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To have or not to have another child: life cycle, health and cost considerations of Ghanaian women

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Abstract

Given that fertility rates are high in most sub-Saharan countries, it is critically important to understand the drivers of the demand for children to inform population reduction policies. Yet little is known about the individual-level factors that drive the desire for fertility limitation. The desire to limit births may be driven by the achievement of family size targets. However, since children are born at different stages of the life course, fertility desires may also be influenced by past reproductive, socio-economic experiences, and perceptions about future welfare. In this study, the determinants of the desire to stop childbearing were analyzed at the individual-level using prospective longitudinal data (1998–2003) on the reproductive lives of women in six communities in southern Ghana. Using variation within-woman, we modeled the impact of changes in reproductive life cycle events, health status, perceptions of future household economic conditions, perceptions of the cost of additional children, and spousal interactions on a woman's fertility preferences. We found that the desire to stop childbearing is influenced by reproductive life stage (such as age, parity); events (marital transitions, child death); perceptions of personal health (particularly anticipated demands of the next pregnancy on the woman's health); the household's economic welfare; and the overall subjective cost of children. The economic utility models which emphasize cost/benefit considerations, as well as the anthropological and sociological theories which emphasize norms, appear to be validated in this empirical analysis in that both subjective elements and normative considerations are incorporated into fertility decisions.

Keywords

Fertility Preferences; fertility limitation; sub-Saharan Africa; Ghana; longitudinal; childbearing desires; economic; health

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Introduction

By global standards, fertility rates in sub-Saharan African countries are relatively high. On average women bear about five children by the end of their reproductive years. Over the past two decades, however, many sub-Saharan African countries have experienced declines in fertility rates; a subject which has gained much research and policy attention (Bongaarts, 2008; Kirk & Pillet, 1998). The topic of fertility desires or preferences in particular, has received considerable scientific interest because of its connection with the future course of fertility in the region. However, so far this body of research has mainly focused on the correlates of fertility preferences -- especially, the determinants of desired family size, unmet need for modern contraception and the ramifications of husband-wife power relations and conflicts in fertility decision-making. Due largely to the scarcity of longitudinal demographic data in the region, very few empirical studies have focused on understanding the dynamics of individual fertility preferences over the reproductive lifecycle; as such, very little is known about which factors are important when individuals change fertility preferences. Yet, with the transition from an era of natural fertility to one where births are planned, it is important to understand what factors are associated with individuals' desire to control their fertility. The determinants of the desire to stop childbearing are of particular salience to the extent that desires drive fertility behavior.

The desire to stop childbearing is expected to be a natural progression in the reproductive life course. A common notion is that people decide the number of children they want over their reproductive lives and stop childbearing whenever that number is achieved (Becker, 1981; Easterlin & Crimmins, 1985). However, since each child is born at a different stage of the parents' life course, childbearing preferences could be based on past childbearing outcomes, current or future circumstances (Namboodiri, 1972; 1983). Fertility decisions are thus closely linked to how the reproductive life course plays out. For example, the experience of unintended or mistimed births, child loss or an undesirable gender composition of children, might cause plans for fertility limitation to be reconsidered, despite long-term family-size targets. Besides past childbearing experiences, individuals may also react to unforeseen influences on the demand for children. Household income may fluctuate over the reproductive life cycle, jobs may be secured or lost, and changing macroeconomic and social conditions may affect couples at different family formation stages. Furthermore, the fertility decision would have to include considerations of the desires of spouses. Strong influence may also be exerted by the social environment especially by extended family members and friends who may want to enforce fertility norms. While people do not always succumb to social pressures, deviation from fertility norms may require some bold considerations at the personal level.

In this paper, we examined the extent to which a woman's reproductive history, perceptions of her economic and health conditions, and of the cost of having additional children affected her desire to stop childbearing at different points in time. We explored these questions using individual-level prospective longitudinal data (from 1998–2003) on the reproductive lives of women in six communities in southern Ghana. This study consisted of eight waves of panel data. In each interview, which included questions about reproductive background, household and attitudes, women were asked whether they would like to have a (another) child. Using

the conditional logit regression technique, we modeled the impact of some reproductive life cycle events and outcomes, together with health experiences, spousal interactions, perceptions of future household economic conditions on the woman's preference to stop childbearing. This study contributes significantly to the literature on sub-Saharan Africa in that it examines the contributions of a wide range of personal-level factors that have not been specifically examined in prior studies in sub-Saharan Africa. The longitudinal, and within-woman focus of analysis is also novel considering studies of fertility preferences have typically been cross-sectional.

