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**THE RELATIONSHIP OF MARRIAGE TYPE TO FERTILITY:
THE CASE OF GHANA**

BY

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Abstract

The study investigates the influence of marriage type (monogamous and polygynous marriages) on the fertility of married women in Ghana using a sample of 1797 wives from the Ghana Demographic and Health Survey (GDHS) data (1988). Regression analysis indicates that when marital age, marital duration, and length of postpartum abstinence are controlled for, there is no statistically significant relationship between marriage type and fertility. The most important determinants of differential fertility by marriage type, from the Ghanaian sample, appears to be marital age, marital duration, and abstinence.

CONCEPTUALIZATION AND PURPOSE

This paper examines the influence of monogamous and polygynous marriages on the fertility of women in Ghana. The socio-cultural importance of marriage, and fertility of women in Ghana and Tropical Africa in general is the value of children for economic utility, emotional support and old-age security they provide for parents. Marriage is, therefore, an important phase in the life-cycle of an African adult and remains an important social institution within which most births occur (Ukaegbu, 1981). A range of conditions, attitudes and practices is associated with type of marriage, e.g., the age at marriage, the length of postpartum abstinence, frequency of mating, and the age difference

between spouses can differ for both types of marriage. It is believed that the influence of marriage type and its associated conditions on fertility can differ for each type of marriage (Aryee & Gaisie, 1979: 287). Secondly, it is also a commonly held belief that polygyny is positively associated with fertility (Nag, 1975: 15; Weekes & Vagliani, 1976: 43)). This is because, in Africa, polygyny is perceived by men as a means of producing large families. This belief stems from the fact that, in the long run, men in polygynous households tend to have more children than men in monogamous households. But this does not necessarily mean that individual women in polygynous households have more children than individual women in monogamous households. Since fertility is measured by number of children per woman, it would be erroneous to equate the number of children a man has with fertility.

The question of whether polygyny may not actually decrease the number children born to each wife remains debatable because previous studies on the relationship of marriage type to fertility of women have yielded conflicting findings. Some writers (Dorjahn, 1958; Ukaegbu, 1977; Shaikh et al, 1987; Garenne & van de Walle, 1989) have concluded that polygyny depresses fertility. Others (Busia, 1954; Pool, 1968; Ohadike, 1968; Olusanya, 1971; Ahmad, 1986; Adewuyi, 1988; Pebley & Mbugua, 1989) have concluded otherwise.

The purpose of this paper is not to settle the disagreement but to bring additional data to bear on the subject in the context of Ghanaian society. The question that the paper attempts to address is, is there a difference between the fertility of women in

polygynous marriages and those in monogamous marriages in the same social milieu? The paper also considers how much variation in fertility can be accounted for by intermediate factors or proximate determinants of fertility.

It must be emphasized that fertility in tropical Africa has been so much influenced by a host of social and economic institutions such as formal education, urbanization, and religion that it would not be a simple task to examine the total set of relevant relationships. Therefore, this paper examines only one aspect of the socio-cultural organization that influences the fertility of women in Ghana. This choice does not, in any way, suggest that marriage type is the most important correlate of fertility.

THEORETICAL LITERATURE

The current work is oriented by Davis and Blake's (1956) analytic framework for the study of fertility. They developed this framework for the comparative study of human reproduction. The importance of the framework is its ability to consider not only differences in social organization of different societies that relate to different fertility levels, but also differences within any given society in its own social organization that may influence differentials in fertility levels among sub-groups of that particular society. Their work is useful to this article because it facilitates the selection of appropriate factors through which marriage type must influence fertility.

Davis and Blake (1956) observe that varying fertility rates among different societies are due to differences in their social organization. Equally important is the fact that

societies themselves have differences within their social organization, and these differences seem to account for variations in fertility in these societies. In view of this, they developed an analytic framework that consists of an inventory of eleven variables through which social structure/organization and social norms can influence fertility. The theory recognizes the fact that the process of biological reproduction involves three necessary steps that can be found in all cultures. The steps are intercourse, conception, and gestation and parturition. It is only through these three steps that cultural factors can either enhance or depress fertility. For this reason, they have grouped their eleven intermediate variables into three groups as follows¹:

- I. Factors affecting Exposure to Intercourse ("Intercourse variables")
 - A. Those governing the formation and dissolution of unions in the reproductive period.
 1. Age at entry into sexual unions.
 2. Permanent celibacy: proportion of women never entering sexual unions.
 3. Amount of reproductive period spent after or between unions. (a) When unions are broken by divorce, separation, or desertation. (b) When unions are broken by death of husband.
 - B. Those governing the exposure to intercourse within unions.
 4. Voluntary abstinence.
 5. Involuntary abstinence (from impotence, illness, unavoidable but temporary separations).
 6. Coital frequency (excluding periods of abstinence).
- II. Factors affecting Exposure to Conception ("Conception variables")
 7. Fecundity or Infecundity, as affected by involuntary causes.

