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Age at Marriage and Fertility in Ghana (West Africa)

AGE at marriage has been considered *sat* important factor influencing fertility and birth rates. The classic example often cited is that of Ireland, where maternal fertility is largely uncontrolled and age at marriage is very high, the birth rate is much lower than the other developing countries of Asia, Africa and Latin America. The argument often advanced is that an increase in the age at marriage shortens the reproductive span and delays the onset of childbearing which consequently results in the reduction of fertility. Malthus was first to point out the effect of age at marriage on fertility. His notion of moral restraint manifested in late marriages and high celibacy rates of West Europe played a major role in the decline of birth rates during the period of demographic transition in those countries. It is now considered a potentially significant weapon in the high fertility developing countries of today where the practice of family planning is largely unknown. Baldwin observes that "in traditional non-contraceptive societies, the relationship is almost inevitable; the later a woman marries, the fewer years she is exposed to the risk of pregnancy, thus the smaller her completed family size is likely to be" (1977: 2). Blake has also pointed out that "not only delayed marriage figures as a principal means of demographic control in the history of presently developed countries but the nature of its relationship to the demographic processes gives it universal and timeless advantages. If contraception is not widely and expertly practiced, marriage postponement may contribute substantially to lowering birth rates" (1967: 132). It has also been emphasized by many that the voluntary family planning programs are rot enough as a first step in world population control and that changes in the marital patterns are necessary both as long and short-term solutions to the problem

of world population pressures (Davis, 1967 : 730-39; Blake, 1971: 215-20). The conclusions reached at the World Population Conference in Bucharest (1974) were that as 'family planning is not enough' to curb the high fertility of most developing countries, the 'beyond family planning' measures may be necessary. In this connection delayed marriage has been considered a most important and potentially useful measure.

In the past a number of attempts have been made all over the world to explore the relationship between age at marriage and fertility, but so far there is no conclusive evidence as to the independent effect of delayed marriage on fertility. Coale and Tye, after presenting data relating to Chinese and Malays in Singapore as an illustration, have shown that postponement of marriage can reduce crude birth and population growth rates even in the absence of any reduction in the completed family size (1961: 631-46). Ridley and Sheps have also demonstrated that an increase in age at marriage affects fertility by changing the fertility schedule and the family building pattern (1966: 297). Presser also maintains that timing of first birth is the crucial factor and the earlier the timing of the first birth, the higher the completed fertility (1971: 329). A study in Britain in 1972 reported that the women who marry at the age of 20 have on an average one child more than those who marry between 25 and 29 (Busfield, 1972: 117-134). The effect of age at marriage on the number of children has been studied in some detail by the Census of India by taking a two percent sample of population in some selected states. The analysis revealed that the lower the age at marriage, the greater the number of children per married woman in both urban and rural areas (India, Registrar General: 1961). Agarwala also pointed out the significant effect of late marriage on the fertility of Indian women. He observed that there is sufficient evidence to suggest that while females marrying between age 14 and 19 have the same completed fertility; those marrying after 19 have a lower fertility (1967 : 172). Data from the Harvard-Khanna (India) study also suggest that the most important reason for the fertility decline in the state of Punjab in the 1950s and 60s was the spontaneous and marked increase in age at the time of marriage (Wyon and Gordon, 1971 : 154). In a Korean study the age at marriage was found to be the only predictor that was consistently and significantly strong for all age groups and for all fertility indices even when all other variables were adjusted (Kim, et al. 1974 : 641-56). A study in Lebanon showed that except for the youngest married class, the total fertility decreased systematically and markedly with increased age of woman at marriage (Yaukey, 1969 : 49). Henin in his study of Sudanese tribes also found a close association between age at marriage and fertility. The women who married late had fewer children than those who married early (1969 : 181). Dorjahn's analysis of data from 23 tribal societies in sub-Saharan Africa showed that fertility decreases as the age of woman at marriage increases (1959 : 846). In a Nigerian study, within maternal age groups, some slight but notable differences in fertility by age at