Determinants of the desire for fertility limitation

The examination of individual-level determinants of the desire to limit fertility raises the issue of selecting an applicable decisional approach to fertility decision making. The classical theory of fertility posits that the decision about how many children to have is made once -- at the onset of marriage or the parenting career and that couples stop having children when they attain the desired number (Becker, 1981; Easterlin & Crimmins, 1985; Willis, 1973). The theory posits that the greatest motivation for limiting births rests on achieving the desired number, even though the desired number may be revised along the life course (Lee, 1980; McClelland, 1983). In countries with low levels of fertility, empirical evidence from several decades generally shows that expectations of family size match completed family size but only at the aggregate level. For individuals or couples in both low and high fertility countries, many studies have found that the correspondence between family size targets at earlier stages of the reproductive cycle and completed family size is only fairly moderate (Hagewen & Morgan 2005; Toulemon & Testa, 2005; van de Kaa, 2001; Voas, 2003). Alternatively, proponents of the sequential model of fertility decision-making believe that it is more realistic that the decision-making is done one birth at a time (Namboodiri, 1972, 1983). The decision problem in this model is centered on whether or not to have a (or another) child, rather than the optimal number of children to have. Thus, fertility decisions involve a series of choices over the life course. The birth of each child changes both the family circumstances and parental evaluations of the costs and benefits having another. Even though the logic appears practical for understanding changing decision patterns, systematic empirical testing of the sequential model has been limited due to its greater complexity and data demands. More importantly, it is appealing to understand the desire for fertility limitation from the perspective that outcomes associated with previous reproductive experiences and perceptions of marital, social and economic circumstances at the time of decision making, do affect the probability of wanting another child. We elaborate on this point further in developing explanatory variables for the analysis in the following sections.

Previous Reproductive Experience

It is possible that the childbearing experience itself would change perceptions about family size. The sheer number of children that parents have to care for could reduce the demand for more, especially if resources are limited. Besides, if past pregnancies were mistimed, parents are likely to face additional unanticipated costs that could reduce subsequent demand. Unintended delays in childbearing or long birth intervals, on the other hand, could also reduce demand especially if fecundity problems set in later in life.

Furthermore, child mortality may affect fertility demand through the couple's response to actual child loss, or through the anticipation of child deaths (Mauskopf, 1983; Montgomery & Cohen, 1998). Assessments of general probabilities of risks of child mortality may differ from personal experiences of risk. The death of a child may present the opportunity to invest more in the quality of life of the surviving children, especially if some children were unwanted, but the experience of child death could also reduce perceptions of survival chances of remaining children – in which case there could be considerations of having more children to minimize risks.

The gender composition of surviving children is another important factor that could determine whether to stop or continue childbearing. The desire for having a balance between sons and daughters is widespread, even though in some cultures son preference is predominant. If the gender composition of surviving children is not optimal, the demand for children may be affected depending on the perceived value attached to maintaining the status quo vis-à-vis balancing the gender composition. Gender imbalance could lead to a desire for another child if parents take a chance at correcting the imbalance. Besides, other life circumstances such as divorce and remarriage could affect the desire for children.

Partner Influences

The preference to limit births is usually formed in the context of a marital relationship that exerts great influence on partners through spousal communication and social power (Blanc et al., 1996; Thomson et al., 1990). Spouses' influence on their partners' preferences is often unequal. In sub-Saharan Africa, research comparing husbands' and wives' fertility preferences indicate that marital partners are separate actors whose reproductive preferences are not always congruent (Short & Kiros, 2002). When there is agreement on preferences, it may be based on discussion leading to acquiescence, coincidentally similar preferences, or projection of one partner's preferences onto the other partner's preferences. In sub-Saharan Africa, when spouses do not share similar preferences, husbands tend to want more children (Bankole, 1995; Bankole & Singh, 1998; Dodoo, 1998; Ezeh, 1993; Short & Kiros 2002). Furthermore, the literature suggests that husbands influence and exercise power in childbearing decisions in a major way (Bankole & Singh, 1998; DeRose, 2007; Ezeh, 1993; Feyisetan, 2000; Oyediran et al., 2006). Lastly, spousal communication has been shown to be positively associated with fertility limitation (Bongaarts & Bruce, 1995; Lasee & Becker, 1997; Oyediran et al., 2006). Since most of the evidence comes from cross-sectional surveys, it is unclear whether spousal discussion is a causal determinant or correlate of fertility regulation (DeRose et al., 2004; Dodoo et al., 2001).

