

dence that most Puerto Ricans espouse small family ideals. Yet Puerto Ricans obviously have not acted to implement these ideals: family size continues to be large, government birth control clinics are used by relatively few, and, as the study under review indicates, most people who use birth control are likely to begin late and to use it ineffectively. Sterilization is used by a relatively large minority of couples but usually only after the desired family size has been surpassed. The net result is a continuation of high birth rates despite considerable success in a "bootstrap" program for economic and social development.

Hill, Stycos, and Back have stated the resulting research problem as follows: "With the overwhelming evidence that Puerto Ricans are small-family minded, the research problem becomes one of accounting for the over-achievements in reproduction—the discrepancy between stated family size goals and achievements."

In their attempt to solve this complex problem, the authors have made a notable contribution to our knowledge of the dynamics of fertility in an area in transition from an underdeveloped status. Their study will be a standard reference in this field for many years to come.

The authors have used a complex research design in an attempt to winnow from a rather long list of possible causal variables the smaller number which could give a comprehensible model of the basic forces at work in this situation. While many important specific findings are developed, we are left with considerably less than a definitive explanation. The total amount of variance in fertility planning explained by the variables in the model developed is very modest. This does not result mainly from any lack of ingenuity or skill on the part of the investigators. In the reviewer's opinion, this is inevitable in the current status of the social sciences when data to test a complex theoretical model are collected with reference to a large variety of sociological and psychological variables, each of which must be measured with primitive (and usually *ad hoc*) scales, and then interrelated with statistical devices whose mathematical assumptions are met rarely by the variables as measured. Given the basic tools available the authors are to be

congratulated on the clarification they have been able to give to a complex theoretical problem.

The overall study is divided into three stages: (1) an intensive preliminary reconnaissance based on 74 cases (reported by J. M. Stycos in his *FAMILY AND FERTILITY IN PUERTO RICO*²) (2) an extensive sample survey analysis to test the relationship of a large number of variables to each other and to fertility and family planning, and (3) an experiment in which key variables selected from earlier studies are manipulated to try to induce changes in fertility planning and fertility.

Two samples are used in the stage of survey analysis. For a few of the questions, a probability cross section of the total Puerto Rican population was available. However, most of the analysis rests on a purposive stratified sample (OPD sample) drawn from visitors to Out Patient Departments of government medical clinics. This stratified purposive sample as well as the sample for the experimental stage is drawn so as to include only rural, low status husband-wife couples married long enough to have proven their fertility and to have faced family growth problems.

The OPD and experimental samples have several limitations which deserve comment. The OPD sample is admittedly neither a probability sample nor a weighted sample of the population which it is supposed to represent. The authors justify this by saying; "at this point we were primarily interested not in the actual quantities (numbers and percentages) but in the interrelationships with antecedent variables. No weighting of the final results to account for the different sampling ratios from strata was attempted." Apparently the authors subscribe to the position that relationships can be studied without the probability samples required for estimating proportions or numbers characteristic of a particular historical population. However, even "basic relationships" also are subject to sampling variability in whatever universe they are presumed to exist. Unless the authors can assume that all the other variables not held constant do not affect the relationships the results will tend to vary with the sample selected, so a probability

² Stycos, J. Mayone: *FAMILY AND FERTILITY IN PUERTO RICO: A STUDY OF THE LOWER INCOME GROUP*. New York, Columbia University Press, 1955, 332 pp. \$6.00.

sample design is just as pertinent for a correlation as for a proportion in a specific population. (The authors recognize this implicitly in applying significance tests to correlations and other measures calculated from the OPD sample.) Without reference to the question of representing the whole Puerto Rican population, if the relationships are presumed to be valid for the particular subgroup of the population studied, the samples should be drawn on a probability basis from this subgroup, however defined. The reviewer recognizes the difficulties in following this rule in a pioneering field study. The authors are probably quite justified in using a purposive sample for exploratory purposes, but its limitations must be explicitly recognized, especially when the words "definitive" and "conclusive" are used with reference to some of the results.

