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HAVING CHILDREN: A STUDY OF WHITE AMERICAN
WIVES' FERTILITY IN THE EARLY 1970'S

DISSERTATION

Presented in Partial Fulfillment of the Requirements for
the Degree Doctor of Philosophy in the Graduate
School of The Ohio State University

By
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* * * * *

The Ohio State University
1980

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To friends and family.
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CHAPTER ONE

INTRODUCTION

Twenty six years ago Mishler and Westoff observed that

Each birth occurs in and is influenced by a different set of circumstances. These circumstances reflect and are composed of changes in the family as a group, in its members, and in the social structure of the family. . . . Each birth is assumed to alter the family's situation and so affects the probability and timing of future births (1955:124-125).

This implies that different factors may affect a woman's future fertility depending on how many children she already has. Yet, very little work has been done to explore which factors have what effects on future fertility given the number of children a woman has. This dissertation tests a number of hypotheses about what factors affect a wife's future fertility given the number of children she has. More specifically, this dissertation seeks to explain variation in the number of children born to young white American wives between 1971 and 1975. Determinants of birth probabilities are examined among women at different parity levels: those who had no children by 1971, those who had one child by 1971, and those who had two children by 1971.
The Organization of This Study

This study is organized into five chapters. The first chapter introduces the problem to be studied and outlines the subjects covered by the second through the fifth chapters.

Chapter Two

Chapter Two reviews the literature on fertility. The literature is summarized as reflecting four perspectives on the determinants of fertility: economic, normative socialization, family structure and world-view, and demographic. Within each perspective the arguments of the perspective are presented and criticized. The supporting and/or disconfirming evidence concerning the arguments is also presented. A hypothesis or hypotheses are then stated.

Four hypotheses were developed from the economic perspective and the critical literature and evidence concerning it. Based on the criticism of the classical and "new home economics" model of fertility, I hypothesize that the husband's income has no direct effect on his wife's subsequent fertility regardless of the number of children the wife initially had. One of the early responses to criticisms of classical market model hypothesized that the important economic determinant of
fertility was the husband's life time or potential income over the childrearing years, not the husband's current income (Mincer, 1962, 1963). Another response to the criticisms of the classical market model hypothesized that the husband's income relative to other men of a similar status is the important economic determinant of the wife's fertility (based on Easterlin, 1969, 1973). However, the relative income of the husband does not necessarily coincide with the couple's perceptions of the adequacy of that income. Consequently, I hypothesize that the wife's perception of the adequacy of income provided by the husband's job has a positive direct effect on her subsequent fertility. A fifth hypothesis—that the greater "opportunity cost" of children to a wife will lower her subsequent fertility—is not tested because no adequate measure of "opportunity cost" has been developed. (For a discussion of difficulties with current measures see Bagozzi and Van Loo, 1978, and Gronau, 1973.)

Seven hypotheses from the normative-socialization perspective are tested. The central argument of the normative-socialization perspective is that wives have different numbers of children as a consequence of what they believe is appropriate behavior for women. Sociologists have interpreted the well-known inverse relationships
between social class and fertility and between education and fertility as reflecting the effects of differential socialization experiences. I argue that the relationship between employment and fertility may be interpreted in the same way. Middle class, well educated and working women are more likely than other women to feel that it is appropriate for a woman to pursue her own, nonfamilial interests (e.g., Macke et al., 1978; Rainwater, 1960; Scanzoni, 1975). Similarly, the positive relationship between Catholicism and fertility has been interpreted as reflecting the greater integration of women into the traditional roles of mother and wife (e.g., Westoff and Potvin, 1967). With the rise of the women's movement in the early 70's, researchers were more inclined to measure the sex role traditionality directly rather than relying upon an increasingly poor set of proxies. Because sex-role nontraditionality is at the core of the interpretation of the relationship of fertility with employment, social class, education and Catholicism, the following hypotheses are made. The greater the sex-role nontraditionality of the wife—i.e., the more she sees work as a legitimate pursuit—the fewer births she will have between 1971 and 1975. Because sex-role nontraditionality is directly measured, I expect it to have a negative direct effect on the wife's subsequent fertility and I expect
social class, the extent of the wife's employment, her education and her Catholic status to have no direct effect on fertility.

Although roles are not enacted in isolation, it is difficult to determine how the wife's normative expectations of her husband may influence her fertility. Based on Scanzoni's (1975, 1976a) evidence concerning birth intentions, I hypothesized that the more the wife expects her husband to be involved in the family and to support her pursuit of her nonfamilial interests, the greater will be her subsequent fertility.

The last hypothesis tested from the normative-socialization perspective concerns the relationship between the wife's "behavioral intentions" about childbearing and her actual fertility. Fishbein (1967) argues that the intention to behave in a particular way determines the actual behavior observed. Therefore, I hypothesize that the greater the number of (additional) children the wife intends to have in 1971, the greater will be the number of children born to her between 1971 and 1975. No one to my knowledge has tested this hypothesis before.

All of the hypotheses from the normative-socialization perspective are expected to hold regardless of the wife's parity level.
Three hypotheses from the family structure and world-view perspective are tested. Rainwater (1960) argues that the greater division of labor in a family reduces the primary ties between husband and wife. This "lack of closeness between husband and wife sometimes serves to delay family planning until the stage of desperation and to interfere with smoothness in executing plans to limit the family size once some decision has been made" (Rainwater, 1960:70). Therefore, I hypothesize that the greater the companionship the wife feels with her husband, the fewer children she will subsequently have. I expect this hypothesis to hold most strongly when the wife has had no children because companionship is mostly strongly related to consistent use of contraception among these women. Almost all wives eventually become consistent contraceptive users.

The second hypothesis is also based on Rainwater's (1960) work. Fatalistic people do not believe that they can influence the course of their lives, and therefore they do not try. This fatalistic world-view, as applied to fertility, creates a self-fulfilling prophecy. Therefore, I hypothesize that the more fatalistic the wife is about her ability to control her fertility, the more children will be born to her. I expect this hypothesis to hold most strongly among wives with no children because
contraceptive efficiency improves dramatically after a number of children have been born (Bumpass and Westoff, 1970b).

Although Rainwater (1960, 1965) made no hypothesis about the relationship between equality of decision-making and fertility, a number of scholars argue that the wife's equality with her husband reduces her fertility (e.g., Dixon, 1975; Rosen and Simmons, 1971; Weller, 1968). The obvious hypothesis is that husband dominance increases the number of children born to the wife.

Four hypotheses from the demographic perspective are tested. The age of the wife is hypothesized to have a negative direct effect on subsequent fertility because older wives are more likely to have completed their family function at each parity level than are younger wives (Hout, 1976). The length of time the wife has been married is hypothesized to have a negative direct effect on fertility for the same reason. The age of the last child may be positively or negatively related to the number of children born to the wife, depending upon whether she is still forming her family or completing it, respectively. This hypothesis is tested only among wives who have had one or two children. The last hypothesis from the demographic perspective tests for the effect of the absence of male children. Past evidence on the question of sex
preference and fertility has been contradictory. Clare and Kiser (1952) concluded that sex preference was an unimportant determinant of fertility. Pohlman (1969) concluded that absence of male children hastened the arrival of a second child and increased the probability of a third child—in hope that the child would be a boy. However, the absence of male children may not be sufficient motive for subsequent fertility for the general population, and sex preferences may have declined. Therefore, among wives with children, I hypothesize that the absence of male children has no effect on fertility.