Material Conditions

Behavioral models of fertility are premised on the fact that individuals or couples make fertility decisions being cognizant of the trade-off between having children and enjoying other aspects of life. It may be argued that since societies with high levels of fertility are associated with pronatalist norms, women would aim for their often large ideal number of children and would only want to stop having children when constrained by their material circumstances. Although material constraints set objective limits on what people can achieve, they are evaluated subjectively and may be perceived correctly or incorrectly. This

subjective evaluation is also reflected in people's perception of the costs (and benefits) of having children at any point. However, since fertility decisions may be made by spouses and other family members who control resources in the family, the cost of childrearing may not be solely borne by the woman. In some societies, older family members may be directly responsible for the day to day care of children. However, the cost of another pregnancy on the woman's health falls squarely on her. Given her reproductive experience, it is her perceptions of the net value of the additional child that matters. Such cost-benefit perceptions may equally be as relevant to considerations of stopping as objective measures of her circumstances.

Some studies suggest that due to hardship and uncertainty, most African women may not base their fertility motivations on prior long-term considerations; their fertility desires may be influenced more by a mix of short-term, often unstable factors connected with the quest to survive the economic, cultural and social pressures (Agadjanian, 2001, 2005; Johnson-Hanks, 2007, 2005). The desire to stop childbearing may be a temporary response to economic hardship rather than an internalized aspiration for a particular family size. A somewhat parallel argument draws from the empirical reality that in sub-Saharan Africa, a substantial amount of modern contraceptive use is for birth spacing rather than for averting unwanted pregnancies (Bledsoe, 2002; Bledsoe et al., 1998; Caldwell & Caldwell, 1981). Accordingly, Agadjanian (2005) argues that the conceptual distinction between "spacing" and "limiting" births may be an unrealistic distinction to ordinary Africans. These empirical observations seem to reasonably suggest that the meaning Africans assign to fertility control connotes spacing the number of children that life circumstances allow. They further suggest that the desire to stop childbearing may be determined almost equally or perhaps, to a greater extent by non-reproductive circumstances than by reproductive lifecycle factors. These pieces of evidence may also suggest that the preference to stop childbearing may not be held strongly since they are subject to revisions based on changes in social, economic and other life circumstances. What is unclear is the extent to which preferences already reflect anticipated conditions in the face of such uncertainty.

One can argue that because of pronatalist norms, women may tend not to say they want to stop childbearing lightly. Preferences may tend to be least affected by "normal" changes in their household economic or social conditions. In other words, changes in situational factors may not cause changes in preferences if they are considered mundane. For a situational factor to significantly impact the desire to stop childbearing (more than reproductive or husband-related factors), that factor should be considered serious and/or unanticipated. For example, a woman with less than three children in Africa may be much less likely to succumb to the normal pressures of her economic circumstances than one with five children, but she could want to stop childbearing on the basis of a serious health problem. It is reasonable to expect that the considerations that are topmost on women's minds when stating preferences is likely to eventually depend on their reproductive life stage – specifically the number of children already born. We argue that women's reproductive circumstances as well as their situational perceptions dictate whether or not they desire to stop childbearing and that the effects of situational factors also depend on parity.

Normative Expectations and Social Pressure

According to the theory of reasoned action and planned behavior (Ajzen & Fishbein, 1980), a woman's intention to perform an action is determined by her beliefs about the consequences of the action, the beliefs about what significant others think she should do, and the motivation to comply with those expectations. In all societies, there are social norms prescribing what the acceptable family size should be. People experience social pressure to have children at parities below the normative family size threshold. Likewise, there is pressure to limit births above the normative family size (Bledsoe, 2002; Page & Lesthaeghe, 1981). Therefore, as individuals consider childbearing options, they are sometimes influenced by people around them – relatives, friends, health workers etc. There is much empirical evidence suggesting that the influence of individuals or groups has a bearing on reproductive behavior, particularly contraceptive behavior (Barber et al., 2002; Berhman et al., 2002; Casterline et al., 2000; Godley, 2001; Madhavan et al., 2003; Rutenberg & Watkins, 1997). The critical questions here relate to how such interactions influence personal fertility preferences, who the influential people are, and whether such influences can outweigh the influence of spouses in particular – spousal preference is likely to be most predominant. The influence of other individuals in fertility decision making is difficult to substantiate through survey interviews. Social influence or pressures may simply be internalized and expressed as personal motivations or preferences for normative expectations.

Hypotheses

Given the above-mentioned background, we expect that factors related to women's reproductive circumstances such as her age, the number of living children, the gender balance of living children, the experience of child mortality, and marital transitions, will have strong influence on her of preferences. The likelihood that women would desire to stop childbearing should increase with age and parity. Women with children of the same gender would be more hesitant to quit childbearing than those with mixed gender. Likewise, the experience of child loss and marital transition are likely to be negatively associated with the desire to stop childbearing.

In this context, we also expect that better prospects for the household economic situation, personal health, etc. could lead to reluctance to stop childbearing, all else being equal; because as the literature suggests, in sub-Saharan Africa, people tend to say they want to stop childbearing when times are hard.