¹Source: Kingsley Davis and Judith Blake (1956) "Social Structure and Fertility: An analytic Framework" in Economic Development and Culture Change vol.4, pg.212.

8. Use or non-use of contraception.
 - (a) By mechanical or chemical means.
 - (b) By other means².
9. Fecundity or infecundity, as affected by voluntary causes (sterilization, subincision, medical treatment, etc.)

III. Factors affecting Gestation and successful Parturition ("Gestation variables")

10. Foetal mortality from involuntary causes.
11. Foetal mortality from voluntary causes.

According to Davis and Blake, any effect of these variables may be either negative (minus) or positive (plus) on fertility. In each society there is a range of influence of each of these variables. For instance, if contraception is not practised, the non-practice will have a positive value on fertility with regard to variable number 8. Thus variables like (the practice of) contraception, abortion and abstinence will definitely have a negative effect on fertility. The interactional effects of all these intermediate variables do influence fertility in varying degrees according to the social and cultural institutions within which they are embedded.

An Intervening Variable Model.

In order to discuss with clarity the relationship among the variables involved in the study, a diagram of relational connections (figure 1) is proposed between the variables (Jackson, 1988: 71-72).

²Means of contraception other than mechanical and chemical include the "rhythm" method (which can be classed as voluntary abstinence), withdrawal, simulated intercourse without penetration, various "perversions" etc.

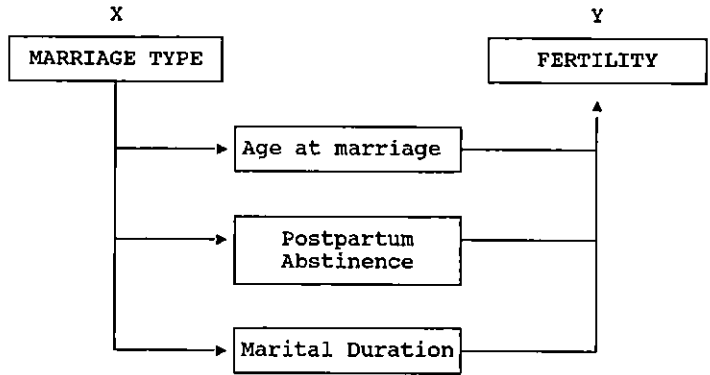


FIGURE 1: AN INTERVENING VARIABLE MODEL

Besides the independent variable (marriage type) and the dependent variable (fertility), the following intermediate variables: age at marriage, length of postpartum abstinence, and marital duration have been selected based on the data available, and the effects of these variables on fertility will be controlled for.

With reference to the literature, it is proposed that Ghanaian women in both types of marriages differ in their fertility levels. The hypothesis to be tested here is that controlling for age of women at marriage, number of years since marriage (marital duration), and months of postpartum abstinence, there is no difference between the fertility of women in polygynous marriages and the fertility of women in monogamous marriages.

DATA, MEASURES AND METHODS

Data. The main source of the data is the Ghana Demographic and Health Survey (GDHS) conducted in 1988 by the Ghana Statistical Service. The Ghana Survey is part of

the world wide Demographic Health Surveys (DHS) program. It is to date the most comprehensive inquiry, and it is designed to generate data on fertility, family planning, and maternal and child health. For the purposes of this article, the standard Individual Recode File (containing 4488 cases) is used for this study.

Sample Selection. Since the study is concerned with marital fertility, only women who are currently married have been selected for analysis. Non-marital or out of wedlock fertility cannot be accounted for by any of the marriage types, and therefore has been excluded from the study sample.

Only women who have been in only one type of marriage at the time of the generation of this data have been selected for the analysis. This is to ensure that respondents who have been in more than one type of marriage are excluded from the study because there is the possibility that some of them might have conveniently reported children or births from previous marriages as belonging to current marriages. Therefore, this measure is being taken in order to prevent this possible source of misreporting.

Only women who have had at least one child in their lifetime have been included in the study in order to remove the effect of sterility. The aim of this measure is to remove any doubts about the sequence of fertility being engendered by marriage type (and not vice versa). Consequently, a sample size of 1797 out of the original 4488 (in the data set) have been selected for analysis.