Chapter Three

Chapter Three describes the sample used to test the hypotheses, discusses the construction of variables and the verification of indexes, states the operational forms of the hypotheses, and discusses the techniques of data analysis.

The sample consists of 282 young white wives who lived in 10 major metropolitan areas. Data were collected from these respondents in 1971 and 1975. In 1971, all of the respondents believed that it was possible for them to bear children. Although the respondents in this sample were not selected by a simple random procedure, I argue that the sample is nationally representative of these women.
The variables were operationalized in familiar and straightforward ways. For example, the education of the wife is operationalized as the highest grade completed. Scores on indexes—such as, the sex role nontraditionality of the wife, the sex role nontraditionality she expects of her husband, and the companionship she feels with him—were computed by summing the scores on individual questions. The validity and reliability of the indexes are assessed found acceptable.

The multiple regression approach to the analysis of covariance is used as the technique for hypothesis testing because it is the only practical way to simultaneously test each of the hypotheses from all of the perspectives. Care was taken to make sure that the important assumptions of multiple regression and the analysis of covariance were met (see Kmenta, 1971; Neter and Wasserman, 1974).

Each of the hypotheses is tested three times (unless it is a special hypothesis such as those concerning the sex of children and the wife's subsequent fertility). For example, I hypothesized that the husband's income would have no direct affect on his wife's subsequent fertility regardless of the number of children she already had. In operational terms this means that I expect the regression coefficient for the effect of the
husband's income on the number of children born to the wife between 1971 and 1975 to be statistically insignificant among those wives with no children by 1971, among those wives with one child by 1971, and among those wives with two children by 1971. As a second example I hypothesized that among wives with fewer than two children the husband's relative income would have a positive direct effect on his wife's fertility. I hypothesized that among wives with two children the husband's relative income would have no effect on the wife's subsequent fertility. In operational terms this means that I expect the regression coefficient for the effect of the husband's relative income in 1970 on subsequent fertility to be statistically significant and positive among wives with fewer than two children. Among wives with two children I expect the regression coefficient to be statistically insignificant.

Chapter Four

Chapter Four reviews the results of the tests of hypotheses. The most interesting result of this study is that different variables have different effects on subsequent fertility depending upon the number of children the wife already has. This is as Mishler and Westoff (1955) and Namboodiri (1972) had predicted.
Fertility among wives with no children was affected by the wife's sex-role nontraditionality, her fatalism about her ability to control her fertility, the companionship she feels with her husband, and her age. Sex-role traditional, fatalistic, alienated and younger wives had more children between 1971 and 1975 than did other wives. These effects were expected. The remaining variables had no effects on fertility.

Fertility among wives with one child was affected by the husband's potential lifetime income and his relative income, the wife's sex-role nontraditionality, and the age of the last child. Wives whose husbands had greater potential lifetime incomes and greater relative incomes, sex role traditional wives and wives with a young child had more children between 1971 and 1975 than did other wives. Only the effect of the husband's potential lifetime income was unexpected. The remaining variables had no effects on fertility.

Fertility among wives with two children was affected by the stated intentions of wives to have additional children, the companionship wives felt with their husbands, the wives' perceptions of the adequacy of their husbands' incomes, the sex-role nontraditionality which wives expected of their husbands, and the wives' education. As I expected, wives who intended to have more children
actually had more children than wives who did not intend to have more children. The surprising thing about fertility among wives with two children was that the remaining four variables had curvilinear effects on fertility. Wives with at least some college and wives without a high school education had more children than wives with a twelfth grade education. Wives who are very satisfied with their husbands' incomes and wives who are not satisfied with their husbands' incomes had more children than wives who are merely satisfied with their husbands' incomes. Wives who held very traditional and nontraditional expectations of their husbands had fewer children than wives with moderately traditional expectations of their husbands. Wives who felt close, primary ties with their husbands and wives who felt alienated from their husbands had fewer children than wives who felt only moderately close to their husbands.

Most of the effects indicate bases for decision-making about fertility. The exceptions to this statement—the effects of fatalism, companionship, the wife's age and the age of the last child, among wives with fewer than two children—indicate that fertility may not be a function of decision-making.

The results of the tests of hypotheses have implications for the perspectives from which they were
developed. I concluded that the economic perspective is largely unsupported because the husband's income is never significant, and the husband's relative income and his potential lifetime income are relevant only in hastening the attainment of the two-children-per-family norm. The significance of perceived income adequacy occurs only after the wife has two children. It can not be interpreted in strictly economic terms because those wives who are dissatisfied with their husbands' income have as many children as those wives who are very satisfied, and both have more children than those wives who are merely satisfied.

The normative-socialization perspective is largely confirmed. The sex role nontraditionality of the wife has its expected negative effect when the wife has fewer than two children, and the behavioral intention of the wife has its expected positive effect when the wife has two children. The negative effect of very traditional and very nontraditional expectations of the husband is interpreted as consistent with Rainwater's (1965) observation that both wives who found outside employment gratifying and wives who found homemaking responsibilities demanding preferred smaller families. The background-status variables of the wife—her employment, the social class of her husband, whether or not she is Catholic and
(with the exception of wives with two children) her education—had no effect on her fertility, as expected.

The family structure and world-view perspective has some support. Fatalism and the companionship index have their expected positive effects when the wife has no previous children by 1971. These two effects were expected to be strongest at the lowest number of previous children. The emergence of a curvilinear effect of companionship when the wife has two children is unexpected, but is consistent with Rainwater's (1965) conclusion that alienation has a curvilinear relationship with fertility. The degree of husband dominance is unrelated to the wife's subsequent fertility. Although this finding may indicate that fertility is generally not the result of a power struggle which the wife loses, it may also be the result of an inadequate measure of husband dominance.

The demographic control variables were largely irrelevant to the explanation of fertility. The absence of male children has no effect on fertility. The two variables which were relevant—the age of the wife when she had no children and the age of the child when she had only one child—were interpreted as indicating that the passage of time has a negative effect on fertility.
Chapter Five

Chapter Five summarizes the results of the study, suggests possibilities for future research and discusses the implications of the results for population growth, society and the status of women.

One obvious recommendation is to repeat this study with a larger sample size. The small sample I used is very sensitive to problems with linearity. A larger sample would be less sensitive and would provide a more solid basis for generalization. This study makes a contribution testing a number of hypotheses simultaneously. However, another study might include additional hypotheses about the effects of religiosity, variations in self-concepts and the use of daycare centers which were not tested here because of insufficient information. Similarly, the relationship of fertility with sex-role nontraditionality and other aspects of employment (such as the ease of entry to particular occupations) deserves further analysis.

Beyond these methodological recommendations there are a number of other areas where a study like this one could be conducted. The inclusion of older women and women who had reached the third and fourth parity would allow broader generalizations, and may lead to the discovery of new generalizations or the further validation
of tendencies discovered here. Parity-specific models of fertility could be built and tested among Black and Hispanic women. However, it would be wise to do an exploratory, qualitative analysis aimed at the discovery of variables which may be peculiarly relevant for these women before proceeding with a quantitative test of hypotheses. Ultimately, the analysis of fertility should include data from men as well as women—particularly if the relationship of power with fertility is to be adequately analyzed.

