INTERIM REPORT ON THE STUDY OF FUTURE FERTILITY OF TWO-CHILD FAMILIES IN METROPOLITAN AMERICA

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Introduction

This paper is a brief report on three aspects of a study now in progress known as "The Study of the Future Fertility of Two-Child Families." The study is under the administrative auspices of the Milbank Memorial Fund and the technical direction of the Office of Population Research, Princeton University, with financial assistance from The Carnegie Corporation and The Population Council.[1] Before presenting summaries of (1) the methodology, (2) some substantive findings, and (3) future plans, it might be well to spend a few moments reviewing the background of this current study.

The study is viewed by many as a successor and even a continuation of the Indianapolis Study of Social and Psychological Factors Affecting Fertility. Certainly the two studies share many substantive emphases. There also exists a considerable continuity to research and advisory staffs. Charles F. Westoff and Robert G. Potter, Jr. are associated in a research capacity with both studies. Moreover, in planning the Princeton Study a conscious effort has been made to avoid certain features now accepted as faults in the former study. In the Princeton Study it was hoped that:

1) the process of deriving specific testable hypotheses from fewer, more general hypotheses would give a greater unity to the study

2) by reducing the number of fertility determinants investigated, greater effort could be expended on the problem of measuring each fertility determinant

3) by enlarging the sample size above the 860 "relatively fecund" couples interviewed in the Indianapolis Study, more detailed analyses would be possible

4) by permitting as broad a definition of the population as feasible the general applicability of the findings would be enhanced, and

5) through the choice of a longitudinal design problems associated with post factum data collection would be minimized.

Despite the conscientious efforts to achieve each of these five goals, the first three problems have remained to haunt the present study. In the course of initial theoretical work, in main the efforts of C. F. Westoff and E. G. Mishler, many specific hypotheses were derived from four general propositions.[2] However, the problems of measurement ultimately forced enough changes in definitions of the variables involved that it is now presumptuous to consider the hypotheses as integrated to the extent initially conceived. Certain emphases have changed, generally in the directions that improved the opportunities for measurement. Three pretests preceded the main survey but the scarcity of appropriate and valid instruments capable of being fitted into a crowded hour and twenty minute interview and supplementary questionnaires, the costs in time and money of repeated pretests, the status of knowledge with regard to brief paper-pencil type measurements - these and other difficulties have meant qualities of measurement short of desired standards. Finally, the field costs per couple proved so high, that the sample size, originally set at 1500 couples, had to be reduced to 1165, resulting in a less than desired improvement over the sample size of the Indianapolis Study.

In other fundamental respects the present study has broken with the precedents set by the earlier one. A longitudinal design was introduced as the only genuine solution to the problem inherent in post factum data collection. In the first interview, information about presumed determinants of fertility was collected together with information about fertility intentions. After an appropriate lapse of time, couples are to be reinterviewed to determine how far these intentions have remained constant, how successfully they have been carried out, and which of the potential determinants best predicts fertility performance. Another basic deviation was prompted by the theoretical work of Westoff and Mishler. Their work suggests that some of the determinants of fertility intentions change with parity and that a sound way to delimit the research effort would be to concentrate on a single parity. In view of the recent U. S. demographic situation, the most strategic point in family building was perceived to be the transition between the second and third child. No restrictions have been placed on religion, and indeed, religious affiliation is turning out to be an important attribute. Finally, ecological changes since 1940 have proceeded so far that it seemed wise to base the sample upon the population residing in standard metropolitan areas rather than the central cities.

Methodology

Once the decision to restrict the population to recent two parity couples had been made, the principal problem regarding sampling revolved about the feasibility of reaching a rather rare type of couple spread thinly throughout seven metropolitan areas. This problem was further complicated by such additional eligibility criteria as native birth, single marriage, white race, the absence of plural births and more than one spontaneous abortion. Without the use of birth registration records, it is likely that no economical solution would have appeared.

