A TIME SERIES OF INSTRUMENTAL FERTILITY VARIABLES

N. B. Ryder
Office of Population Research, Princeton University, Princeton, New Jersey 08544

Abstract—Temporal variations in conventional fertility measures reflect the operation of instrumental variables: quantitative and temporal intentions; success in achieving intentions; and reproductive conditions. A set of such variables is described, using data from the 1975 National Fertility Study. There was a large decline in the number of intended conceptions, a recent large rise in the extent of their delay, a very large decline in rates of failure to delay or terminate fertility, and a very large recent rise in sterilization. But one problem proved important and intractable: When the data source is a cross-sectional survey, the length of open interval is inherently different for real and for synthetic cohorts, it is strongly related to reproductive intention, and that affects the classification of exposure to risk in the open interval.

One distinctive feature of a fertility survey is its rich yield of detailed information about reproductive behavior. With such data it is feasible to develop a system of variables which are instrumental in determining the fertility pattern. In the present report, such a system is described, and used to identify the proximate sources of temporal variation in recent American fertility. In the attempt to accomplish this objective, some major methodological problems are encountered which have implications for the evaluation of other contributions to the subject.

This continues previous work on a model of fertility by planning status, used to examine the time series of American fertility in the light of findings from the 1965 and 1970 National Fertility Studies (Ryder, 1978). The present account, based on the 1975 National Fertility Study, is different in part because the definition of the universe was modified. Respondents in the earlier two studies were all ever-married women below a specified age limit. The 1975 Study consisted principally of reinterviews of a specific subset of women first interviewed in the 1970 Study. The select group were white women in intact first marriages of less than 20 years duration in 1970, married at less than 25 years of age. The survivors of this group were supplemented by comparable representatives of those married for the first time in the five years between the Studies. The characteristics of the sample are discussed elsewhere (Westoff and Ryder, 1977b). Other differences with the previous work, derivative principally from the availability of new kinds of information in the 1975 questionnaire, are specified at appropriate points in the text.

The present work has two obvious advantages over its predecessor. First, restriction of the sample to those in intact first marriages eliminates many difficulties associated with chequered marital careers (admittedly at the price of loss of generality). Second, the most difficult task with the former model was the reconciliation of data produced by two different questionnaires in the construction of a defensible time series. The
present report has no such problem because it is based exclusively on the 1975 questionnaire. Problems of achieving a defensible time series still exist, but they stem from other sources.

Two strategic decisions were made initially concerning the variable to be identified as fertility. Whereas in the previous model, births constituted the basic dependent variable, with the justification that fetal deaths (spontaneous and induced) were considerably underreported, it was decided this time to work with all pregnancies nevertheless, principally because the format for collecting information about reproductive experience is keyed to pregnancy intervals rather than birth intervals.

In the second place, premarital conceptions were excluded from the model. That is a regrettable circumstance, if only because of their frequency; more than one-quarter of the respondents reported that they were pregnant before marriage. Although it is clear that exposure to risk in those cases began before marriage, there is no way of knowing how long before. (It must be admitted that there is also no information on when exposure to risk began for those without a premarital conception.) In the previous model, premarital conceptions were incorporated with an estimate of the aggregate extent of premarital exposure to risk. Although the results appeared plausible, the assumptions on which they were based would not really bear scrutiny. It is some consolation to report that the role played by this component in the previous model was insignificant.

CODING OF INTENTION

The raw materials for the model require categorization of the respondents’ conceptions and exposure to the risk of conceptions; the most important component of that categorization is the classification by intention. For pregnancies, the key question in making the distinction was the following: “Think back to just before you found out you were pregnant again. At that time did you and your husband intend to have any more children eventually or did you intend to have no more children?”

For exposure to risk, the problem is much more complex. In previous studies, the intention associated with exposure to risk was presumed to be satisfactorily identified by the intention determined for the conception which ended an episode of exposure; for the open interval (subsequent to the last conception), intention was determined as of interview. Because of an interest in the subject of change of intention throughout the life cycle, and also because of concern that the frequently lengthy open interval was in danger of being misclassified by the practice previously followed, a concern that proved to be amply justified, the 1975 questionnaire was expanded to include questions on reproductive intention as of the beginning of each closed interval (as well as at its end) and as of the beginning of the open interval (as well as at its end). The outcome of that exercise is reported here.

Before discussing those results, a prior problem requires solution. It was decided to simplify the procedure by allocating all respondents (to any particular question about intention) either to MORE or NOMORE, and eliminating the noncommittal alternative (undecided, no answer, don’t know, and so forth). The respondent was asked about reproductive intention as of a series of junctures in her history. The question was asked for the beginning as well as the end of each closed interval; the proportion of responses noncommittal was 3 percent and 4 percent respectively. Those proportions are too small for independent analysis, and too small to affect appreciably the results for the unequivocal respondents. Intention, since it is a prediction, inevitably is associated with uncertainty even for the time of interview. For prior time, there are problems of recall, quite aside from rationaliza-