I concluded that population growth due to fertility would continue to decline because of increasing levels of sex-role nontraditionality and the passage of time. Both of these trends originate in the increasing labor force participation of wives. (Employed wives are more likely to be sex-role nontraditional, marry at an older age and space the birth of children over a longer time than wives not in the labor force.) The possible emergence of a two-children-per-family norm and decline of the pronatalist norm may also contribute to a decline in fertility.

A lower rate of population growth would make environmental problems (particularly those associated with land and water use) easier to deal with. Less money would be spent on education and other youth-related goods
and services, and youth-crimes would decline. Last, smaller family sizes may give women more power vis-a-vis their husbands because they will be more able to seek employment and will be less dependent on their husbands for support.
Notes for Chapter One

1 The use of the word "fatalism" throughout this dissertation refers to the wife's belief that she cannot control her own fertility. It does not refer to anything else.

2 If the last child was adopted, its age is defined as the length of time it has been living with the woman.
CHAPTER TWO

LITERATURE REVIEW

The literature on fertility is extensive, but it can be usefully summarized as reflecting four main perspectives: economic, normative-socialization, family structure and world-view, and demographic. The economic perspective may be divided into specific models.

The Economic Perspective

Economic studies of fertility are not all the same. Specific models of fertility make different assumptions about the nature of fertility, although the predictions based on these assumptions are usually the same.

The Classical Market Model of Income and Fertility

The classical market model of fertility assumes that children may be thought of as economic goods which are "purchased" and "consumed" by parents. Such "consumption" is determined by prices of child-competing
and child-related goods and services, the income available to the family, and the family's "tastes" for children and other goods and services (Becker, 1960; Ferguson and Maurice, 1974). Although other hypotheses may be derived from the formulation above, the principle hypotheses of interest is the relationship between income and fertility: the greater the income of the family, the greater the number of children demanded. Economists believe that as income increases, people want to buy greater quantities of goods which they desire.

The early empirical studies had shown a negative relationship between income and fertility (e.g., Whelpton and Kiser, 1950), a finding which does not support Becker's hypothesis. To account for the inverse relationship, Becker (1960) introduced the concept of child quality. "Quality" referred to the price of goods and services consumed by the child. Goods of higher quality cost more than goods of lesser quality. Parents were hypothesized to face two choices: they could spend their income to obtain fewer children of higher quality, or they could purchase more children of lesser quality. If x number of dollars will bring a person greater satisfaction from a smaller number of higher quality goods than from a larger number of lower quality goods, then a person will buy the smaller number of higher quality
goods. Becker and Lewis (1973) argue that this assumption is necessary to derive the observed negative relationship between income and the number of children. In other words, Becker (1960) argues that the rich simply buy a few high quality children.

The "New Home Economics" Model of Income and Fertility

The new home economics model treats children as the output of a home production function, not as consumer durables which are purchased (e.g., Willis, 1973). As income rises, the couple can "afford" more children because they "afford" more of the market goods which go into the production of children. In particular, the wife may be able to take the time for "home production." The psychological satisfaction from childrearing is what is "consumed."

As with the classical market model of fertility, couples are hypothesized to face a trade-off between the quantity and quality of children. The classical market model argues that child quality is a function of the price of goods and services. However, the new home economics model argues child quality, like the number of children, is an output of the household production—a function of the time and market goods which are used to
produce. What the parents gain from the output is the psychological satisfaction of a quality product.

**Criticism of the Classical Market Model of Income and Fertility**

Criticisms of the classical market model of fertility began as soon as it appeared. The criticisms are organized around the assumptions of the model. Empirical evidence testing the hypothesis that greater income leads to greater fertility is presented later.

Becker (1960) assumed that parents of all levels of income faced equal prices for child-related goods. This may be inaccurate. Duesenberry (1960) and Okun (1960) pointed out that Becker has over stated the freedom of choice parents have regarding childrearing decisions. For example, if the parents live in a Fifth Avenue penthouse, they can not send their child to live in Harlem.¹

Becker (1960) explicitly assumed that children could be treated as if they were consumer durables. Judith Blake (1968) has noted that this analogy is not useful for several reasons: the demand for children is not under monetary control—there is, in fact, public support for family values over and above economic rationality; a child can not be sold or exchanged for another good; no one can control the "type" of child or assure any of
its qualities; a child can not be overworked, neglected or allowed to fall into disrepair without risking some attention from the police or court. No child has ever been repossessed. In short, the decision making freedom of parents regarding expenditures on child-related goods and the treatment of their children is normatively circumscribed.

The assumption that children are consumer durables implies other economic assumptions, such as the existence of a market and prices. Economists have noted that these would be difficult to find. Having and raising children are "non-market activities in which there are few trans-action prices to provide information . . . about the cost of children . . . or the value of children to suppliers. Parents are both demanders and suppliers of children" (Willis, 1973:S16). A classical market in which "suppliers" and "demanders" meet to exchange goods and services for money simply does not exist for children. For this reason, one does not see any bargaining procedure used, no exchanges of money and goods take place, no comparison is made between the price of children and the prices of other goods, and no comparison between prices and quality is possible (Leibenstein, 1974). If these are observed, they are illegal.
Above and beyond the nonexistence of prices and a market, there is still a problem with the application of supply and demand framework. The number of children a wife has borne often exceeds the number she desired at a previous time (Bumpass and Westoff, 1970a; Cochrane and Bean, 1976; Ryder and Westoff, 1971). Supply often exceeds demand.

A key assumption of microeconomics theory is that individuals rationally seek to maximize a utility function given limited resources. This implies that people have definite goals which they seek to achieve. It is questionable to assume that people have definite fertility goals in mind. Turchi (1975) concluded that couples do not have precise fertility goals. It is also questionable to assume that the husband and wife have a single utility function which is maximized (Bean, 1975; Cochrane and Bean, 1976). On the other hand, the husband and wife may arrive at a single utility function regarding the next child which they are considering having.

Because most fertility studies have used either completed family size or the total number of children the wife expects to bear as the operational measure of fertility (Bagozzi and Van Loo, 1978), a static model of decision making is assumed. This does not seem realistic
because it does not allow for sequential decision-making (children usually are born one at a time), new information, or changing one's mind (Namboodiri, 1972).

Some fertility studies have used current income received as the operational measure of income. Although fluctuations of current income may affect the timing of births (Okun, 1960), the anticipation of long-run income level may affect the number of births (Mincer, 1962, 1963).

Finally, the concept of child quality can be criticized. Becker's approach assumes that the quality of an item is a function of its cost (quality items cost more), and that the satisfaction derived from an item is in turn a function of the quality of an item (quality items are more satisfying). However, a particular item which satisfies one parent may provide no satisfaction—or even dissatisfaction—for another parent. Assuming that parents seek to maximize their satisfaction, then one would expect them to alter the composition of the child's consumption basket to provide for their maximum satisfaction. Different kinds of items (ballet lessons versus summer reading programs versus summer camps) have different costs. Therefore, the total cost of items for the child which maximizes the parent's satisfaction is not comparable between parents. Parents with the same
income and same expenditures on children may have varying levels of satisfaction because of the different mix of items purchased. Parents with the same satisfaction levels may vary with regard to their income and/or expenditures on children. Because parents have different tastes (i.e., different ideas about what is satisfying), it is questionable to link the maximization of their satisfaction to child quality and income levels. (See Okun, 1960, for a similar but more technical argument.) And since it is questionable to link income, satisfaction and quality to one another, it is therefore questionable to posit that parents face a trade-off between child quality and the number of children, or that a preference for greater quality may account for the negative relationship between fertility and income.