The mechanisms through which husbands specifically influence wives' fertility preferences are not clearly documented, however, what is known is that husbands are more pronatalist and their preferences tend to dominate over wives' (DeRose, 2007). Thus, we posit that when couples have had a discussion about having a child, the woman is less likely to say she would stop at a later time. Likewise, if a couple has had a discussion about adopting family planning, the woman would be more likely to say she would stop childbearing subsequently.

Methods

Longitudinal data on the fertility preferences of the same woman over time provides a means of modeling the determinants of preference transitions while controlling for all unobserved personal factors that are stable over the period of observation and may be correlated with stated preferences and the explanatory variables. For example, even though women may share similar cultural, linguistic, socio-economic, or religious backgrounds, their “tastes” for children potentially varies. Although reproductive tastes can potentially change, they are assumed to be stable over the life course (Easterlin, 1987). In addition, given similar initial situations, people will differ in their propensity to stick to their preferences in the face of changing circumstances – this psychological disposition is also not observed. Briefly, some unobserved dimensions of personal motivation to stop childbearing will be different for each woman and may affect explanatory variables in ways that need to be controlled for.

Woman-specific unobserved factors may be addressed in several ways. One could find a proxy variable for the specific unobserved characteristic and use that to adjust the model. Alternatively, where appropriate measures are available for explanatory variables that are correlated with the unobserved factors, the instrumental variable estimation technique can be used to obtain consistent parameter estimates (Wooldridge, 2002). Appropriate panel data techniques can also reduce the issue of bias due to unobserved heterogeneity. The conditional logit regression technique also allows us to model woman-specific variation in preferences, where woman-specific factors (both measured and unmeasured) that are constant over the observation period are allowed to be arbitrarily correlated with explanatory variables (Allison, 2005). We employed the conditional logit regression method because of its advantage in reducing bias.

Empirical Model

To investigate the factors surrounding the preference for no more children, let Y_{it} be a binary dependent variable capturing whether or not a woman wanted to stop childbearing in a given round of survey, t . $Y_{it} = 1$ if she said she wanted to stop and $Y_{it} = 0$ otherwise. Let p_{it} denote the probability that a woman i , chose to stop in round t , we could assume that the dependence of p_{it} on the predictor variables is explained by a regular logit model of the form:

$$\log(p_{it}/1 - p_{it}) = aV_i + bX_{it} + cZ_{it} \quad (1)$$

where V_i represents time-invariant covariates such as the woman’s ethnicity; X_{it} , the reproductive life cycle variables which are time-varying and Z_{it} represents other covariates such as discussions with partners and economic perspectives at the time of interview. However, unbiased estimates of a , b and c are hindered by constant unobserved variables which are correlated with these variables. A substantial correlation between these unmeasured variables and the X_{it} , Z_{it} variables may erroneously give the impression that these variables exert a greater effect on the preference to stop childbearing. The conditional logit model reduces potential bias by comparing the probability of making a choice by the same woman under different values of the predictors, thereby isolating only the impact of

the predictors on the woman's preferences. The conditional logit model includes an additional woman-specific parameter u_i as follows:

$$\log(p_{it}/1 - p_{it}) = b'X_{it} + c'Z_{it} + u_i \quad (2)$$

Accordingly, the model addresses concerns about time-constant woman-specific omitted variables and allows each woman to have her own inclination to stop childbearing, over and above what can be explained through the predictor variables in the model. Since the emphasis is on what explains change, the analysis focuses on women who said they wanted children in at least one round of interviews and who said they wanted no more children in other rounds. The parameters of the model can be estimated using a conditional likelihood function (Chamberlain, 1980).

Data Description

Data were drawn from a longitudinal study conducted in six rural communities in southern Ghana between 1998 and 2003. Ethical approval for the study was granted by the Population Council Institutional Review Board. The study included eight rounds of reproductive and household surveys of women who were between 15–50 years at the onset of the study. A subsample of 382 women whose fertility preferences changed in the course of the study was examined in this analysis. Together they contributed 2038 woman-rounds over the course of the study. About 37% of the sample had no formal schooling; 28% had some elementary education or completed elementary school and 35% had at least some secondary school education. Two-thirds of the sample was of Akan ethnicity; 21% of the Ga/adangbe ethnicity. The proportion of married women was more than 90% across rounds. The mean age of the sample was 32 years (standard deviation of 7) at the onset of the study. The mean number of living children was 2.8 (standard deviation of 1.7) at the beginning of the study; it increased to 4.3 by the last round. Most of the women were quite advanced in their reproductive careers.