The authors compared the characteristics of the OPD sample and census data and found that the OPD sample was younger, somewhat better educated and more fertile than the census comparison group. However, they conclude that "the differences on none of the parameters are striking nor likely to make unacceptable judicious application of study findings to Puerto Rico as a whole." This may be true, but with a purposive sample it is not clear just how one interprets judiciously the particular deviations that occur. Especially troublesome is the fact that there is no assurance with such a sample that the deviations may not be different in kind or size for the variables that cannot be checked against outside data. Some further uneasiness about the possible selectivity of the sample arises from the fact that the OPD sample has a considerably higher rate of use of contraception and uses more effective methods than a cross section probability sample.

Another technical sampling problem is the use of sampling tests which are based on the concept of a simple unrestricted random sample for clustered, purposive samples. Assuming that the probability assumptions are not seriously violated, the fact that samples involve clustering means that the tests used will tend to exaggerate the level of significance of some of the relationships reported.

A final reservation refers to the universe defined for study rather than the technical problems of sample selection within

the universe. The authors have chosen to focus on low status rural groups for sound reasons: this is the crucial problem group and is a very large part of the Puerto Rican population. However, this design minimizes the possibility of studying broad differences in socio-economic structure as between lower class and middle class Puerto Ricans. The authors conclude at several points that broad structural variables are probably of less explanatory importance than intra-familial organizational variables. But this may be, at least in part, a result of the focus of the sample on low-status families. (The authors, themselves, later use the homogeneity of the sample as one basis for explaining the relatively low multiple correlations achieved).

Turning now to the substantive findings, a very valuable result is the negation of a set of stereotypes about why Puerto Ricans have not effectively achieved their small family ideals: that Puerto Rican males insist on high fertility to demonstrate their virility as part of a cult of "machismo," that the lower classes are ignorant of birth control methods, that the influence of the Roman Catholic Church is a deterrent to effective fertility planning, and that the lower classes really have large family values. The evidence contradicts all of these stereotypes.

Another significant survey finding is that the professed small family ideals are often vague and held with considerable ambivalence. The authors are very ingenious in using measures of inconsistency and ambivalence about family size as a variable. They show with considerable plausibility that the ambivalence is not simply an artifact of the survey method but exists in the groups studied and is genuinely related to ineffective fertility planning.

It is impossible in a review to summarize all of the important and provocative survey findings. The following is a very rough general picture which emerges after many variables are considered: Puerto Ricans have small family values, but these are held vaguely and with ambivalence especially early in married life. Early in marriage knowledge about birth control is either vague or not shared by husband and wife in a way to permit effective joint planning. Modesty on the part of the wife and her respect for her husband together with poor communication between them and other manifestations of poor family organi-

zation result in such a low degree of empathy that even when husband and wife have similar values they may not know that this is true. The couples do not have the kinds of interpersonal relations required for jointly developing and carrying out long range family plans. As a result, the desired family size is likely to be surpassed before the family takes effective action as a unit. In this extremity the emergency action is likely to be sterilization. The late timing of serious consideration of family planning is very important in explaining high Puerto Rican fertility.

The authors believe that the institutions formerly supporting high fertility are no longer operative so that "family planning is neither hindered nor supported by institutional patterns and adherence to cultural norms." Therefore, they conclude that much depends on the individual family and its competence in intrafamilial communication and joint action. In the authors' words: "competence in problem solving in Puerto Rico's changing society rests on a flexible family organization infrequently found in our sample, characterized by full communication between spouses on all key marital issues, close rather than distant relations, freedom of the wife to work gainfully, and to participate socially, and high agreement on the major issues of marriage and parenthood."

The study indeed does provide considerable evidence that intrafamilial organization is related to effective fertility planning. Whether it deserves to have the central position which the authors give it in their explanation of the current situation and in their program for action is difficult to determine from the evidence presented. In the first place, the correlation of the family organization variables with family planning, although higher than for most variables considered, still leaves the greater part of the variance of fertility and family planning unexplained. Secondly, as already noted, the sample design is such as to minimize the possibility of studying broad structural and socio-economic variables. In the third place the authors chose to work with a model emphasizing intrafamilial interaction and minimizing the structure-function approach. Relatively little attention is given to the role of the family in the larger community and society and the possible continuation of

important extended family functions in the lower status group. It is not impossible that the Puerto Ricans have adopted a stereotyped small family ideal before economic and social development of the country has provided institutional substitutes for the large family. The authors are perfectly justified in concentrating on the intrafamilial interaction variables if they wish, and their approach did yield rich results. It is much less certain that they are justified in drawing conclusions about the central importance of the intrafamilial interaction processes when they have such little empirical material on the position of the family in the community and the society.