**Criticism of the "New Home Economics" Model of Fertility**

The approach of the new home economics model overcomes some of the criticisms of the classical market model. By treating fertility as part of a home production function, the new home economics avoids the criticisms of an implied market for and prices of children, the fact that parents are both demanders and suppliers of children and the treatment of children as consumer durables.
However, the new home economics approach uses some of the same questionable assumptions as the classical market model: rationality, specific fertility goals, maximization of a single utility function, the problem of supply frequently exceeding demand, and static, one-time-only decision making. The new home economics may be criticized for the use of these assumptions just as the classical market model has been criticized.

In addition, the new home economics may also be criticized for its use of the distinction between child quality and the number of children. The criticism must take a different form, though, because child quality is no longer assumed to be a function of the composition of the child's consumption basket, but as an output of home production.

If childrearing is part of home production, then it is a nonmarket activity and the returns to the parents from it—especially the psychological satisfaction—are not measurable (Turchi, 1975). He continues: "Nor is it sufficient to express child quality as an aggregate of narrowly defined personal characteristics ... even if it were possible to measure the characteristics objectively, the weights utilized to construct the aggregate index of child quality must be derived from the couple's preference orderings of the various characteristics, and there is no guarantee that the couples will
agree in ranking them" (Turchi, 1975:66). Furthermore, no one assures the quality of the product (Blake, 1968).

Finally, there is some empirical evidence which assesses the belief of the new home economists that parents face a trade-off between a small number of high quality children and a larger number of lesser quality children. Turchi (1975:43) maintains that his national survey shows that 71% of the husbands and wives were unlikely to consider such a trade-off.

For these reasons, no further consideration will be given to the concept of child quality.

Evidence Concerning Income and Fertility

The evidence testing the hypothesis that income is positively related to fertility is mixed, but largely the opposite of the direction expected. Although Becker (1960) believed that the data he presented supported his hypothesis, Blake (1968) argued that they were biased or irrelevant, and presented evidence which would not support it. A number of areal analyses by other scholars have supported the hypothesis (Cain and Weininger, 1973; DeFronzo, 1976; DeTray, 1973), but only one study of individuals (Thornton, 1979) has supported the hypothesis. There are more individual and areal studies which do not support the hypothesis (Bahr... et al.,
1975; Bean and Wood, 1974; D. Freedman, 1963; Freedman and Coombs, 1966b; Okun, 1960; Ryder and Westoff, 1971; Scanzoni, 1975; Tomasson, 1966; Turchi, 1975; Willis, 1973; Waite and Stolzenberg, 1976). Parity-specific analyses of the relationship between the husband's income and the wife's fertility provide evidence which appears to give partial support to the hypothesis. A few studies have found that the greater the husband's actual or projected income is, the greater is the wife's chance of having (or expecting) the first, second or third child. Beyond that, greater income levels of the husband usually reduce the probability of having (or expecting) subsequent children (Bean and Wood, 1974; Bernhardt, 1972; Hout, 1976, 1978; Namboodiri, 1974; Simon, 1975). This partial support, though, is more apparent than real. The concept of diminishing marginal utility implies that an increase in the husband's income should increase the probability of having another child much more when, say, the wife already has three children than when she has no children. Simon (1975) found that wives did exactly the opposite of this prediction.

Nor is it possible to argue as some have (e.g., Hout, 1976; Namboodiri, 1972) that parents with greater income prefer other material goods instead of children,
and therefore substitute them for children, thus leading to a negative relationship between income and fertility at higher parity levels. Freedman and Coombs note that "The plausibility of this interpretation is reduced by our finding that the proportion of wives dissatisfied with the timing of their births increases rapidly as the interval between marriages and successive births decreases" (1966b: 648). Similarly, Polgar and Hiday (1974) found that there were no differences in the ownership of selected consumer durables at the end of their study between those who had a child during the study and those who did not.

In summary, the parity specific studies reveal that the husband's income may have an effect on the wife's fertility, but that effect can not be interpreted in economic terms. (Other interpretations of the effect of the husband's income on subsequent fertility are discussed below.)

Hypothesis

None of the studies listed above have tried to predict actual fertility of the wife subsequent to measurement of income while controlling for her previous fertility. Based on the criticisms cited above—particularly those concerning the freedom of choice of parents (Okun, 1960), the temporary nature of current income (Mincer, 1962, 1963), and the maximization of a utility function (Bean, 1975)—I hypothesize that the husband's income will be unrelated to wife's subsequent fertility at all levels of her previous parity.
Mincer (1962, 1963) made the first attempt to improve on the classical market model of fertility. His suggestions had the effects of refining the operational measures of income and adding an additional hypothesis. First, he suggested that the families' permanent (i.e., long-run anticipated) income influenced fertility decisions. The concept of permanent income is consistent with the realization that children will have to be supported for a number of years. "Furthermore, this concept of 'permanent' income is also consistent with behavioral research showing people to be purposeful decision makers who not only respond to immediate events [e.g., changes in current income], but who also actively plan, alter, and anticipate change in their circumstances" (Bagozzi and Van Loo, 1978:202).

Second, Mincer suggested that the cost of a child includes not only money spent for goods and services consumed by the child, but the opportunity cost of the wife (e.g., wages she may forego) if and when she drops out of the labor market to care for a child.

These two suggestions lead to the separation of the husband's income from the wife's income (this has been
incorporated into the hypothesis stated above) a focus on the long-run income prospects of the husband, and consideration of the effect of an alternative reward which the wife foregoes.

Criticism of the Husband's Permanent Income and Wife's Opportunity Cost Approaches

Mincer's suggestions have refined the classical market model of fertility, but the assumptions criticized above—those of rationality, planning, specific fertility goals, prices of children—remain. In particular one must now assume that the birth of a child means that the wife will drop out of the labor force, and that the wife perceives the loss of income (if she stops working) as a cost. Although many women do stop working for a while just before and after the birth of a child (Shapiro and Mott, 1977), they are returning to the labor force much sooner than previously was the case (U. S. Bureau of the Census, 1975; U. S. Dept. of Labor, 1973, 1975). It is an empirical question whether or not a woman perceives childrearing (in lieu of a job) as a cost and whether she acts on that perception in the process of family formation (Turchi, 1975).
A number of studies have shown a negative relationship between the wife's income (her opportunity cost) and her fertility (Bumpass, 1977; Cochrane and Bean, 1976; Deimling, 1976; DeFronzo, 1976; Cain and Weininger, 1973; D. Freedman, 1973; McMurry, 1975; Reed and Udry, 1976; Ross, 1976; Mincer, 1963; Gronau, 1973; Mincer and Polachek, 1974). However, one must be careful when interpreting these findings. These studies were cross-sectional, using the wife's current income and current or expected family size. None predicted fertility at some future point. It is therefore possible that fertility may be the causal variable, such as when studies use current family size, or that there is a reciprocal relationship. Hout's (1976) study showed that the wives' income reduced their fertility only after they had two children.