Variables

In each round, the women were asked the following fertility preference question: “Would you like to have a (another) child with your husband/partner or would you prefer not to have any more children with him?” Our dependent variable is a binary variable capturing whether or not the woman wants a child or wants no more children. A value of 1 represents a choice for no more children. In 47% of the woman-rounds, women indicated they wanted no more children. Table 1 presents the distribution of the dependent and independent variables for the estimation sub-sample.

The data allow us to study a variety of time-varying determinants under broad categories. The first category of explanatory variables is related to the woman's reproductive life cycle and comprised variables capturing her age, number of living children, whether her children were of the same gender or mixed, whether she had experienced a marital transition between interviews, and whether she had experienced the death of a child between rounds. The second category deals with her health. We included two variables indicating whether or not the woman had had a serious health problem between interviews; and whether her health

condition at the time of the interview was better, the same or worse (grouped) than the last interview. The third set of variables included a variable measuring the woman's perceptions of her future household economic situation. In each round, women were asked to evaluate their current household economic situation and to indicate their outlook on the future. The fourth category included three attitude scales on the cost/benefit of an additional child to the woman. The women were asked to rate on an 11-point scale the cost of feeding and clothing another child, educating another child and to rate the demand of another pregnancy on their health. For some of the analyses, we derived a composite index to capture the net perceived cost of having another child using the above three variables (Cronbach's alpha = 0.83, mean 5.014, standard deviation 2.61). Higher values on the index indicate greater cost of having another child. The last group of variables deals with her partner's influences – specifically, whether the couple had discussed having a child since the last interview, and whether they had discussed adopting family planning (since the last interview). We tested the relative impact of the predictors via stepwise regression. In addition, we tested interactions between parity, health and economic perceptions to glean which factors were predominant at low parities.

Results

Table 2 shows the impact of the independent variables on the odds of desiring to stop childbearing. Model 1 included only variables related to the woman's reproductive life circumstances. In Model 2, we added variables pertaining to her health condition, economic perspectives. Model 3 added on here subjective cost of having another child in three different domains – feeding (and clothing etc.), educating the child and the demands of the pregnancy. Model 4 included all the variables in Model 3, except that instead of the three separate cost/benefit scale variables, the composite index of net cost of having a child was included. In the final model, we added two variables about her interactions with her husband regarding childbearing.

Comparing Models 1 and 2, it is evident that in addition to reproductive history, perceptions of life circumstances explain a significant amount of the variance in women's preferences. A comparison of Models 2 to 3 and 4 shows further model improvement with the inclusion of variables capturing the effects of subjective considerations of the cost of raising an additional child; likewise Model 5. The coefficients are similar when the order of inclusion of the sets of variables is reversed (not shown). Adding the successive sets of variables hardly changed the magnitude, direction and statistical significance of preceding variables in the models. This indicates that these factors exert direct independent effects on the desire to stop childbearing.

The effect of the number of children on preference formation is mainly captured through additional births during the course of the study. The results show the hypothesized positive effect – given their initial parity, every additional child born raised the odds of wanting to stop by a factor of 1.5. We also observed that, within the age range of the estimation sample, each additional year of age increased the odds of wanting no more children by a factor of 1.1, controlling for other variables. Having children of the same gender, losing a child and getting married were associated with reduced likelihood of wanting to stop childbearing

(although only marital transition was a statistically significant factor). When women discussed having additional children with their partners, they were subsequently less likely to say they wanted to stop childbearing. On one hand, as mentioned earlier, it is possible that those women who anticipated having another child were the ones who discussed childbirth with their partners. On the other hand, discussions may invariably discourage women who want to limit births if their partners want more children. Along similar lines of reasoning, spousal discussion about family planning had the expected positive association on the desire to stop childbearing.

As hypothesized, fertility preferences may be responsive to changes in the perception of the household's economic welfare. When a woman thought that her household economic condition was going to worsen, the odds that she wanted to stop increased nearly 2 fold compared with times when she thought her economic situation would be better. We tested for differences in the effect of the perceptions of economic welfare at different parity stages and found that the tendency to want to stop childbearing due to perceptions of worsening economic circumstances was significantly higher at low parities than higher parities (see Figure 1). Furthermore, the odds of wanting no more children increased 1.8 times when women thought their health condition had deteriorated compared to times when they thought they were just as healthy as the last interview. Again, we observed significant interaction effects for low parity women, whose adjusted probabilities of wanting to stop almost doubled when they perceived their health condition to be worse compared to when they thought their health was better (see Figure 2). More generally, the odds that a woman would want to stop childbearing when she thought that particular pregnancy would threaten her health increased 1.1 times.

