DIFFERENTIAL FERTILITY IN A RURAL AREA OF EAST PAKISTAN

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Research on differential fertility in East Pakistan is rare. Only two studies have been conducted and both have utilized data of the 1961 Census.[1] Since these studies social and economic development has proceeded at an increasing rate. New seed varieties are being adopted and irrigation schemes implemented. Family planning and public works programs are continuing as well as efforts to control diseases such as malaria, cholera and smallpox. Thus, research is needed at this time to assess fertility differentials because differences should begin to appear that may give indications regarding future trends in fertility.

The present study was undertaken in 1967 under the auspices of the Pakistan Academy for Rural Development. The Academy conducts rural development programs (e.g., family planning, women's education and home development, agricultural extension, youth education and so forth) on an experimental basis for possible adoption at the national level. As early as 1961, the Academy initiated a pilot family planning program referred to as the "organizer approach,"[2] in four villages of the experimental area Comilla-Kotwali thana,[3] and by 1964 the number rose to 22. In the latter part of 1964, a new program was implemented that covered all 463 villages of the thana and utilized commercial distribution channels for sale

of contraceptives.[4] In November of the same year an IUD clinic was established.

In the light of the duration and intensity of the Academy's programs, particularly the contraceptive portion of it, an assessment of fertility differences may reflect what could be expected in time at the national level as well as provide indications of future fertility trends. The objective of this study, however, is not only to describe fertility differences but to test hypotheses concerning these differences. The hypotheses are as follows:

1. An inverse relation will be found between socioeconomic status (occupation, education, landholding) and fertility.

Early studies of differential fertility in West Bengal[5] by Rele,[6] Dandekar,[7] Davis[8] and Mukherjee[9] have found little or no difference between status groups. Similarly, Duza found an absence of pronounced fertility differentials in Pakistan in the period of the late 1950's and early 1960's, and concludes that fertility is high and nearly uniform throughout all strata of the country.[10]

All of these studies were initiated prior to the implementation of family planning and other development programs. Traditionally the higher status groups in developing areas are the first to be affected by these programs and the first to exhibit declines in fertility. Hence, it would follow that an inverse relation between fertility and socioeconomic status may be expected at some point.

2. Fertility will be higher for Muslims than for Hindus.

The Muslim-Hindu fertility differential is well documented. Studies by Nag,[11] Davis,[12] Sinha[13] and Saxena[14] have all found higher fertility for Muslims than for Hindus. However, the reasons for this differential are not entirely clear. Probably the most plausible explanation is given by Dudley Kirk in his discussion of Muslim natality. He maintains that ritual abstinence is less common among Muslims than Hindus though Moslems observe abstinence during the daylight hours of Ramadan. Hindu customs require prolonged abstinence following childbirth and frequently the mother must return to her parents' home for confinement. Thus, postpartum separation is likely to be longer for Hindus than for Moslems. Kirk

says further that these factors may explain the fertility differential despite similar patterns of early marriage, and high proportions of reproductive life spent by women in marriage.[15]

In addition to these reasons a study by Stoeckel in Comilla suggests that Hindus may have a more "progressive" attitude toward family planning than Muslims because they practiced contraception for longer periods than Muslims.[16] Hence, it is expected that Muslims will have higher fertility than Hindus.

3. Fertility will be higher in single families than in joint families.

The underlying basis of the relationship between family type and fertility has yet to be established. Two major positions may be seen on this issue. The first holds that the joint family is more conducive to higher fertility because it can more easily accommodate an "extra child."[17] In addition the cooperation and assistance the couples receive from other members of the joint family in rearing their children may be unfavorable to the development of a strong motivation toward family planning.[18]

The second position maintains that fertility is higher in single families because it affords greater privacy and less adherence to the traditional periods of abstinence. Therefore, coital frequency is higher and the probability of conception greater.[19]

In assessing the two positions it would seem that the second is more reasonable. Although the joint family may be better able to accommodate additional children, the probability that the child will even be conceived is reduced by the limitations on coital frequency. Evidence in support of this proposition is provided by Nag in his study of rural West Bengal. He found that the single family was characterized by higher coital frequency and fertility than the joint family.[20] Another study by Pakrasi and Malaker in urban West Bengal found a similar fertility differential between family types.[21] Consequently, it is hypothesized that fertility will be higher in single than in joint families.