Estimating the Influence of Marriage Type on Fertility. Multiple regression analysis is employed to estimate the influence of marriage type on fertility while controlling for the effect of the intermediate variables. Two measures of fertility are used: current and cumulative. Current fertility is the number of children born to each woman during the period preceeding the survey (van de Walle, 1965: 302). For instance, it could be 12 months or 5 years preceding the survey. The time period used in the current study is 5 years preceeding the survey. Cumulative fertility is the number of children ever born to each woman.

ANALYSIS AND FINDINGS

Fertility of Wives in Monogamous and Polygynous Unions. Regression of current fertility upon marriage type shows no significant variability in fertility of wives in the two marriage types (see Table 1). The means for current fertility of monogamy and polygyny are identical (i.e., 1.3 children for each type of marriage) in the 5 years preceding the generation of the data (the *B* for polygyny = -.025117, and the *B* for monogamy = 1.342577). On the other hand, regression of cumulative fertility shows a significant variability in the fertility of wives in the two marriage types (see Table 2).

The R square in table 2 indicates that about 1% of the observed variability in the fertility of wives can possibly be explained by being in polygynous or monogamous marriages. The mean values for cumulative fertility are 3.7 for monogamy and 4.3 for polygyny (the *B* for monogamy = 3.67, and the *B* for polygyny = .61).

TABLE 1: REGRESSION OF CURRENT FERTILITY ON MARRIAGE ON MARRIAGE TYPE (n = 1797)

Indept. Var.	Multiple R	R ²	B	Beta	T	Sig T
Marriage Type	.01460	.00021	-.025	-.014	-.618	.5367
(Constant)				1.342	58.743	.0000

p > 0.05

TABLE 2: REGRESSION OF CUMULATIVE FERTILITY ON MARRIAGE TYPE

Indept. Var.	Multiple R	R ²	B	Beta	T	Sig T
Marriage Type	.11207	.012	.616	.112	4.773	.0000
(Constant)				3.671	50.570	.0000

p < 0.05

Intermediate variables and fertility

To investigate further, using Davis and Blake’s (1956) theory as a context of reference, multiple regression is utilized again, whilst simultaneously adjusting for the effects of age at marriage, months of abstinence, and marital duration or years since marriage. Table 3 shows that, consequently, the observed difference in the fertility of wives seems to disappear and the influence of marriage type on fertility decreases when the

confounding influence of abstinence, marital age and marital duration are controlled for (compare the *beta* value of marriage type, .01 given in table 3 with the simple bivariate *B* .61 given in table 2).

TABLE 3: MULTIPLE REGRESSION OF FERTILITY ON MARRIAGE TYPE, MARITAL AGE, POSTPARTUM ABSTINENCE AND MARITAL DURATION

Multiple R = .90008

$R^2 = .81014$

Variables in the Equation	<i>B</i>	<i>Beta</i>	T	Sig T
Months of abstinence	-.025710	-.087061	-7.597	.0000
Age at marriage	.051463	.068172	5.768	.0000
Type of marriage	.062812	.011963	1.040	.2984
Marital duration	.317706	.921859	76.791	.0000
(Constant)	-.240517		-1.336	.1818

The relationship between fertility and marriage type then becomes statistically insignificant ($T = 1.040$, $p > .05 = .2984$) indicating that the initial observed difference in fertility of wives prior to the introduction of the control variables into the explanatory model is fictive and can be explained by the control variables rather than by marriage type. This is evidenced in the *beta* coefficients of the control variables. The T values for marital

age ($T=5.768$, $p<.05$), abstinence ($T=-7.597$, $p<.05$), and marital duration ($T= 76.791$, $p<.05$) have also shown that their relationship to fertility is statistically significant. However, a combined explanatory power of the three control variables including the independent variable can account for about 81% of the observed variation in the fertility of women in each type of marriage.

Stepwise regression method reveals that, the variable, marital duration, can predict 79% of the variability in fertility of the women; a combination of the variables, marital duration and months of abstinence, can predict 80% of the variability in fertility; and a combination of both plus age at marriage can explain 81% of the variation in the fertility of the women.

Another observation is that the direction of the relationship between fertility, on one hand, and the control variables, on the other, is positive except for months of abstinence. This means that the number of children the women have increases with the women's age at marriage and number of years in marriage but decreases with months of postpartum abstinence.

With regard to marital age, theoretically, the fertility value is usually assumed to be positive, but as aptly explained by Davis and Blake (1956), no matter how favourable marital age is to fertility, the former is in itself affected by other factors such as conception and gestation. This implies that even though a union may begin at an early age, high fertility could be prevented through other preventive measures such as contraception, and

abortion. Therefore, early entry into unions may not necessarily result in a large number of children. In fact, evidence from the Ghanaian data shows that marital age of women in monogamous unions is almost at par with that of women in polygynous unions, (i.e., age 18). But the mean number of births at any maternal age of women cohorts in polygyny tend to be higher than that of women cohorts in monogamy as summarized in Table 4.