The variables capturing the perceptions of the cost of feeding and clothing and educating an additional child did not independently have any effect on the odds of wanting to stop childbearing. However, the composite index (Model 4 of Table 2) was highly significant, and shows that the likelihood of desiring to stop was positively related to the net perceived cost of having another child.

Discussion and Conclusions

Using data from a prospective survey of Ghanaian women in relatively late reproductive years, we examined some determinants of the desire to stop childbearing at the personal level. We found that the desire to stop childbearing was influenced by reproductive life stage (such as age, parity); events (marital transitions, child death); perceptions of personal health (particularly anticipated demands of the next pregnancy on the woman's health); the household's economic welfare; and the overall subjective cost of children. No previous study has examined the range of individual-level factors examined in our analyses.

The economic utility models that emphasize cost/benefit considerations, as well as the anthropological and sociological theories which emphasize norms, appear to be validated in this empirical analysis in that both subjective elements and normative considerations are incorporated into fertility decisions. In many contexts, one would expect that the immediate

considerations of feeding, clothing and educating an additional child would drive the desire to quit childbearing.

This was not the case for our sample, drawn from a pronatalist context. The variables capturing the cost of feeding, clothing and educating an additional child individually showed little independent predictive value for fertility limitation but were jointly predictive. The cost-benefit consideration that appears to be important to women at the time of decision making is the health risk of another pregnancy. Personal health concerns were particularly pronounced among high and low parity women. While it is difficult to imagine that women do not place a realistic value on the cost of feeding and clothing additional child, the same cannot be said for the perceived cost of educating a child. Educational costs will occur in the distant future and may have no precise value at the decision-making point. Such notions may be vague compared with health concerns which are more immediate and real to the woman, given that these women have personally experienced multiple pregnancies.

Even so, in this context, fertility preferences were partly driven by economic concerns in general. Perceptions of worsening household economic welfare were positively associated with the desire to limit births (also see Agadjanian, 2005; Eloundou-Enyegue et al. 2000; Johnson-Hanks, 2007, 2005). However, the economic welfare effect was not uniform across women. What emerged from our analysis was the extent to which perceptions of economic welfare and health concerns feature at different parities. Economic and health considerations were more important determinants of the desire to stop childbearing among low parity women who were more educated and had higher socioeconomic status. Consistent with the larger literature, the economic cost of having additional children (including the opportunity cost) was valued much more highly by educated women than by their less educated counterparts. For higher parity women, what was at stake was the health risks of additional pregnancies.

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- We analyzed the determinants of the desire to limit fertility using prospective longitudinal data (1998–2003) from Ghana.
- Life stage factors (such as age, parity) and events (marriage, child death) influenced the desire to stop childbearing.
- Perceptions of personal health, economic welfare, and the overall subjective cost of children were also important.