marriage were observed. Wives in the age group 15-34 who were married between 10 and 19 years of age were on the average 24 percent more fertile than those of the same age group whose marriage took place when they were 20 years or older. But the fertility level of those who were aged 35 years or above at the time of the survey and were married between 10 and 19 years of age was only 5 percent higher than their counterparts who got married when 20 years or more (Ohadike, 1968 : 379-91). It thus appears from this study that the differences between the fertility level of those who marry early and those whose marriages takes place late, which are initially fairly large, tend to narrow down when the women reach the end of their reproductive period. Caldwell on the basis of fertility and family planning surveys carried out in Ghana concludes that delayed female marriage reduces fertility substantially and is the only factor related to urban-rural and intra-urban fertility differentials (1967: 14).

While the studies referred to above have reported a negative relationship between age at marriage and fertility, some researchers have found either no association between delayed marriage and level of fertility or a positive relationship. An analysis of Indian data done by Das has shown that the postponement of marriage did not reduce fertility and birth rate (1967 : 129). Analysis of data from nineteen districts of Congo by Van de Walle revealed that the mean age of females at marriage was positively and significantly correlated with crude birth rates and total fertility. Thus in this study high fertility is reported to be associated with later, not earlier marriages (1965 : 307).

One of the reasons for the inconsistency of the results, as Bumpass points out, is that many of the relevant studies have not controlled for the other influential variables (Bumpass, 1969: 45-54). Of all the studies referred to above only the study in Korea by Kim, et el. (1974) has used multivariate techniques of data analysis to sort out the independent effect of age at marriage on fertility. Furthermore, there exists a critical line below which the postponement of marriage does not affect the fertility level. As mentioned above, Agarwala did not observe any difference in completed fertility of those women marrying between the ages of 14 and 19 years (1967: 172). One of the assumptions often made when expecting reduction in birth rate by raising the age at marriage is the shortening of the reproductive span. Since the reproductive span extends over the period from menarche to menopause, it is assumed that cutting off an initial few years from this period would result in the reduction of fertility. But this seems to be a superficial view. The menarche is merely one, stage in the gradual process of adolescence, and the first menstruation does not always signify firm establishment of ovulatory cycle. This period is known as 'adolescent sterility'. Indian experience tends to confirm the theory of adolescent sterility. Several surveys in this country report that women in their late teens at first cohabitation bore a child after relatively short intervals in contrast to women whose marriages were consummated at an early age (Lorimer, 1954: 47; Chandrasekharan, 1963 : 92;

Sovani and Dandekar, 1955 : 80; Roy, 1972 : 66-78). It has also been suggested that cohabitation and child-bearing in early teens may do irreparable injury to the reproductive system and thus have an adverse effect on fertility (Wolf, 1963 :
883-98). Another factor which needs to be taken into consideration is that of 'secondary sterility.' A suggestion has been made that fertility rates of women 35 years and above are low in India though the age at menopause is not that low and this could be due to the lower age at marriage (Karkal, 1968 : 51-56). But so far there is no empirical evidence to show an association of 'secondary sterility' with age at marriage, but if there is such a relationship, then raising the age at marriage raises the age when 'secondary sterility' sets in and thus nullifies the changes in the total reproductive span.

The effect of delayed marriages on premarital or out-of-wedlock pregnancies should also be taken into account. The postponement of marriage in many cases does not mean the late start of an active sex life. The effect depends upon the social mores of the society as to how it views premarital sex and out-of-wedlock births. Where there is no cultural distinction or discrimination against children born out of wedlock, the effect of an increase in age at marriage on fertility is not likely to be substantial. In Ghana, at present, the youngsters particularly in the urban areas can enter into sexual unions with comparative ease and non-marriage does not imply sexual celibacy. The children born out of wedlock do not suffer and stigmas of illegitimacy and in many cases they have the same status as legitimate children (Gaisie, 1968 : 193), Furthermore, where de facto marriages are common, the formal marriage patterns have a less significant effect
on fertility. In Ghana again, a large proportion of young men and women are entering into consensual unions.