TABLE 4: MEAN TOTAL CHILDREN EVER BORN BY MARRIAGE TYPE AND MATERNAL AGE

Marriage Type	Maternal Age				Total
	0-19yrs.	20-24yrs.	25-29yrs.	30+ yrs.	
Monogamy	4.05	3.19	2.21	2.91	3.66
Polygyny	4.64	3.77	4.08	3.20	4.29

The finding with regard to age at marriage appears to be in harmony with Davis and Blake's conjecture that age at marriage is in itself influenced by other factors such as contraception and gestation. The logic of higher fertility for longer marital duration as discovered in this data cannot be overemphasized; so is the inverse association between longer abstinence and lower fertility.

DISCUSSION

In general, the Ghanaian data support the hypothesis that there is no difference in the fertility of women in the two types of union. The initial observed difference when the

intermediate variables were not introduced into the model is due to chance factors. What it means is that the variability in the fertility of wives cannot be attributed to being in monogamous or polygynous unions per se, but rather to the obscured conditions and corollary fertility characteristics of each type of marriage.

The average age at marriage (age 18) is similar for wives in both types of union but since women in polygynous unions record higher cumulative fertility, it is possible that they practice less parity-specific fertility than their counterparts do. In other words, wives in monogamous marriages are more likely to practice birth control and give birth later than do wives in polygynous marriages.

Another explanation for differential fertility among Ghanaian women is marital duration, which is found to be longer for wives in polygynous unions (13 years average) than for wives in monogamous unions (11 years average). Since marital duration is positively correlated with fertility, women in polygynous unions have achieved higher average cumulative fertility than women in monogamous unions.

Postpartum abstinence is also more for women in polygynous marriages (11 months) than for women in monogamous marriages (9 months). This presupposes that women in monogamous marriages should have more children than women in polygynous marriages since postpartum abstinence is inversely related to fertility. But evidence from the data contradicts this assumption. One factor that probably can explain this trend is the positive attitude held by women in monogamy towards fertility limitation measures. For example,

in the GDHS, a question was asked on the use of modern contraceptive methods. Over sixty percent (60.8%) of wives in monogamy have never used any contraception as compared with 68.4% of wives in polygyny who have never used any method. However, 24.1% of wives in monogamy claim to have ever used modern methods as compared with 18.5% of wives in polygyny. In other words, more wives of monogamists have used modern methods of contraception than wives of polygynists.

Marital duration seems to be the most important explanatory variable in this study from the stepwise regression technique utilized in this analysis. The method identified a set of variables that is useful in predicting fertility of the sample women. The set turns out to be marital duration, abstinence and marital age in that order of importance. Marriage type is eliminated from the model because it does not provide any additional prediction or information, given that basic set.

CONCLUSION

In the light of the above findings, it could be argued that type of marriage has an indirect and weak association with fertility since this association is removed upon the introduction of marital age, abstinence and marital duration. This means that the number of children wives have does not necessarily depend on the type of union in which they are. It is contingent more on their fertility attitudes and behaviors. Marriage type serves only as the cultural arena in which these fertility attitudes and behaviors come into play. It represents the conditioning factor which may shape wives' outlook and beliefs systems, and

which may in turn influence their fertility-related activities or behaviors. Therefore, it is these fertility-related behaviors otherwise known as proximate determinants that come closer to explaining the immediate causes of fertility. It does not matter much whether a woman is in monogamy or polygyny, but what matters is how relevant these demographic factors are in her life.

In view of this, it is suggested that such studies in the future should not lose sight of demographic variables that seem to be directly and closely related to fertility. In fact, evidence from Africa has shown that the relationship between social structure and fertility can be deceptive. For instance, theoretically, socio-economic status is believed to correlate negatively with fertility but this is not always true in the African context. Ukaegbu (1981: 134) for example has quoted some University professors in Nigeria who left no stone unturned to have sons because of customary demands for male survivors. One ended up producing eight daughters in the attempt to have at least one son (hence increasing the number of children in his household). Ukaegbu (1981) also recalls two medical officers in Nigeria who, failing to have sons from their first (previous) Christian marriages, had to marry second wives. These are some of the examples of beliefs, attitudes and behaviors relating to fertility that may make the study of the relationship between marriage type and fertility in Africa not an easy one to characterize. This point leads to a further suggestion that research into fertility especially in Africa should also bring into focus the attitudes and motivations of husbands and not wives alone as well as the cultural dimensions.

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