A systematic 20 per cent sample of all women with second births occurring in September 1956 was drawn from each of seven S.M.A.'s. The resultant sample size consisting of 2891 cases was intentionally greater in number than the planned number of interviews. Since the ultimate number of interviews had been fixed at approximately 1150, the sampling design had to be flexible enough to permit the required number of interviews without affecting the proportionate representation and the random character of the sample in each S.M.A. It was estimated, on the basis of pretest experience, that 50 per cent more names than interviews desired should be allocated to each S.M.A. since some of the potential respondents would refuse to cooperate, or would be ineligible on characteristics not shown on birth certificates.

Because of possible variations among S.M.A.'s on various attrition rates, the sample of names in each S.M.A. were further randomly subdivided into two samples. The first of these samples contained only about 75 per cent of the required number in each S.M.A. The second sample in each S.M.A. became a source of names to fill out the allocated number of interviews in each S.M.A. based on experiences with the first sample. In all, 1709 names were chosen from the first and second samples. From these 1709, came the 1165 successfully interviewed couples. There were in all only 83 refusals. The remaining attrition which reduced the 1709 to 1165 successfully interviewed mothers is summarized in Table 1.

Though these personal interviews averaged an hour and 20 minutes and intensively covered details of contraceptive behavior, marital relationships, income, and religious behavior, the refusal rate was encouragingly low (6%), perhaps attesting to the efficacy of the interview technique as well as the changing mores.

Two additional, return-by-mail questionnaires were given to each women interviewed as a means of reducing the prohibitive costs of lengthy interviewing sessions. A total of 938 or 80.5% of the 1165 wives returned both of these shorter self-administered 20-minute forms. Those not returning one or both forms tended to be Catholics, persons of low educational attainment, low income, short marriage duration, and short preferred third birth interval. The converse was true for those returning these forms with a greater than chance Jewish representation among the cooperative respondents.

Processing these data involved the typical preliminary steps of scoring, coding, card punching, verification and tabulation. Extensive quality controls were maintained throughout. These steps, the drawing of the sample, as well as the field interviews were ably carried out by National Analysts of Philadelphia. In addition, such statistics as means, variances, and correlation coefficients as well as all intermediate statistics were computed by means of IBM 650.[3]

Perhaps the most distinctive features of the data processing employed in this study is the commitment to correlational analyses wherever feasible and the heavy reliance on electronic computer work. In all, some 80,000 coefficients of correlation were computed for combinations of religious and occupational class breaks as well as all marginal totals. It should be understood, however, that our analyses are not limited to Pearsonian r's nor are we attempting to digest any more than a small fraction of the 80,000 or so coefficients spewed forth by our overly zealous machine.

Substantive Findings

The results summarized in this paper are necessarily only a selected few of all findings to date. However, the findings we have chosen to report include "tests" of hypotheses from each of the four areas included in the original theoretical scheme.

The first area is concerned with the relationship between religion and fertility. Since religions are known to be differentially concerned with fertility and fertility controls, such variables as religious persuasion, religiosity, church attendance, and informal religious orientation may be viewed as indices of conformity to various religious teachings.

The specific hypothesis of differences in fertility desires by religion is one that finds support in our data. Catholics desire the largest families and Jews the smallest with Protestants intermediate. The same rank order prevails for fertility-planning success and time taken to have children.

These observed differences of course fail to account for variation in fertility desires within religion. Some of this internal variation is explained in terms of varying degrees of religious belief and behavior within each religion. While religions do vary in the contents of religious teachings, people differ in the degree to which they espouse or practice the religious teachings. An indication of the efficacy of this explanation can be inferred from Table 2 in which we present correlations between formal and informal religious behaviors and fertility desires. While these correlations are not particularly high, they do buttress the arguments relating fertility and fertility desires to religious teachings. A further manifestation of the relationship is found in the association between the extent of denominational education and fertility desires (Table 3). Since denominational schooling tends to be a Catholic phenomenon, our sample only permits comparisons within the Catholic group. The fertility desires of Catholic wives increase with years of denominational education

to a mean of five children desired in the college educated group. However, the cause-effect relationship cannot be unraveled in our survey data. Denominational training may be selective, with the most religious of the parents sending their children to special schools. Further investigations of these relationships are being planned for the second interview with special attention to be devoted to measurements of religiosity of parental home and ethnic background.