A second problem with the evidence supporting the negative relationship between the wife's income and her fertility is that it can properly apply only to those women who are employed. If one tries to include unemployed women by treating them as having an income of zero dollars per year, then one confounds the effects of the wife's
income with the possible effects of the wife's employment because income and employment are highly correlated. (See the section on employment below.) Neither can one use a measure such as the potential income of the wife—the income the wife would probably be earning if she were working:

one has to reject the underlying assumption concerning the lack of difference between working and nonworking [wives] with the same [socioeconomic status] characteristics. The mere fact that they differ in their labor force behavior indicates that there are some fundamental differences between the two groups, and there are good reasons to suspect that these differences may be related to the price women assign to their time (Gronau, 1973:S175-S176).

In other words, women place different values on the possibility of earning income.

Thus, if one wishes to measure the opportunity costs which a woman incurs by not working, one must turn to other operational measures. If these can not be found, then the hypothesis may not be testable.

Very few studies have tried to operationalize permanent income and test its relationship to fertility. Those few have met with little success, because the hypothesis was not supported (Turchi, 1975; Willis, 1973). Hout (1976) used the husband's education as a proxy for permanent income with some success.
Hypothesis

On the basis of the criticisms and evidence presented above, one hypothesis will be tested: the husband's potential income will have no direct effect on the wife's fertility.

Responses to Criticisms of the Income-Fertility Model: Relative Income

Easterlin (1969, 1973) has tried to bridge the gap between economic and sociological perspectives on fertility by subsuming the normative perspective of sociologists under the economist's concept of tastes. Tastes are individuals' preferences for some goods and services versus other goods and services, and are presumed to affect levels of consumption of a particular good or service (Ferguson and Maurice, 1974). Easterlin's papers focused on the "baby bust" of the late 1960's and the 1970's, explaining it as the result of relative income deprivation of young married couples in comparison with the experiences of their parents. As children of prosperity in the late 1940's and 1950's they acquire a taste for their parents' standard of living, and, unwilling to relinquish it as adults, they preferred to reduce their "consumption" of children.
Relative income, then, is intended to assess the meaning of income in comparison with the standards of particular reference groups. Other researchers have adopted the concept for their own purposes, selecting different reference groups, such as those based on similarities of age, education, occupation, race, religion, residence (or combinations such as age and social class), or the standard of living one desires. By comparing a respondent's income level with the income level of others in that category, one may proxy class and status related norms surrounding childbearing and rearing. One may then observe the effect of class and status related differences in expenditures on children as well as how many children one may "afford."

Criticism of the Relative Income Approach

Although the relative income approach further refines the classical market model of fertility by accounting for normative restraints associated with particular groups, it does not really assess the meaning of a particular income level for a particular individual, nor does it give any clue to the impact that an assumed reference group has on any particular individual's
behavior. Furthermore, an individual may belong to several reference groups, each with differing standards and expectations. The definition of relative income may incorporate one or all of these groups, but then again, it may not. In short, relative income is a very crude measure of the subjective meaning of a given level of income to a particular individual.

A more accurate assessment of the meaning of a particular income level for a particular individual could be obtained simply by asking the individual how adequate is his or her income. Hoffman (1963) suggested that investigators focus on the perceived need for income and the relationship of that perception with fertility.

Evidence Concerning Relative Income and Perceived Income Adequacy

Given the variety of operational definitions of relative income, the results of studies may not be strictly comparable. Indeed, relative income has predicted fertility inconsistently. Freedman (1963) found that the relative income of the husband was positively related to the number of children in the family among couples who had been married for 10 or more years. Reed et al. (1976) found a general, positive relationship between relative
income and family size. Bahr et al. (1975) found a positive relationship between the husband's relative income and the couple's fertility among families with three or fewer children, and a negative relationship among couples with four or more children. DeFronzo (1976) and Bean and Wood (1974) found the husband's relative income to be unrelated to the number of children in the family. Rosenberg (1972) concluded that there was a weak, positive relationship.

The results are just as varied when the evidence from parity-specific studies is reviewed. Bean and Wood (1974) and Hout (1976) noted that the husband's relative income was almost entirely unrelated to a couple's parity progression. However, Bernhardt's (1972) tables show a slight positive relationship between relative income and the attainment of the first two births, no relationship with the third birth, and a negative relationship with the fourth and higher order births.

Very little work has been done to test the relationship between perceived income adequacy and fertility. If there is an economics-of-perception, so to speak, then one might hypothesize that the greater the perceived adequacy of income, the greater the fertility of the wife. In a rare, longitudinal study of income and actual, subsequent fertility, Freedman and Coombs (1966a) found this
to be true only among couples whose income was greater than $7000 per year. Among couples whose income was less than $7000 per year perceived income adequacy was negatively related to subsequent fertility. Scanzoni’s (1975) cross sectional study found that white Catholic wives who were satisfied with their economic situation had and expected to have more children than other wives.

**Hypotheses**

On the basis of the evidence reviewed concerning the husband's relative income, the following hypothesis will be tested. The husband's income relative to those other husbands in the sample who have similar educational levels, ages and social class will be positively related to his wife's fertility only when her previous fertility is zero or one. It will be unrelated to his wife's fertility when her previous fertility is two children.

On the basis of the criticisms of the concept of relative income the following hypothesis will be tested. The more adequate the wife perceives her husband's income to be, the greater her fertility will be regardless of her previous parity.
The Normative-Socialization Perspective

This perspective includes all of the fertility studies which have tried to explain a woman's fertility on the basis of her labor force participation (such as how long she has worked or whether she works for enjoyment or for the money), her social background (such as education, religion or social class) and her attitudes (such as sex role nontraditionality and behavioral intentions). The fertility differentials between women from different backgrounds have been interpreted as indicating (one way or another) different norms about family formation, childcare, and appropriate behavior for wives with regard to children and husbands. Although fertility differentials by employment characteristics have not been interpreted as indicating different norms concerning the role of the wife and family formation, I argue that such interpretations are possible. The literature about attitudes and fertility represents a more recent and direct attempt to assess the impact of norms. The literature on employment and fertility is reviewed first. The review of the literature on social class, education, religion and sex roles follows.
Employment and Fertility

The inverse relationships between aspects of labor force activity (full-time employment, percentage of married life in the labor force, labor force participation plans, etc.) and aspects of fertility (average family size to date, number of children expected, number of children desired, additional children intended, the spacing of births, etc.) has been widely documented (Anderson, 1977; Blake, 1965; Blomberg, 1977; Bowen and Finegan, 1969; Bumpass, 1977; Bumpass and Westoff, 1970b; Cain and Weininger, 1973; Clarkson et al., 1970; Davis, 1967; Day and Day, 1969; Dejong and Sells, 1977; Dixon, 1975; Freedman, 1963; Freedman and Coombs, 1966b; Freedman et al., 1959; Groat et al., 1976; Hass, 1972; Hout, 1976, 1978; Janowitz, 1976; Kupinsky, 1971; McLaughlin, 1974; Namboodiri, 1964; Pratt and Whelpton, 1956; Ridley, 1959; Rosenberg, 1972; Rosen and LaRaia, 1972; Ross, 1977; Reed and Udry, 1973; Ritchey Stokes, 1974; Ryder and Westoff, 1971; Safilios-Rothschild, 1969; Scanzoni, 1975; Stolzenberg and Waite, 1977; Shortlidge and Kohen, 1975; Styczos and Weller, 1967; Sweet, 1973; Tomasson, 1966; Turchi, 1975; Waite and Stolzenberg, 1976; Weller, 1968, 1977; Westoff and Potvin, 1967; Whelpton et al., 1966). These relationships have been interpreted as reflecting the resolution of a conflict...
between the roles of worker and mother. The conflict centers around the demands made upon the woman's time. As full time employees, women will spend about 2000 hours per year away from the home and child care. As wives and mothers, women still have their traditional duties of homemaking and child care (Dixon, 1975; Goldscheider, 1971; Stycos and Weller, 1967; Vanck, 1974). Turchi (1975:99) estimated that two preschool children would require approximately 1000 hours per year of child care. Other estimates are higher. Since it is difficult to meet both the demands of continuous work away from home and child care at the same time, the conventional solution to the conflict has been to abandon one of the roles. Hence, the inverse relationships between aspects of labor force participation and aspects of fertility.