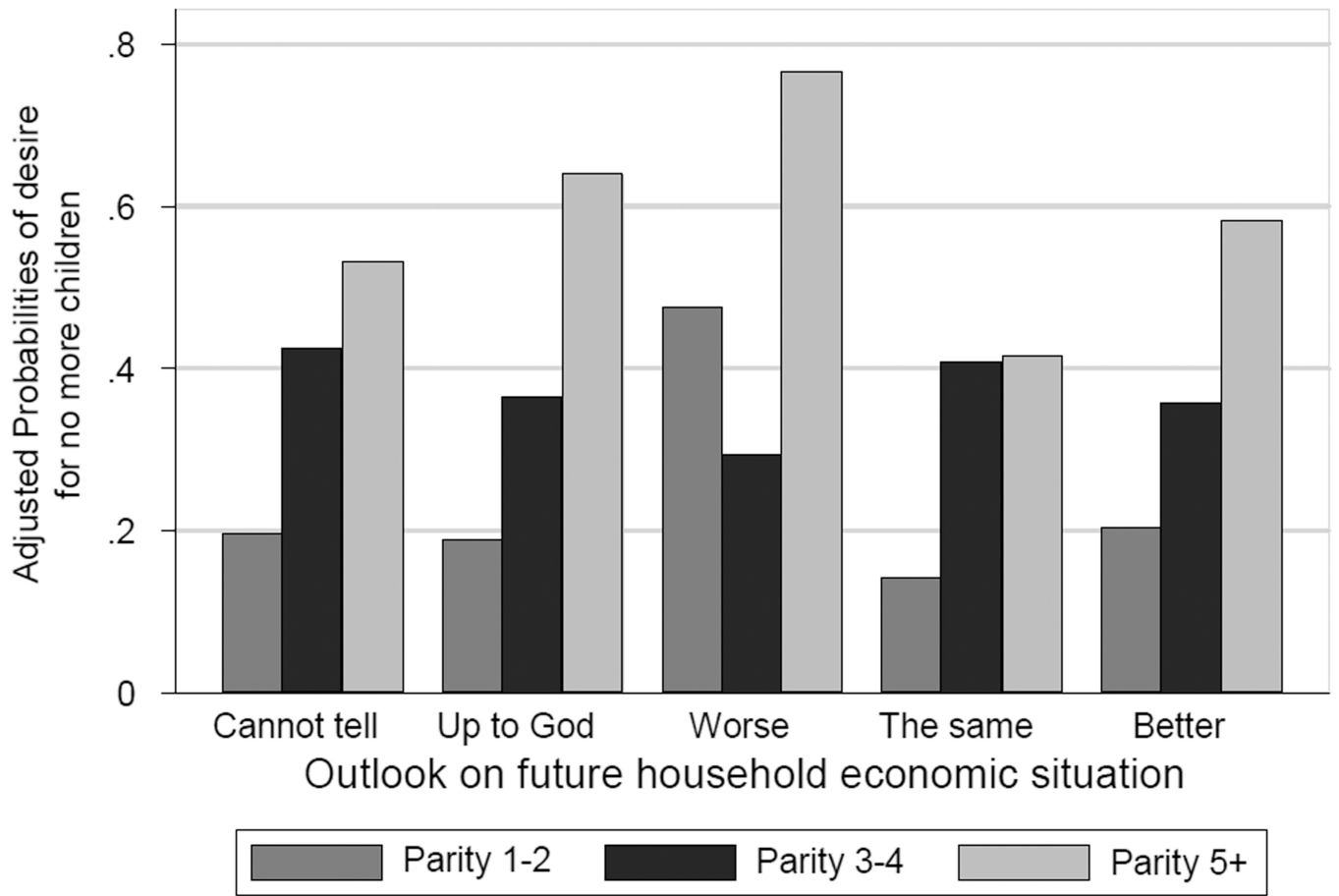


Figure 1. Interaction effects of parity and economic outlook, adjusting for other covariates