The second area of investigation is concerned with hypothesized relationships between fertility and the degree of familistic orientation. As examples, wife's marital adjustment, adjustment to mother role, and liking for children are viewed as indexing the wife's acceptance of her traditional role as mother and housekeeper. The underlying assumption is that wives with many interests outside the home would experience the greatest difficulties in accepting the traditional role and would therefore desire the smallest families, feel least adjusted to marriage and mother role, and express the least interest in children.

The evidence in support of these hypotheses is fairly weak. Correlations between wives' fertility desires and the adjustment variables are presented in Table 4. In all but one case, the correlations are in the proper direction, acceptance of traditional role being associated with high fertility. The magnitudes of correlations, none being greater than .18, leave much to be desired but are still intriguing given the crude measurements. While we hesitate to interpret the variations between religion and class shown by these correlations as other than sampling quirks, it is interesting to speculate over the associations found among Catholics. Perhaps the traditional wife role is most acceptable to the highly religious Catholic wife and mother. (This seems reasonable enough in the light of the high fertility desires of denominationally educated Catholic wives.) Further speculations along these lines, linking the acceptance of the traditional wife role to other variables, for example to husband-wife dominance pattern, fails to be supported by our data.

The third area of interest concerns personality traits. The most general but untestable form of the hypothesis asserts that fertility control and fertility desires are related to certain types of personality characteristics. These personality characteristics are conceived as sets of dispositions supporting or inimical to childbearing and fertility control. Specific hypotheses, for example, involve variables such as generalized manifest anxiety, ambiguity tolerance, impulse gratification, and need achievement. Typically, the expected relationships between these variables and fertility desires or the ability to control fertility rest on rather direct one step reasoning. Persons exhibiting high anxiety are overly concerned with their own problems and, it is argued, such concern reduces fertility desires because having children demands an expenditure of care and affection. In the area of control of fertility, the ability to control or defer sexual gratification appears as a plausible requisite for effective contraceptive behavior. Each of the personality traits measured is linked to fertility or control of fertility by arguments no more elaborate than the two just presented.

Though analysis of these data is not as yet complete, a general observation may be made. The correlations between measures of wives' personality characteristics and various fertility variables (Table 5) indicate that these personality traits, as measured, do not or only barely affect fertility. Despite the low correlations (which we would prefer to attribute to measurement errors) the directions of the correlations tend to follow the expected pattern though again in not too convincing a manner.

These rather disappointing results are somewhat offset by findings in the fourth and last general area of investigation covered in this paper. This area is primarily concerned with the control of fertility in both number and spacing of births. There is therefore a heavy emphasis on use and effectiveness of use of various types of birth control measures.

One of the major hypotheses is the assertion that religions and classes differ in the effective use of contraception. More precisely, recognizing the existence of Catholic prohibitions on means of birth control, Catholic control of spacing is hypothesized as less effective than non-Catholic control. Blue-collar classes were thought to be poorer contraceptors than white-collar classes. As expected (see Tables 6 and 7) religion turned out to be an important factor in the control of spacing. Class differences, on the other hand, were less important than expected. In fact, among Catholics class differences in contraceptive failure rates and proportions of successful contraceptors are in directions opposite from expectations. White-collar classes have higher failure rates and smaller percentages of successful contraceptors among Catholics. This class reversal for Catholics is in part due to the fact that the more religious Catholics tend to be concentrated in the white-collar class and use the less effective contraceptive measures.