4. Fertility will be higher for women married below the age of 15 years than for women married at 15 years and older.

Fertility is expected to be higher for women married at younger

ages because they spend more married years in the reproductive period than do older women. This association has been documented in several surveys conducted in India.[22] In the only study of fertility and age at marriage in East Pakistan, Afzal found similar results using 1961 census data.[23]

An additional factor that may contribute to the fertility differential was suggested by the senior author in a previous study. He found that practice of family planning was longer for women married at age 15 and older than for those married below 15 years.[24] This may indicate that the group who delay marriage represent a less traditional segment of the society and are more favorable toward family limitation.

METHODOLOGY

The data for the study were collected by interviewing all married couples (2,078) in 15 villages of Comilla-Kotwali thana in the first three months of 1967. Pregnancy history information was elicited from wives by female interviewers and socioeconomic data from husbands by male interviewers.[25] Initially only females were going to be interviewed; however, in pretesting it was found that the majority of women were unable to give information concerning their husbands' occupation, education, landholding and so forth.

The 15 villages were initially selected because surveys had been conducted in them at an earlier time (ten of the villages in 1962 and five in 1964) and baseline data on family planning had been collected. This selection was purposively made and hence randomness cannot be assumed.

Fertility was measured by the total marital fertility rate of females as defined by Barclay; i.e., the sum of the age-specific birth rates (ratios of births by age of mother to married women in each age interval) in a one-year period for married women aged 15 to 49 years. Barclay maintains that this procedure is a method of standardization because the birth rate at each age is multiplied by a standard population of one person (or, at each five-year interval, is multiplied by five). The total fertility rate, therefore, is not

affected by peculiarities of the age composition of women in the interval of ages 15 to 49,[26] assuming of course all age groups are represented and no cells are empty.

RESULTS

In general the hypothesized inverse relation between socioeconomic status and fertility is supported. However, the differences between status groups are still rather small. As is seen in Table 1, fertility rose by 1.2 births from the "Business and Skilled" occupations to the "Unskilled" occupations.[27] Among the education groups fertility was highest for "No Education" and decreased by 1.4 births through "Class 4–6." This decrease was followed by an increase of 0.6 births for "Class 7"; however, fertility is still lower for this group than for the two lowest status groups. Greater differences are found between the highest and lowest status group in the category of landholding than in either occupation or education.[28] Although the three lowest groups show little variation, the fertility rate for the "No Land" group is almost two births higher than for the "2.2 acres" group.

TABLE 1. TOTAL MARITAL FERTILITY BY SOCIOECONOMIC STATUS

Socioeconomic Status	*Total Marital Fertility*	*Number of Couples*
Husband's Occupation		
Business and skilled	6.58	367
Farming	6.85	1,034
Unskilled	7.80	567
Other		40
Husband's Education		
No education	7.73	1,002
Class 1–3	7.17	311
Class 4–6	6.31	434
Class 7>	6.89	261
Husband's Landholding		
No land	7.67	515
0.2–1.0 acres	7.22	666
1.2–2.0 acres	7.57	646
2.2 acres	5.94	181

TABLE 2. TOTAL MARITAL FERTILITY BY RELIGIOUS AFFILIATIONS AND FAMILY TYPE

	Total Marital Fertility	*Number of Couples*
Religion		
Muslim	7.58	1,740
Hindu	5.60	268
Family type		
Single	7.31	1,612
Joint	6.88	396