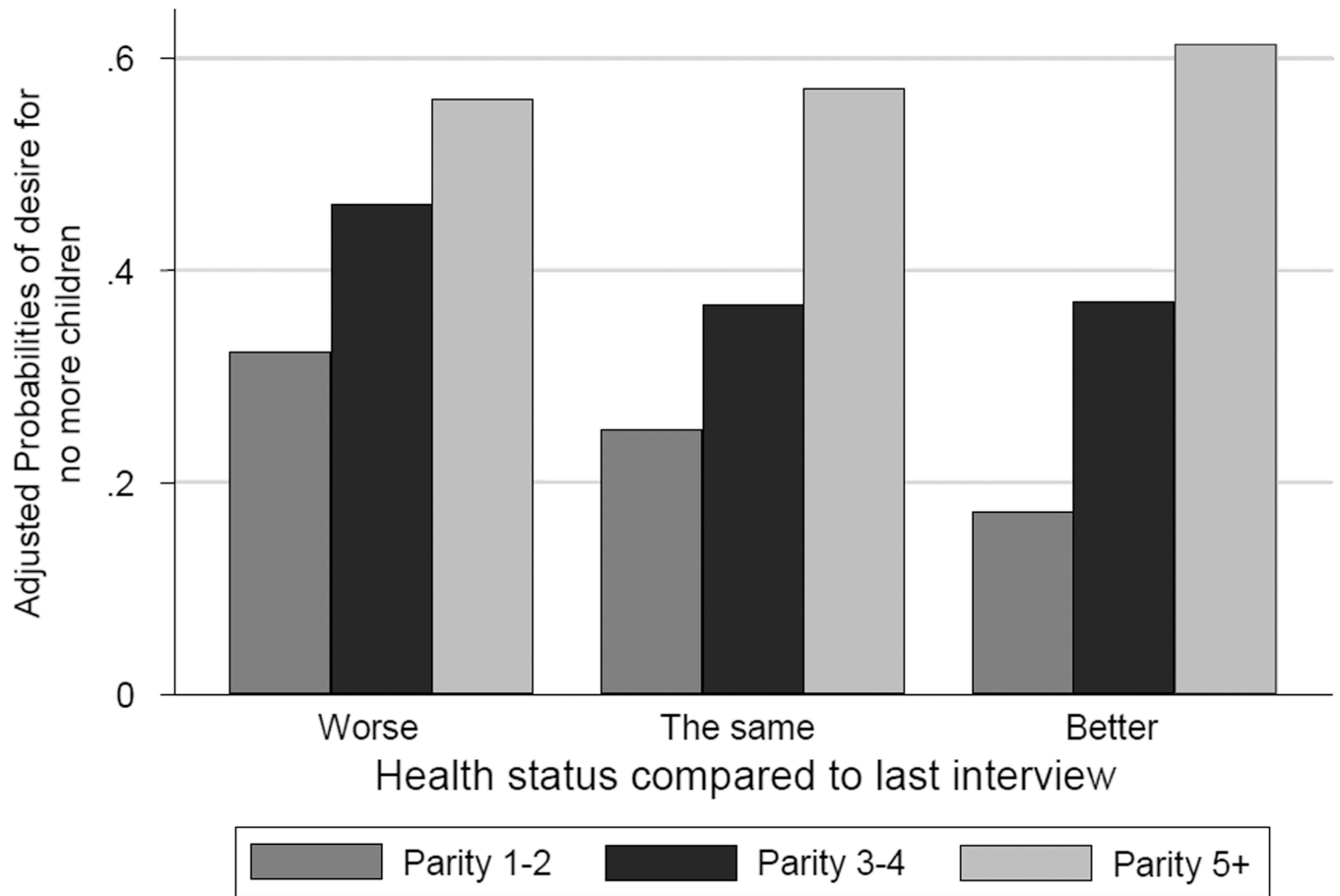


Figure 2.
Interaction effects of parity and health status, controlling for other covariates

Table 1

Means and standard deviations of variables used for estimation

Variables	Mean	S.D.	Min	Max
Wants no more children	0.47	0.50	0.00	1.00
1. Reproductive life circumstances				
Age	32.90	7.01	18.09	52.93
Has mixed gender children	0.74	0.44	0.00	1.00
Married between interviews	0.02	0.14	0.00	1.00
Experienced child death between interviews	0.02	0.12	0.00	1.00
Number of living children	3.86	1.69	1.00	10.00
2. Health perceptions				
Had a severe health problem since last interview	0.21	0.41	0.00	1.00
Current health condition worse than last interview	0.10	0.30	0.00	1.00
3. Future economic outlook				
Future household economic situation the same	0.05	0.22	0.00	1.00
Future household economic situation worse	0.06	0.23	0.00	1.00
Future household economic situation uncertain ^a	0.50	0.50	0.00	1.00
4. Perceived cost of additional child				
Cost of feeding and clothing additional child ^b	5.43	2.64	0.00	10.00
Cost of educating additional child ^b	5.96	2.68	0.00	10.00
Demand of another pregnancy on woman's health ^b	4.31	2.89	0.00	10.00
Index of cost of additional child	0.07	0.76	-1.68	1.66
5. Partner interactions				
Discussed cost/benefit of having a child with partner since last interview	0.61	0.49	0.00	1.00
Discussed family planning with partner since last interview	0.64	0.48	0.00	1.00
Woman-rounds =2038				

^a this category includes women who said "up to God" or "cannot tell".

^b measured on a scale of 0–10, with 0 representing no cost and 10, extremely costly.

Odds-ratios from conditional logit regression of the determinants of the desire to stop childbearing among Ghanaian women, 1998–2003

Table 2

	Model 1	Model 2	Model 3	Model 4	Model 5
1. Reproductive life circumstances					
Age	1.117*	1.123**	1.125**	1.128**	1.149**
Has mixed gender children	1.129	1.156	1.142	1.109	1.178
Married between interviews	0.584	0.570	0.551	0.512	0.476*
Experienced child death between interviews	0.613	0.574	0.605	0.611	0.642
Number of living children	1.530**	1.600**	1.551**	1.550**	1.530**
2. Health perceptions					
Had a severe health problem since last interview		1.120	1.143	1.149	1.140
Current health condition worse than last interview ^a		1.794**	1.740**	1.800**	1.809**
3. Future economic outlook					
Future household economic situation the same ^b		0.614	0.620	0.613	0.614
Future household economic situation worse ^b		1.909*	1.923*	1.908*	1.915*
Future household economic situation uncertain ^b		1.168	1.154	1.145	1.112
4. Perceived cost of additional child					
Cost of feeding and clothing additional child			1.011	-	-
Cost of educating additional child			1.052	-	-
Demand of another pregnancy on woman's health			1.091***	-	-
Index of cost of additional child				1.548***	1.547***
5. Partner interactions					
Discussed cost/benefit of having a child with partner since last interview					0.568***
Discussed family planning with partner since last interview					1.078
-2 Log-likelihood	-763.09	-751.51	-736.45	-738.23	-724.82
Degrees of freedom	5	10	13	11	13
AIC	1536.18	1523.02	1498.91	1498.46	1475.65

† p < .10

* p < 0.05

reference category is "current health condition is the same or better than last interview",
 p reference category is "future household economic situation better",
 q

100.0 > d

100.0 > d

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