The reviewer cannot help but wonder whether any of the Western low fertility countries have now or had during their demographic transition (e.g. late Victorian England) the "full communication between spouses on all marital issues" or the "high agreement on the major issues of marriage and parenthood" which the authors see as necessary for effective fertility planning under Puerto Rico's conditions of social change. Perhaps, such perfection is more frequent in the handbooks of marriage counsellors than in the mass of the population of low fertility countries.

The experimental stage of this study is bold, unique, and, in many ways, brilliantly contrived. Briefly, the authors chose a group of low status rural villages and in preliminary interviews selected stratified matched subgroups on the basis of information about family planning, values about family planning, and type of family organization skills. All potential respondents were not regular users of effective birth control methods at the time. One group of villages was set aside as a control. The experimental villages were divided for a variety of treatments. In one group the stimulus was applied entirely by the distribution of pamphlets. In the others the stimulus was a group of three small-groups discussion meetings, involving visual aids, role-playing, and other educational devices. Villages receiving each method of presentation were further subdivided so that the content emphasized values in some, family organization skills in others, and in still others, a combination of the two. In all experimental villages information was given about family planning methods. All families, including the con-

trols, were interviewed before the experiment, one month afterwards, and then a year later to check on the actual fertility. The experimental goal was to induce non-users to begin birth control and irregular users to improve their practice.

In general the pamphlets were most effective in initiating use and small group discussions in improving the level of use. The percentage increase in use and effectiveness in the experiment is remarkably high, reaching 50 per cent in some subgroups.

Even more remarkable is the fact that 24 per cent of the non-users in the control groups reported beginning birth control during the short experimental period. The authors interpret this to mean that many Puerto Rican couples are so "ready" for family planning that even a small stimulus, such as the pre-interview, is enough to "trigger" the action. Another interpretation of at least part of this increase is also plausible, although less favorable to the experiment: some of the couples (both control and experimental) may have learned in the pre-interview what kinds of responses would please the interviewer and then obliged with appropriate responses, in the post-interview. If the couples are so ready that a short non-directive interview will lead them to initiate contraception it is difficult to understand why there has not been more general use of contraception in Puerto Rico in view of the widespread discussion of the problem on the Island and the existence of a network of birth control clinics.

One of the most important conclusions the authors draw from the experimental (and other) data is that relatively small stimuli can lead to the initiation of birth control but that to sustain practice at a high level over the long child-bearing period, persistent supporting pressures and the existence of effective family organization are required.

Difficulties arise in evaluating some of the specific results of the experiment because large numbers of potential respondents in the small group discussion experiments did not attend one or more of the meetings. Only 59 per cent of the men and 40 per cent of the women attended even one of the group sessions and only 8 per cent of the men and 6 per cent of the women attended all three.

In a final chapter the authors present a set of recommenda-

tions for a "crash program" for Puerto Rico to narrow the discrepancy between the actual fertility and the small family ideals. The main features of the program include (1) a massive educational program through health and other agencies to keep the reasons for and the facts about family limitation persistently before the population, particularly in the first year of marriage and after each birth. This recommendation follows from the research finding that persistent stimuli are needed to maintain regular family limitation practices. (2) A program for a very extensive program of training in the skills of family communication and organization through schools and other agencies which reach individuals before and families after marriage. (3) Removal of some of the barriers to utilization of the birth control clinics, discovered in the research. The authors discount as a significant part of such a program major changes in the broader social and economic organization as "neither feasible nor particularly desirable in view of the large scale societal reorganization involved." The reviewer is not convinced that this judgment is correct. He is also dubious that a mass program of education in family living is as easy to carry out as the authors imply.

In a study of the scope of this one it is inevitable that there will be many points at which critical statements are possible and necessary. I have expressed in this review some serious reservations about some parts of the study. The authors have made such criticism possible by a frank and comprehensive presentation of their methods and problems. Field workers will learn much from a careful study of these materials. The great wealth of significant substantive findings will be an important basis for replication and further research.

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