TABLE 3. MARITAL AGE-SPECIFIC BIRTH RATES AND TOTAL FERTILITY BY AGE AT MARRIAGE

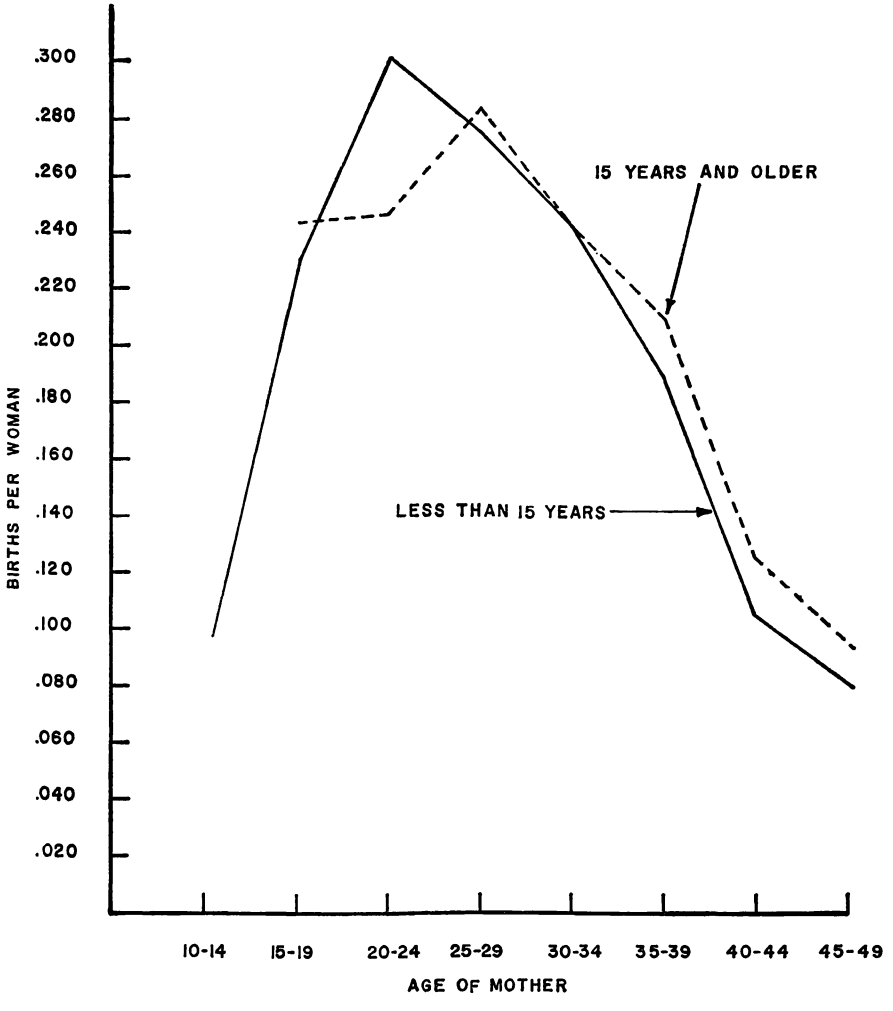
	Age at Marriage			
	Less Than 15 Years		*15 Years and Older*	
Age	*Rate*	*N*	*Rate*	*N*
10–14	.099	(70)	—	—
15–19	.230	(225)	.245	(116)
20–24	.303	(240)	.247	(101)
25–29	.277	(296)	.282	(82)
30–34	.244	(246)	.243	(57)
35–39	.193	(235)	.206	(59)
40–44	.106	(164)	.122	(49)
45–49	.075	(109)	.090	(29)
Total	1.527	(1,585)	1.445	(493)
Total fertility rate	7.64		7.23	

The expected fertility differential between Muslims and Hindus is supported. Muslims exhibit a fertility rate two births higher than the rate for Hindus. In contrast the differential between single and joint family type[29] is rather small. Although fertility is higher in single families as hypothesized, the difference is only 0.4 births (see Table 2).

As seen in Table 3 and Figure 1[30] women married below the ages of 15 years have higher fertility than those married 15 years and older. The difference, however, is only 0.4 births. Differences between the age-specific birth rates indicate that those married in the younger ages reach peak fertility in the ages 20 to 24 years and those married at older ages reach their peak at 25 to 29 years. The

greatest difference between the two groups (excluding the 10 to 14 year age group) occurs in the age 20 to 24 years where the younger group has a higher birth rate. However, fertility for women aged 25 years and older is slightly higher for those married at 15 years and older (4.8) than for those married below 15 years (4.5).

FIGURE I. MARITAL AGE-SPECIFIC BIRTH RATES BY AGE AT MARRIAGE



SUMMARY

Hypotheses concerning the relation between female marital fertility and socioeconomic status, religious affiliation, family type and age at marriage have been tested in 15 villages of Comilla-Kotwali thana East Pakistan. As expected, the results indicated that fertility is higher in low- than in high-status groups, and higher for Muslims than for Hindus. To a lesser degree fertility was higher for single than for joint families and higher for women married below the age of 15 years than for those 15 years and older.

Several conclusions can be drawn from these findings. First, the fertility differences found between status groups may reflect the differential impact of social and economic development and indicate that the transitional phase has begun, which leads to controlled fertility and fertility differences. This is in contrast to the earlier 1961 census study, which found an absence of differences between status groups.