**Criticisms of the Employment-Fertility Literature**

The interpretation of the employment-fertility literature as reflecting a conflict between the roles of employee and mother is faced with a number of empirical, methodological and theoretical problems. First, parity-specific studies of the employment-fertility relationship have shown mixed results. Bumpass and Westoff (1970b), in a study of women with two children, found employment had a slightly negative relationship with
subsequent fertility. Hout (1976) constructed parity-specific two stage least squares models of employment and fertility. He found that employment reduced fertility at each parity. However, in later research Hout (1978) was unable to construct a two stage least squares model at any parity. He found no effect of employment on fertility.

Second, studies have just assumed that there is a conflict between employment and childrearing. Although some efforts have been made to measure conflict (e.g., Shea et al., 1970), no studies with adequate measure of conflict have tested for any relationship with subsequent fertility.

Third, the role conflict interpretation does not explain why a wife would prefer either employment or childrearing. It merely states that meeting the role expectations of one status (employee or mother) means not meeting the expectations of the other status.

Fourth, the association between employment and fertility has been diminishing (Bernhardt, 1972; Bumpass, 1977; Davis, 1972; Gendell, 1975; McLaughlin, 1974; Weller, 1977) at the same time actual and expected age-specific fertility rates have declined (U.S. Dept. of Health, Education and Welfare, 1977).
Employment and Sex-Role Nontraditionality

Some of these problems may be solved by considering the relationship between sex-role nontraditionality and employment. Several studies have concluded that employment may be a source of nontraditional attitudes and socialization experiences (e.g., Macke et al., 1978; Mason and Bumpass, 1975), just as social class, education and religion are. Unlike social class, education and religion, employment may be a consequence of sex-role nontraditionality (Macke et al., 1978). Nontraditional wives are more likely to seek employment as an alternative to childrearing. They may even seek employment despite the presence of children because they are less likely to believe that their employment would harm the children. Employment, then, may also represent a life style choice as well as a context for socialization. Therefore, once sex-role nontraditionality is controlled the relationship between employment and fertility may disappear.

Hypothesis

Based on these arguments, I hypothesize that the extent of the wife’s employment will be unrelated to her subsequent fertility once sex-role nontraditionality is controlled.
Social Class and Fertility

Social class has been negatively related to fertility in the United States both historically (Petersen, 1975) and more recently (Freedman et al., 1959; Neal and Groat 1970; Keller, 1972; Kupinsky, 1971; Rosenberg, 1972; Ryder and Westoff, 1971; Saraie, 1975; Scanzoni, 1975; Shortlidge and Kohen, 1976; Whelpton et al., 1966). Why this relationship appears and how it should be interpreted has been discussed by many researchers. The economic interpretation has already been discussed and will not be repeated here.

Some researchers have interpreted the relationship between social class and fertility as spurious. Goldberg (1959) found that social class among two-generation urbanites was unrelated to fertility. His evidence suggests that the observed differences between the classes was due to the social origins of all urban residents: rural migrants (with their high fertility pattern) typically took lower and working class jobs in the city.
Low fertility is characteristic of long time (e.g., two-generation) city residents, who also are more likely to be middle class than recent arrivals from rural areas. Blau and Duncan (1967) largely confirmed Goldsberg's findings for two generation urbanites, but found a much stronger inverse relationship between social class and fertility among couples with farm background. This suggests that the relationship between social class and fertility can not be completely explained by residence of origin.

Blau and Duncan (1967), though, still suggest an explanation of social class and fertility along similar lines. They attributed their results to the Gesellschaft nature of urban society. A Gesellschaft orientation to interpersonal relationships involves rational calculation, deliberateness, planning and even deferred gratification. Middle class workers are thought to be especially imbued with this orientation because their work with people is assumed to be a secondary, calculative and manipulative relationship. Working class people work with things, and aren't required to maintain the kind of relationship
with their coworkers that middle class workers are. Consequently, among those socialized in an urban environment, one would expect only a slightly negative relationship between social class and fertility. Among those socialized in a rural background (with its more Gemeinschaft orientation) one would expect a more pronounced inverse relationship between social class and fertility; only the Gesellschaft nature of the occupation is affecting fertility.

Social class has been suggested as specifically relevant for explaining the fertility behavior of men. Having children is a way they can express their masculinity, presumably as compensation for their low occupational rank (Blau and Duncan, 1967; Rainwater, 1960).

Other researchers have treated social class as an indicator of other factors which are hypothesized to affect fertility. Social class, then, is seen as having an effect through these other factors. First, middle class couples are more likely to use contraceptives (Ryder, 1973), and to use them more consistently (Rainwater, 1960) and effectively (Tietze, 1959) than working class couples. It is reasonable to assume that couples who use contraceptives more efficiently and consistently will have lower fertility. The question remains, though, why do couples stop having children after a given number?
Consistency and efficiency of contraceptive use increase greatly after couples decide they have had enough children (Bumpass and Westoff, 1970b; Rainwater, 1960).

Second, working class wives are more traditional in their sex-role orientation than are middle class wives, and therefore may be more likely to have more children (Rainwater, 1960). Middle class wives are also more likely to feel close to their husbands and more likely to feel that they can control their own fertility, two situations which lead to the reduction of fertility (Rainwater, 1960).

Criticism of the Social Class Literature

An important consideration in reviewing the social class literature is whose fertility is being explained. All of the interpretations of the social class literature suggest that other variables are, in fact, causally related to fertility. Blau and Duncan (1967) concentrate primarily on the characteristics of the husband (especially those associated with occupation) to explain his wife's fertility. This may be a weak procedure. Because childbearing has a much smaller impact on his daily life than on the daily life of his wife, those characteristics may be much more tenuously related to fertility than the characteristics of his wife. To measure these
characteristics by the use of a crude proxy may only further weaken the relationship.

If the characteristics of the wife which are hypothesized to intervene between class and fertility (such as sex-role nontraditionality, felt closeness with her husband, belief in her ability to control her own fertility, etc.) may be measured, controlling for them may make the relationship between class and fertility disappear.