The relationship between age at marriage and fertility is thus very complex and multivariate techniques of analysis are needed to find out the net effect of delayed marriage on fertility.

Objectives and Methodology

The main objective of this paper is to examine the net effect of age at first marriage on the fertility of a sample of rural Ghanaian women. The analysis is based on the interviews with 857 married women between the age of 15-44 years.

The survey was carried out by the DANFA Comprehensive Rural Health and Family Planning Project, Ghana (West Africa) with which the author was associated for about five years. This was a demonstration, teaching and research project developed and implemented jointly by the University of Ghana Medical School and School of Public Health, University of California, Los Angeles, and located within a radius of 15-50 miles from the capital city of Accra. The analysis is based on the framework of Davis and Blake (1956). The statistical technique used is stepwise multiple regression. The dependent variable is fertility

measured by the number of children ever born alive to the woman. The independent variables included in the regression are some of the intermediate variables mentioned by Davis and Blake in their framework. Wherever data about certain intermediate variables are not available, close proxies have been used. For example, accurate data on the frequency of coitus, and abstinence from sexual intercourse are difficult to obtain and were not collected by the DANFA Project. Assuming that frequency of coitus per woman is lower in marriages in which the husband has more than one current wife and that the post-partum and other types of abstinence of long duration can be more easily observed in pohgamous than in monogamous marriages, number of wives the husband of a woman has, is used as a proxy for abstinence and coital frequency.

The variables included in this analysis are: Y= the dependent variable — number of children born alive, X1 = age of wife, X2 = age at first marriage; X3 = number of foetal deaths; X4 = number of previous marriages; X5 = number of current wives of husband; X6 = family planning methods ever used; X7 = if wife is in mutual consent or friendship type of conjugal relationship. Both unstandardized and standardized regression coefficients have been calculated and are included in the analysis. While calculating standardized coefficients, both X and Y are standardized to have unit variance (i.e. the standard deviation of both X and Y= 1).

Findings

The summary results of regression analysis are shown in Table 1 which indicate that all the independent variables included in the regression anal} sis could explain 53.8% of the total variance in our dependent variable (R2 = 0.538). The largest standardised regression (0.776) obtained as a result of this anal}sis is that of age of wife and is highly significant (F = 840.25; P = 0). The sign of coefficient is positive which indicates that higher the age of the wife, the greater her fertility performance. This result is in the expected direction.

The second largest standardised regression coefficient (—0.334) which has a negative sign is for age at first marriage and is also highly significant (F= 172.85; P = 0). This means that there is an inverse relationship between the age at first marriage and fertility i e. fertility of those who married at a younger age is significantly higher than those whose first marriage took place at a late age. The predictive power of age at marriage is slightly less than half that of age of the wife.

In the preceding analysis age is included in the regression equation along with other intermediate determinants of fertility and it came out to be the strongest predictor of fertility behaviour of wives. But since age contributed to a large proportion of the explained variation in fertility, its inclusion might have masked the effect of other independent variables. It would, therefore, be desirable to study the effect of age at marriage on the fertility of wives in different cohorts. For this purpose all the wives in our sample have been divided into three broad

TABLE 1—STEPWISE MULTIPLE REGRESSION OF NUMBER OF CHILDREN EVER BORN TO RURAL GHANAIAN WIVES WITH SELECTED INTERMEDIATE DETERMINANTS OF FERTILITY (AGES 15-44)

Variable Name and Stepwise Sequence	*Regression Coefficient*	*Standard error*	*Standard Regression Coefficient*	*F-Ratio*	*Level of Significance*
Current age of wife	0.289	0.010	0.776	840.25	0.000
Age at first marriage	—0.320	0.024	—0.334	172.85	0.000
Number of fetal deaths	—0.239	0.070	—0.084	11.56	0.005
Number of previous marriages	—0.286	0.108	—0.069	7.09	0.010
Number of current wives of husbands	—0.213	0.070	—0.072	9.18	0.C05
Proportion of wives ever used P.P.	0.369	0.163	0.054	5.15	0.025
Proportion of wives in mutual consent unions	-0.400	0.209	—0.047	3.67	0.075

$R^2 = 0.538$

*X and Y are standardised to have unit variance (i.e. the standard deviation of both *X* and Y= 1).

age groups of 15-24, 25-34 and 35-44 and multiple regression has been done separately for these age groups. For these analyses the dependent variable as well as independent variables are the same as those included in the preceding analysis except that age has been excluded from the list of independent variables.