Second, the results for age at marriage indicate that those who delay marriage make up a considerable portion of the loss of early years in the reproductive period by higher fertility at older ages. This has an obvious implication for the position that fertility can be markedly reduced by raising the age at marriage. That is, if age at marriage is increased a corresponding increase in the birth rate in the older ages may be expected.

Finally, although fertility differences were found, overall marital fertility is still a very high 7.2 births. Hence, fertility reduction will have to occur at a fairly rapid pace between 1967 and 1970 to realize the government's goal of a ten point reduction in the crude birth rate (from 50 to 40). Inasmuch as the Academy's conventional contraceptive program has been operating for over three years on a mass scale it would appear that greater emphasis should be upon more effective methods; i.e., the IUD and sterilization.

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[2] The "organizer approach" utilized village women (organizers) who were nominated by their local cooperative society for training and instruction in family planning at the Academy. Upon completion of training they conducted the following activities in their villages: to visit with women and discuss and explain all facets of family planning, to sell contraceptive supplies (condoms and foam tablets), and to keep records systematically on women who purchase contraceptives.

For a discussion of the development and dynamics of the "organizer approach" *see:* Khan, A. M., PILOT PROJECT IN FAMILY PLANNING, P.A.R.D., Comilla, 1963; Stoeckel, J., Khan, A. H. and Choudhury, M. A., A SOCIO-DEMOGRAPHIC ANALYSIS OF FAMILY PLANNING IN A RURAL AREA OF EAST PAKISTAN, Chapter I, Forthcoming.

[3] The thana area is approximately 100 square miles.

[4] For a discussion of the commercial distribution program *see* Khan, A. H. and Choldin, H. M., Application of a Theory of Rural Development to Family Planning in East Pakistan, paper presented at the U. N. World Population Conference, Belgrade, Yugoslavia, August, 1965.

[5] Because of the paucity of research on differential fertility in East Pakistan early studies conducted in West Bengal will be referred to frequently to aid in generating hypotheses. Prior to partition in 1947 East Pakistan was a part of West Bengal. The people of these areas share a common ethnic, residential and occupational background. That is, they are bengalees, live in a rural area and are employed primarily in agricultural occupations.

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[19] Nag, M., Family Type and Fertility, *in Proceedings of the World Population Conference, Belgrade,* 1965, New York, United Nations, 1967, pp. 160–163.

[20] *Ibid.,* p. 161.

[21] Pakrasi, K. and Malaker, C., The Relationship Between Family Type and Fertility, *Milbank Memorial Fund Quarterly,* 45, 458, October, 1967.

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[23] Afzai, M., *op. cit.,* p. 70.

[24] Stoeckel, J., *op. cit.* It should be noted in this study as well as the present one that the number of women married below the age of 15 years is three times greater than the number married at 15 years and older.

[25] The purdah system of Islam, which requires the seclusion of women, makes it virtually impossible in this area for males to interview females or females to interview males.

[26] Barclay, G. W., TECHNIQUES OF POPULATION ANALYSIS, New York, John Wiley & Sons, Inc., 1958, p. 174.

[27] The composition of the occupational categories is as follows: business and skilled, teachers, shop owners, carpenters, weavers, potters, tailors; Farming: farm owners, sharecroppers; Unskilled: day laborers, rickshaw pullers, sweepers.

[28] The data for landholding were recorded on the basis of "kani" units. One kani equals .4 acres. The lowest possible unit of landholding equalled half a kani or .2 acres, hence the categories are constructed on the basis of a two tenths of an acre interval.

[29] A single family is defined as a family composed of parents and their unmarried children who take food from the same kitchen; a joint family is a simple family plus one or more consanguinous relatives who take food from the same kitchen.

[30] The 10 to 14 year age group is included so that fertility in the earliest years in the reproductive period for women married below the age of 15 years can be taken into account. The 10 to 15 year age group was omitted from the analysis of the other variables because the N was too small for cross-tabulation and computation of total fertility rates. One of the major reasons for the small size of this group was that the family of the younger girls would not allow them to be interviewed because the schedule included questions about family planning.

