None	26.30	23.19	17.17	16.44
Primary	51.36	51.81	63.33	58.06
Secondary & higher	22.33	25.00	19.49	25.50
Mean years wife's schooling in region	4.23 (1.12)	5.47 (2.00)	5.59 (1.14)	5.84 (1.83)
Dependent Variable				
Wife currently using contraception	21.59	32.61	36.57	40.10
Control variables				
Wife age	31.66 (8.12)	31.79 (7.71)	31.58 (7.68)	32.73 (7.78)
Wife surviving children	3.60 (2.38)	3.17 (2.14)	3.01 (2.18)	3.19 (2.09)
Husband age	38.45 (9.57)	38.40 (9.30)	38.36 (9.18)	38.68 (8.81)
Husband surviving children	4.09 (2.92)	3.72 (2.87)	3.42 (2.54)	3.54 (2.49)
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.

TABLE 2
TRENDS IN CONTRACEPTIVE USE BY FERTILITY PREFERENCE AND
EDUCATION

	1988	1993	1998	2003
Fertility Preference				
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
Level of Education				
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	9.23	20.07	29.51
Primary	27.05	34.42	36.05	40.89
Secondary & higher	24.18	55.07	52.80	45.05

SOURCE.—Demographic and Health Surveys, weighted data

TABLE 3
PREDICTORS OF CURRENT CONTRACEPTIVE USE (LOG-ODDS)

	1988	1993	1998	2003
Couple Fertility Preference				
Both want to stop	0.716 (0.430)	1.688*** (0.474)	1.183** (0.437)	0.803*** (0.212)
Only wife wants to stop	1.286** (0.420)	0.769 (0.589)	0.289 (0.603)	0.432 (0.250)
Only husband wants to stop	-0.603 (0.800)	0.537 (0.637)	0.357 (0.532)	0.683** (0.244)
Level of Education				
Wife				
Primary	1.236*** (0.328)	1.799*** (0.451)	0.695* (0.325)	0.386* (0.159)
Secondary & higher	1.893** (0.597)	2.922*** (0.651)	1.152* (0.560)	0.947*** (0.271)
Husband				
Primary	0.990* (0.436)	0.326 (0.558)	0.354 (0.411)	0.141 (0.191)
Secondary & higher	0.462 (0.509)	1.183* (0.609)	1.184* (0.496)	0.263 (0.231)
Constant	-3.493*** (0.660)	-1.699* (0.732)	-0.324 (0.573)	-0.457 (0.268)
N	403	276	306	1114

NOTE.—See table 1. Models included controls for the age and surviving children of both partners. Standard errors in parentheses.

* $p \leq 0.05$; ** $p \leq 0.01$; *** $p \leq 0.001$

TABLE 4
LOG-ODDS OF CURRENT CONTRACEPTIVE USE: POOLED 1988-2003 SAMPLE

	Model 1		Model 2	
Couple Fertility Preference				
Only wife wants to stop childbearing	1.890	(0.854)	1.951*	(0.869)
Both want to stop childbearing	1.324	(0.839)	1.320	(0.855)
Both want to continue childbearing	0.604	(0.799)	-0.681	(0.815)
Level of Education				
Wife				
Primary	1.233***	(0.328)	1.086***	(0.339)
Secondary & higher	1.889**	(0.596)	1.591**	(0.613)
Husband				
Primary	0.975*	(0.433)	0.873*	(0.440)
Secondary & higher	0.449	(0.505)	0.294	(0.514)
Interactions				
Only wife wants to stop x 93	-1.641	(1.165)	-1.497	(1.187)
Only wife wants to stop x 98	-1.919	(1.124)	-1.836	(1.139)
Only wife wants to stop x 03	-2.139*	(0.905)	-2.146*	(0.920)
Both want to stop x 93	-0.129	(1.069)	-0.020	(1.086)
Both want to stop x 98	-0.494	(1.018)	-0.443	(1.037)
Both want to stop x 03	-1.202	(0.876)	-1.167	(0.892)
Both want to continue x 93	-1.087	(1.020)	-1.017	(1.038)
Both want to continue x 98	-0.997	(0.962)	-1.021	(0.981)
Both want to continue x 03	-1.294	(0.834)	-1.356	(0.852)
Wife's primary x 93	0.584	(0.558)	0.701	(0.569)
Wife's primary x 98	-0.521	(0.462)	-0.406	(0.478)
Wife's primary x 03	-0.833*	(0.364)	-0.649	(0.378)
Wife's secondary & higher x 93	1.060	(0.977)	1.160	(0.899)
Wife's secondary & higher x 98	-0.702	(0.820)	-0.476	(0.837)
Wife's secondary & higher x 03	-0.925	(0.655)	-0.653	(0.673)
Husband's primary x 93	-0.632	(0.706)	-0.509	(0.726)
Husband's primary x 98	-0.621	(0.597)	-0.574	(0.633)
Husband's primary x 03	-0.835	(0.474)	-0.639	(0.483)
Husband's secondary & higher x 93	0.753	(0.793)	0.901	(0.812)
Husband's secondary & higher x 98	0.761	(0.708)	0.847	(0.746)
Husband's secondary & higher x 03	-0.203	(0.558)	0.033	(0.567)

Community education			0.358	(0.200)
Community education x 93			-0.337	(0.179)
Community education x 98			-0.337*	(0.172)
Community education x 03			-0.408**	0.158)
Year 1993	3.720*	(1.667)	4.909**	(1.850)
Year 1998	4.905***	(1.537)	6.103***	(1.709)
Year 2003	4.266***	(1.098)	5.702***	(1.327)
Intercept	-4.050***	(1.027)	-5.229***	(1.355)

NOTE.—Models included controls for the age and surviving children of both partners as well as interactions between these variables and survey year. Model 2 also contains a set of dummy variables for eight regions.

* $p \leq 0.05$; ** $p \leq 0.01$; *** $p \leq 0.001$

TABLE 5
DECOMPOSITION OF INCREASE IN CONTRACEPTIVE USE BETWEEN 1988 AND 2003

	Levels (characteristics)	Rates (behavior)	Total
Percent of change contributed by:			
Couple Fertility Preference			
Both want to stop childbearing	5.6	1.4	7.0
Only wife wants to stop	-0.4	-3.8	-4.2
Only husband wants to stop	1.2	3.3	4.5
Education			
Wife's	3.4	-19.9	-16.6
Husband's	0.6	-21.6	-21.0
Control Variables	-0.1	-0.5	-0.4
Total explained	10.3	-41.2	-30.9
Intercept (unexplained)		130.9	130.9