Hypotheses

On the basis of the interpretations of the social class-fertility relationship and criticisms presented above, I hypothesize that the husband's social class will have no direct effect on the wife's subsequent fertility regardless of her previous parity. I hypothesize this lack of an effect because I am able to measure the intervening variables (sex-role nontraditionality and fatalism), and therefore control for their effects, and because I consider the link between a proxy for the husband characteristics and his wife's fertility to be weak.

A Note on Social Mobility and Fertility

With any discussion of social class, the related topic of social mobility must be considered. The original hypothesis explained upward mobility as a function of low fertility (Dumont, 1890; Fisher, 1958). Westoff (1958)
later modified the hypothesis and reversed the order of causality, stating that the predisposition to be upwardly mobile reduced fertility. Despite tests of almost all of the possible operational forms of the hypothesis (combinations of inter- and intragenerational mobility, the husband's father's occupation or the wife's father's occupation, the husband's first job or the husband's current job, and fertility, the disposition to be mobile or to actually be mobile), it has not been supported (Bean and Swicegood, 1979; Berent, 1952; Blau and Duncan, 1967; Featherman, 1970). The fertility of mobile couples is generally intermediate to the fertility of nonmobile couples in the origin and destination statuses (Berent, 1952), regardless of the direction of mobility (Blau and Duncan, 1967). No tests of any social mobility hypotheses are made for this reason.

Education and Fertility

Education is the second frequently used variable in the normative socialization perspective. The negative relationship between the education of the wife and her fertility is well documented (Blake, 1967; Bumpass, 1977; Cain and Weininger, 1973; DeFronzo, 1976; DeJong and Sells, 1977; Groat and Neal, 1967; Janowitz, 1976; Neal and Groat, 1970; Rosenberg, 1972; Ryder and Westoff, 1971; Shortlidge and Kohen, 1976; Waite and
Economists have treated the wife's education as the operational measure of her human capital and the value of her time (e.g., Willis, 1973). The greater the education of the wife, the greater "opportunity cost" in terms of wages forgone for childrearing (e.g., Mincer, 1963). This interpretation of the inverse relationship between education and fertility is consistent with the positive association between her education and her labor force participation (Bowen and Finegan, 1969; Dixon, 1975) and the negative relationship between her fertility and her earnings which I have already commented upon.

Sociologists have a number of interpretations of the relationship between education and fertility. Ryder and Westoff (1971) have a list of the "meanings" of greater education of the wife: (1) her education is correlated with the education, occupational prestige and income of her husband (i.e., her education is another indicator of his social status); (2) her education is indicative of a lifestyle in which childbearing and rearing is one of a number of competing interests (i.e., education "broadens one's horizons"); (3) her educational level is a reference group proxy—individuals with the same educational level may serve as important sources of norms about childbearing; (4) education represents a
resource which may be used for alternative pursuits (this is a restatement of the economist's views of education as human capital). Other scholars have similar opinions about the meaning of education (e.g., Davis, 1967; Day and Day, 1969; DeJong and Sells, 1977; Dixon, 1975; Janowitz, 1976), and a few have added to it. Westoff and Potvin (1967) concluded that education in general has a secularizing effect. Westoff and Ryder (1977) noted that education is associated with an ethos of rationality. Rainwater (1960) also noted the association of education with rationality and added that more educated women were less fatalistic. Finally, the education of the wife has been used as a proxy for contraceptive knowledge (Janowitz, 1976) and attitudes favorable to the use of contraception (Dixon, 1975).

Criticism of the Education Literature

The relationship between education and fertility is not always as simple as the literature suggests. Parity specific analyses have provided evidence that is not always consistent with interpretations suggested by economists and sociologists. Bean and Wood (1974) found the education of the wife to be unrelated to the birth of the second child, positively related to the birth of the third child, and negatively related to
the fourth child. Goldberg (1960) found that the education of the wife was positively related to subsequent births among women who already had three or more children. Namboodiri (1974) concluded that the wife's education was negatively related to her expectation of another child when she already had four or six children, but it was positively related to the expectation of another child when she already had five children.

There is evidence which casts doubt upon the human capital-opportunity cost interpretation of education. That interpretation is inconsistent with the fact that less educated women return to the labor force after the birth of their first and second child sooner than more educated women (Hill and Stafford, 1971), despite controls for their potential wages (Shapiro and Mott, 1977). Cochrane and Bean noted that "it is not the potential market value [of the wife's time], but the actual earnings of the wife, that affects the husband's evaluation of the cost of children" (1976:303). Simon made a similar point when he concluded "at least for simple economic reasoning, not all of the data on the effects of women's education on fertility are consistent with the notion that labor force opportunity cost is the dominant mechanism ... ." (1974:173).
Other interpretations of the education-fertility relationship may also be criticized. The use of education as a proxy for contraceptive knowledge and attitudes favorable toward the use of contraceptives may be misleading. What is important for the reduction of fertility is the consistent use of contraceptives (Rainwater, 1960). As a proxy for use and knowledge, education may be irrelevant.

The interpretation of greater education as indicative of "broader horizons" and nonfamilial interests which compete with childrearing has been more carefully developed by the literature on sex roles. A number of researchers have documented the positive relationship between education and sex-role nontraditionality: e.g., Cronkite (1977), Davis and Bumpass (1976), Dixon (1975), Macke et al. (1978), Rosen and LaRaia (1972), Rosen and Simmons (1971), Scanzoni (1975), and Stolka and Barnett (1969). It would be better to measure sex role nontraditionality directly and test its relationship with fertility than to use education as a proxy. The same may be said for interpreting greater education levels as indicators of less fatalistic attitudes.

**Hypothesis**

Many of the studies cited above note a negative relationship between the wife's education and her fertility. For several reasons, though, I hypothesize that the wife's education will have no direct effect on her fertility.
regardless of the number of children she has. Researchers have interpreted the wife's education as a proxy for sex-role nontraditionality and fatalism. When measures of sex-role nontraditionality and fatalism are included in the data analysis (see below), any relationship between fertility and the wife's education should disappear. Last, evidence cited above does not support interpreting the wife's education as a measure of her opportunity cost.

Religion and Fertility

The dichotomy of Catholic/non-Catholic church membership has been quite useful in predicting fertility; Catholics desired, expected and had more children (Blake, 1965; DeFronzo, 1976; Goldberg, 1960; Groat and Neal, 1967; Kupinsky, 1971; McMurry, 1975; Namboodiri, 1974; Ryder and Westoff, 1971; Scanzoni, 1975, 1976a; Smith-Lovin and Tickamyer, 1978; Turchi, 1975; Westoff and Potvin, 1967; Westoff and Ryder, 1977).

Two interpretations of these findings have been suggested. Rainwater (1960) suggested that Catholicism produced higher fertility by disorganizing efforts at contraception rather than by the individual internalizing an anticontraception norm. On the other hand, Westoff and Potvin (1967) noted that Catholicism was an integrating factor in the commitment to a traditional, communal way of life. The family was the career of the wife
and her individual, nonfamilial interests were subordinated to it. Scanzoni (1975) concluded that Catholicism provided a supernatural legitimation for marriage and motherhood.

**Criticism of the Religion-Fertility Literature**

Westoff and Potvin (1967) and Scanzoni (1975), as noted above, believe that Catholicism is associated with the sex role traditionality of the wife. Brogan and Kutner (1976) provide additional evidence of this association. Since this is true, it would be better to directly measure the sex role nontraditionality of the wife rather than to rely on an increasingly poor proxy. The fertility differences between Catholics and non-Catholics are decreasing, and should have disappeared during the 1970's (Westoff and Ryder, 1970c, 1977).