The data in Tables 6 and 7 are supplemented with additional information that may be of some general interest. It is evident from a comparison of the failure rates of first and second birth intervals, that contraceptive effectiveness increases with parity. The stability of the proportion of successful contraceptors between birth intervals, 65 and 64 per cent, is somewhat

misleading for the increase in average intended interval from 18.3 to 22.6 months actually implies that couples successfully practiced contraception for a longer period of time.

These few results, to reiterate, have been presented simply in order to give an idea of the scope of this research. It is perhaps worth noting, as a way of summarizing this section on substantive findings, that religion has emerged as the most important determinant of fertility found in the study. Religion affects fertility desires, birth spacing, and contraceptive practices, to a greater extent than any other social category we have isolated to date, including class.

Future Plans

As previously indicated, plans call for a second interview. Field work on this second phase of the study is currently scheduled for the spring of 1960. Prior to this date, interview and questionnaire procedures will be pretested on the same samples used for the pretests preceding the first interview.

Detailed comment about the second phase is not yet possible since the work of drafting specific plans has not progressed beyond the outline stage. Obviously, among the many things that will have to be considered will be the solutions of problems associated with the loss of informants due to various sources of attrition. Residential mobility, death, divorce and separations will create problems of relocating the original 1165 couples and eliciting the required cooperation. Depending in part on the extent of these various attritions will be the intensity of effort spent on locating couples that have moved out of the seven metropolitan areas, the length and form of the interview schedule, and the intensity of the follow-up program for the less cooperative and not-at-home categories of respondents. We have not decided yet if the resurvey will be restricted to couples still residing in the S.M.A. of first residence, or all couples regardless of residence. The latter, if that is our final choice, will obviously involve greater expense and effort. The exact determination of resource allocation depends on this decision as well as the final definition of the objectives of the second phase.

Some of these objectives can be cited tentatively: at present, the single most important concern is whether couples have had their third pregnancy or not. This will permit a test of the prediction validity of stated fertility desires. In any event, third pregnancy information will permit substituting a behavioral criterion for fertility desires in prior analyses involving fertility desires as the dependent variable. Emphasis will probably be placed on changes in fertility intentions as conditioned or not conditioned by third pregnancy experiences. This is a rather important question, for a great deal of our fertility research is conducted on the assumption that fertility desires remain relatively stable and are associated with ultimate family size.

At the same time, there will be some attempt at measuring changes in the economic circumstances of couples in the interim between interviews. There is particular interest in view of the recent recession and whether it had any detectable effect on fertility performance or fertility desires. In other areas, we will elaborate on themes either neglected or found promising in the analyses of first phase data. These include more data on religion, family background, closeness of kinship and friendship ties, and social participation. Other new areas are almost certain to include questions designed to get at respondents' knowledge of the time of ovulation and the extent that such knowledge is used to hasten conception. To some extent the discrepancy between actual birth interval and desired birth interval may be explained by differing lengths of time required to conceive.

These do not exhaust all objectives discussed to date. However, the question of what will or will not be included in the final schedule or schedules is uncertain at this point. The final decisions hinge on an appraisal of the results of phase one, the experiences with the pretest samples and attritions, all of which are also part of the future.

[1]Acknowledgments are due many people who have been connected with this study in one capacity or another since its beginning. The contributions of Elliot G. Mishler, a member of the research staff for the first three years of the study, are immeasurable. Ansley J. Coale, Clyde V. Kiser, and Frank W. Notestein have been involved very closely with the course of the study at the Office of Population Research, forming part of an advisory committee consisting also of: Ronald Freedman, Philip M. Hauser, Dudley Kirk, Frank Lorimer, Donald Marquis, Frederick Osborn, Lowell J. Reed and P. K. Whelpton.