BOOK REVIEWS

INTRODUCTION TO DEMOGRAPHY

MORTIMER SPIEGELMAN

Cambridge, Harvard University Press, 1968, revised edition
xx *+ 514 pp. $15.00

This is a second, greatly augmented and improved edition of a book that even in its first edition drew from reviewers such adjectives as "superb," "tightly organized," "including essentially everything that is worthwhile to know" about demography in the United States and Canada. The problem facing a reviewer of the second edition is to find standards that are high enough to provide a useful critical judgment. His task is made more difficult by the interpenetration and mutual support of what could easily have been three separate books, concerned respectively with data, techniques and substantive facts. Each of these three is worth a separate review.

Spiegelman starts where demography itself started historically, with the collection of census and vital statistics. He is up to date on the mechanics of converting information obtained from people into computer input. He discusses the achievements of the Bureau of the Census in this and in its efforts to improve accuracy by obtaining as much information as possible without the intermediacy of enumerators. He also presents what is perhaps the greatest single achievement of the Bureau of the Census: its official recognition of error in both coverage and content as an inevitable accompaniment of all data gathering, including its own, and better faced than hidden.

The modern preoccupation with error, unavoidable if data are to be usable, here inspires a special, long chapter on the errors of census and vital statistics alone. Especially in those fields in which the producers of statistics are less frank than the Bureau of the Census, the impartial and experienced judgment of Spiegelman is invaluable.

Data are taken up again under every one of the headings of the book: mortality, health, family formation, fertility, areal distribution of population, education, the working population and income. All the statistics of demography are functions of the definitions effectively used in their collection, and very sensitive functions in such fields as sickness and labor force. Attention to definitions, including what seems like the hair-splitting of medieval scholasticism, is the price the demographer has to pay for data that are meaningful and comparable.

Demographic techniques include all the manipulations of data that take us from the primary output of statistical agencies to results that answer questions. To obtain from death and census numbers the corresponding probabilities of living requires a life table; to compare overall mortality from one decade to the next requires standardized rates; to apply current data to make judgments on the future requires methods of population projection.

The techniques revolving around mortality are especially well treated. Attention is drawn in particular to theories of mortality due to Szillard, Clarke and Beard, based on genetic or probability models, and that may be capable of providing better-fitting curves, and better predictions of future trends, than techniques not based on explicit models of how the mortality process operates.

I expected to find examples of the life table technique applied to cohorts proceeding through the school system, through the labor force, through the successive stages of marriage and childbearing, into the various causes of death. Each of these can be seen as containing single or multiple decrements, formally analogous to the decrement of death on which the usual life table revolves. However, all such aspects are treated briefly. Spiegelman is an actuary and can hardly be suspected of ignorance of such applications of the life

table. I conclude that he wanted to keep the book within reach of the working demographer or demographer-to-be, and so avoided techniques that would require too extended or too technical an exposition. He also, despite the fact that the book is sponsored by the Society of Actuaries, stays close to demography as it would be interpreted by public health workers and others, and omits insurance calculations altogether. Those wanting to know about such calculations may look in such books as that of Jordan, whose last two chapters deal with multiple decrement.

The same wide range and high quality to be seen on sources of data and techniques are to be found in the substantive facts presented on each topic, whether it be the comparison of mortality between the United States and Canada (Canada is lower than United States whites at older ages, United States whites are lower at younger ones); fertility among regions of the United States (the Northeast is lowest); relation of income to marriage (single men have lower incomes than married men of the same age, but single women have higher incomes than married women). On health statistics we find that consultations of physicians averaged 4.1 for whites in the country as a whole and 3.0 for nonwhites; more in the West (4.6 consultations per year); more for families where the head has 13 or more years of schooling than for those where the head has less than five years of schooling (4.9 against 3.5). Differentials in dental care are much greater, the families with heads who have been to college showing 2.6 visits per year, those with less than five years of schooling showing 0.6 visits. (Data of the preceding two sentences are from the National Center for Health Statistics and pertain to the year 1963–1964.)

One of the restrictions the author has imposed on himself is to confine the materials to the United States and Canada, where he had a greater chance of attaining completeness. The book is not international or comparative beyond this. It likewise does not deal with population policy, leaving to others the presently fashionable field of birth control. Within these self-imposed boundaries the book comes as close to completeness, timeliness and accuracy as an evolv-

ing field will permit at any one time. Spiegelman's work will serve well the many workers in public health, demography and social science generally who need a clear and technically impeccable reference to population data, techniques and facts.

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