The results of this analysis are given in Table 2. It could be seen from this table that all the independent variables included in the equation for the age group 15-24 could explain 15.6% (R^2 = 0.156) of the total variance in the fertility of the wives in this age group. The largest and only significant standardised regression coefficient obtained is for age at first marriage and this obviously has a negative sign. It shows that age at marriage adversely affects the fertility of wives.

The results of multiple regression for the age groups 25-34 also indicate that total variance explained by all the independent variables for this age group is 16.3% (R^2 = 0.163) and the largest standardised regression coefficient (- 0.395) is for age at first marriage which is highly significant (F = 69.62; P = 0). Thus, for this age group too, the wives who married early had a higher fertility. None of the other variables has been found to have a significant effect on the fertility of the wives in this age group and their contribution to the total variance explained in our dependent variable is also marginal.

TABE 2— STEPWISE MULTIPLE REGRESSION OF NUMBER OF CHILDREN EVER BORN TO RURAL WIVES WITH SELECTED INTERMEDIATE DETERMINANTS OF FERTILITY

Age 15 24				Age 25-34			Age 35-44		
Variable Name	Unstandar-dized Regres-sion Co-efficient	Standard Error	Standardized Regression Co-efficient	Unstan-dardized Regres-sion Co-efficient	Standard Error	Standardiz-ed Regres-sion Co-efficient	Unstandar-di zed regres-sion Co-effi-cient	Standard Error	Standar-dized Re-gression Co-efficient
Age at first marriage of wife	—0.211*	0.051	—0.311*	—287*	0.034	—0.395*	—9.261*	0.055	—0.290*
Number of current wives of husband	—0.173*«*	0.094	-0.136***	—0.994	0.108 -	—0.043	—0.322***	0.180	—0.106***
Proportion of wives who have ever used FP	—0.417	0.257	0.119	0.332	0.237	0.065	0.551	0.402	0.082
Proportion of wives in mutual consent unions	—0.327	0.288	—0.083	—0.380	0.305	0.060	—1.169**	0.564	-0.128**
Number of previous marriages of wife	0.330	0.293	0.084	—0.638	0.159	—0.020	—0.173	0.220	—0.048
Number of Fetal Deaths	—0.364	—0.0138	0.198	—0.141	0.100	—0.067	—0.258***	0.150	—0.103***
		R^2 = 0.156			R^2 = 0.163			R^2 = 0.130	

•Level of significance .01 **Level of significance .05 ***Level of significance . 10

The results of regression analysis for the age group 35-44 also reveal that the largest standardized regression coefficient (—0.290) is for age at first marriage and the inverse relationship between age at first marriage and fertility is highly significant (F = 22.85; *P* = 0).

The results of this analysis clearly indicate that there is a statistically significant negative relationship between female age at first marriage and fertility. In fact, the inverse relationship between age at first marriage and fertility performance of the wives has been found to be most pronounced for the total sample as well as for different age groups.

Summary and Conclusions

In this paper an attempt has been made to study the net effect of age at first marriage on the fertility behaviour of a sample of rural Ghanaian women in the reproductive age groups. The analysis has been based on the data obtained from the DANFA Comprehensive Rural Health and Family Planning Project, Ghana (West Africa) and is guided by the analytical framework of Davis-Blake (1956).

The relevant literature on the subject has been reviewed which indicates that the results of various studies in this connection are inconsistent and not many studies have used multivariate statistical techniques to isolate the effect of age at first marriage on fertility while controlling for other influential variables.

The statistical technique used in this analysis is stepwise multiple regression which has been done for the total sample as well as for different age groups. The results show a highly significant and consistent negative relationship between age at first marriage and fertility, which is measured by the number of children born alive.

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