[2]1) Fertility desires and future fertility are positively associated with a familistic as opposed to a work orientation.
2) Fertility desires and future fertility are inversely related to the degree of personality needs that are satisfied by relationships inimical to child rearing.
3) Fertility desires and future fertility are expressions of but one value in the field of socially acceptable and often competing values. (For example, fertility and fertility desires are therefore hypothesized as inversely related to mobility aspirations.

2(con'd)
4) The discrepance between ultimate fertility and current fertility desires, apart from the fact that the latter is susceptible to change while the former is irreversible, is in large measure a function of variations in fecundity, psychological availability of contraception, and fertility planning success.

[3] Jonathan Robbins, at that time with The Population Council, was graciously loaned to us for this computing stint.

Table 3. Family-size preferences of Catholics by education and parochial school attendance.

Years of Parochial School Education	Wives' Family Size Preferences				Husbands' Family Size Preferences			
	Less than H.S.4	High School Graduates	Attended College	Total	Less than H.S.4	High School Graduates	Attended College	Total
None	3.2	3.4	3.4	3.4	3.5	3.4	3.4	3.4
Some	3.5	3.6	4.4	3.7	3.3	3.5	4.3	3.8
All	3.4	4.2	5.1	4.2	3.5	4.0	4.1	3.8
Total	3.4	3.7	4.4	3.7	3.4	3.6	3.9	3.6

Table 4. Correlations between Fertility Desires of Wives and Adjustment Variables by Religion and Class.

	Adjustment to Marriage	Adjustment to Mother Role	Liking for Children	N
Protestant	.06	.10	.12	388
Mixed Catholic	.08	.01	.13	70
Catholic	.10	.18	.16	370
Jewish	.15	-.01	.12	110
White-collar	.11	.08	.13	471
Blue-collar	.04	.16	.14	467
Total **	.08	.12	.14	938

* Test of homogeneity of correlation coefficients fail to indicate significant heterogeneities ($\alpha = .05$) in any combination of religion-class subgroupings.

** All correlations based on total sample appear to be significantly different from zero and in the expected direction.

Table 5. Correlations Between Measures of Wives' Personalities and Fertility Variables for Total Sample N = 938 [1]

Personality Measures	Wives' Fertility Desires	Fertility Planning Success
Manifest anxiety	-.07	.05
Ambiguity tolerance	.11	-.02
Impulse gratification	-.02	.02
Need achievement	.04	.02
Nurturance needs	.06	-.01
Social manners interest	-.01	-.02
Work alone preference	-.02	-.03
Self awareness	-.00	-.05
Compulsiveness	-.11	.03

[1] Tests of homogeneity of correlations between religions and class groupings failed, with $\alpha = .05$, to justify subsample analyses involving religion or class breaks.

Table 6. Contraception Before First Pregnancy by Class and Religion.

Class - Religious Group	Months of Contraceptive Exposure	Intended Interval[1]	Percentage of Successful Contraceptors[2]	Failure Rate[3]
Jewish	1,960	20.6	81	9.8
Mixed Catholic	606	21.2	50	29.7
Catholic	1,968	13.4	61	35.4
White-collar	752	14.3	51	46.3
Blue-collar	1,216	13.0	68	28.6
Protestant	4,224	20.1	58	27.3
White-collar	2,574	21.5	59	25.6
Blue-collar	1,650	18.2	58	28.4
Total	8,758	18.3	65	25.5

[1] Average number of exposure months per successful contraceptor.

[2] Percentage of contraceptors deliberately stopping contraception in order to conceive.

[3] Total failures divided by total contraceptive exposure, all multiplied by 1,200.

Table 7. Contraception After First Pregnancy by Class and Religion.[1]

Class - Religious Group	Months of Contraceptive Exposure	Intended Interval	Percentage of Successful Contraceptors	Failure Rate
Jewish	2,941	22.2	85	7.8
Mixed Catholic	1,434	22.9	58	25.9
Catholic	7,640	24.7	62	21.7
White-collar	2,981	24.0	59	23.8
Blue-collar	4,659	25.2	63	20.3
Protestant	7,901	20.6	60	24.6
White-collar	4,070	20.9	65	21.5
Blue-collar	3,831	20.2	55	27.9
Total	19,916	22.6	64	21.1

[1] Includes both contraception following first birth and miscarriage.

Table 1. Completion rates for total sample by S.M.A.

	Total Sample	N.Y.	Chi.	L.A.	Phila.	Det.	Pitts.	S.F.
Total No. of names used	1709	572	313	289	168	178	107	82
% distribution	100	33.5	18.3	16.9	9.8	10.4	6.3	4.8
No. completed interviews	1165	406	207	169	120	118	88	57
% distribution	100	34.8	17.8	14.5	10.3	10.1	7.6	4.9
Number of refusals[1]	83	35	15	19	7	5	0	2
% distribution	100	42.2	18.1	22.9	8.4	6.0	0.0	2.4
Refusal rate[2]	5.7	7.2	5.8	8.4	4.7	3.2	0.0	2.6
Miscellaneous attrition[3]	66	24	15	17	3	5	1	1
% distribution	100	36.4	22.7	25.8	4.5	7.6	1.5	1.5
No. moved out of area	103	27	26	27	8	10	3	2
% distribution	100	26.2	25.2	26.2	7.8	9.7	2.9	1.9
Attrition rate (moves)[4]	6.0	4.7	8.3	9.3	4.8	5.6	2.8	2.4
Number of ineligible respondents	292	80	50	57	30	40	15	20
% distribution	100	27.4	17.1	19.5	10.3	13.7	5.1	6.8
Ineligibility rate[5]	20.0	16.5	19.5	25.2	20.0	25.3	14.6	24.7

[1] Includes 3 respondents "too busy" to be interviewed.

[2] Number of refusals divided by number of completed interviews plus number of ineligibles.

[3] The total 66 cases includes 19 where no one was home (despite up to 4 calls); 18 where no such address could be located; 16 where there was no respondent contact; 11 cases of illness; 1 vacant dwelling; and 1 language difficulty.

[4] Number of moves divided by number of names used.

[5] Number of ineligible respondents divided by number of completed interviews plus ineligibles. The ineligible respondents appearing in this table are those found ineligible at the time of interview only. They do not include the cases eliminated at the Vital Statistics Offices.

Table 2. Correlations[1] of wives' and husbands' desired family size with measures of religiousness by religion and class.[2]

Religion and Class	Between wives' family-size preferences and:			Between husbands' family-size preferences and:	
	Frequency of church attendance	Informal religious orientation	Religiosity	Frequency of church attendance	Informal religious orientation
All couples	.27	.18	.20	.25	.15
Protestant total	.05	.04	.02	.06	-.03
Mixed Catholic total	.17	.19	.27	.15	.14
Catholic total	.28	.22	.26	.18	.18
Jewish total	-.11	.14	.08	.03	.16
White-collar total	.30	.22	.21	.30	.21
Blue-collar total	.25	.14	.20	.20	.08
White-collar class:					
Protestant	.05	.04	-.04	.07	-.05
Mixed Catholic	.03	.27	.53	.17	.47
Catholic	.23	.26	.29	.32	.30
Jewish	-.09	.13	.08	-.01	.18
Blue-collar class:					
Protestant	.03	.02	.06	.01	-.04
Mixed Catholic	.27	.17	.10	.13	-.16
Catholic	.27	.15	.28	.07	.08
Jewish	-.21	.15	.08	.23	.07

[1] Correlational values required for different levels of statistical significance are shown in the appendix.

[2] The correlations vary among the eight independent subsamples at the .01 level for the wife's religiosity index and the husband's informal religious orientation; at the .05 level for the wife's church attendance; but do not vary significantly for the remaining two variables.