**Hypothesis**

On the basis of the criticisms noted, I hypothesize that the Catholic/non-Catholic status of the wife will have no direct effect on her fertility.

**Sex Role Traditionality and Fertility**

With the declining strength of the relationship of fertility with social class, education, religion (Freedman, 1962) and employment (Garfinkle, 1971), and the rise of
the women's movement, a number of researchers have aban-
donned the idea of interpreting proxies and measured sex
role nontraditionality directly. These researchers found
that the greater the sex role nontraditionality of the
women, the lower was her expected, desired and actual
fertility (Blomberg, 1977; Bumpass, 1977; Clarkson, 1977;
Dixon, 1975; Freedman and Whelpton, 1952; Goldberg, 1960;
Hamilton, 1976; Keller, 1972; Lester, 1975; Rosen and
LaRaia, 1972; Rosen and Simmons, 1971; Scanzoni, 1975,
Westoff, 1975; Westoff and Potvin, 1967).

The role of the woman is the key link between the
social structure of the society and the motivation to
have children (Davis, 1967). The traditional role for
women in America has been "homemaker," with their personal
interests subordinated to those of their husbands and
children (Keller, 1972; Scanzoni, 1975). A nontraditional
role for women emphasizes the equality of their non-
familial interests with those of their husbands and chil-
dren. The important thing to emphasize about roles is
that they are more than guides for overt behavior in
particular social settings. People internalize roles
and the attitudes, perceptions and emotions which accom-
pany a role (Berger, 1963). Thus "gender role norms
specify the kinds of costs wives and husbands are willing
to bear, and the kinds of rewards they desire, in terms of behaviors both within the household and within the occupational sphere" (Scanzoni, 1976b:687). (Also see Rosenberg, 1972:15, for a similar statement.) Nontraditional women have been socialized to perceive work outside of the home as a rewarding and legitimate activity which may be an addition to the roles of wife and mother or an alternative to those roles. The choice of employment as an alternative to motherhood (or any more childrearing) does not necessarily imply that there is a conflict between childrearing and employment. The emphasis is on narrowing the focus of activity to what is perceived as rewarding and appropriate.

**Hypothesis**

The traditionality of a woman's role provides the motivation for having children by defining her perception of the rewards and appropriateness of childrearing and employment. Therefore, I hypothesize that the greater the sex role nontraditionality of the wife, the fewer the number of children she subsequently will have.

**Additional Work: Expected Husband Modernity and Fertility**

Roles are not enacted in a vacuum. They come at least in pairs, and for the success of cooperative interaction between two actors, it is assumed that they have
a shared consensus about how both of the roles are to be played. Scanzoni has commented "the norms of one spouse are very likely influenced by the norms held by the other . . . role and status structures are not isolated or individual but reciprocal" (1976b:68). If a wife plays a nontraditional role, it is reasonable to believe that she would hold similar nontraditional expectations for her husband. In other words, she would expect him to become more involved in the family and more flexible and supportive regarding her nonfamilial interests.

Scanzoni has pointed out one implication of this line of reasoning: "A logical argument could be made that women who want to negotiate men into greater participation in household tasks . . . should then want more, not fewer, children. With increased assistance from husbands, wives would then be able to pursue rewarding objectives outside of the home, and still be able to enjoy the gratifications supplied by additional children" (1976a:55). His data provide some support for this hypothesis. Women who expected greater familial involvement from a husband and greater support from him for their nonfamilial interests had a larger number of children and/or intended to have a larger number of children than women who expected less involvement and support (Scanzoni, 1975; 1976a). To my
knowledge, there have been no studies concerning the relationship between the wife's actual fertility and her expectation of husband involvement and support.

**Hypothesis**

The obvious hypothesis to be tested, then, is that the greater the expected husband modernity (i.e., the more the wife expects her husband to be involved in child care and to support her pursuit of her nonfamilial interests), the greater the wife's subsequent fertility will be.

**Attitudes, Intentions and Fertility**

The final hypothesis to be tested from the normative-socialization perspective concerns the relationship between intentions to have another child and actual subsequent fertility. Fishbein (1967, 1972, 1973) and some of his followers (e.g., Jaccard and Davidson, 1976; Vinokur, 1975; Werner et al., 1975) have developed models of behavior which hypothesize that the intention to behave a certain way intervenes between the attitudes, values and norms held by an individual and the actual behavior of the individual. Although they have been extraordinarily successful in predicting behavior intentions from knowledge of
a person's attitudes, values and norms, no one has tested
the hypothesized relationship of behavioral intentions
with subsequent behavior.

**Criticism of the Intention-Behavior Hypothesis**

The hypothesis that a person's intention to behave
a certain way determines her actual behavior involves some
questionable assumptions. It assumes that the person
believes she can control future events relevant to her
behavior and that she has at least the autonomy to
actually behave as she intends. If the former assumption
is not met, then the person is fatalistic, and may there­
fore not even try to behave in the intended manner. If
the latter assumption is not met, then the person may
be constrained from behaving as she intends.

An example may serve to illustrate how this applies
to fertility. If a wife says she intends to have no more
children, but does not believe that she can control her
fertility, she is fatalistic and may indeed have some
additional children. If a wife states that she intends
to have no more children, but her contraceptive fails
and she can not get an abortion, then she may have addi­
tional children because the law or lack of money has
constrained her to do so.

To be fair, though, the assumptions made by the
model may be accurate enough, especially since unwanted
fertility has declined (Westoff and Ryder, 1970c, 1977).
Hypothesis

Following Fishbein (1967) I hypothesize that the greater the number of (additional) children a wife intends to have, the greater the number of children she subsequently will have. This hypothesis seems reasonable when one recalls that in recent years women have been given more freedom to control their own fertility.

The Family Structure and World-View Perspective

The third perspective on fertility originates with the research of Lee Rainwater (1960, 1965). It is impossible to review his research without referring to social class; it is the context of his analysis. His point of departure was one of the conclusions of Freedman et al. (1959): if the practice of contraception did not vary by social class, then social class differences in fertility would be small. Rainwater's exploratory research suggests that the social class of a family influences the social structure of the family and the world view of family members. The social structure of the family and the world views of the family members in turn influence the consistency with which contraception is initially practiced. These structural and world-view variables are discussed below.
Companionship and Fertility

One aspect of family structure is the sharper division of labor in working and lower class families than in middle class families. Couples in families with a greater division of labor have fewer shared experiences and less intimacy. "The lack of closeness between husband and wife sometimes serves to delay family planning until the stage of desperation and to interfere with smoothness in executing plans to limit the family size once some decision is made" (Rainwater, 1960:70). In other words, the companionship a wife feels with her husband facilitates the consistent use of contraception which is so important in limiting subsequent fertility.

Evidence Concerning Companionship and Fertility

Of the few tests of the relationship between companionship and fertility, most of the evidence supports Rainwater's hypothesis. Hill et al. (1959) found that better communication between husbands and wives— one aspect of greater companionship— was negatively associated with fertility. Neal and Groat (1970, 1975) found that wives who felt alone and alienated subsequently had larger families than wives who felt neither alienated or alone. Only Scanzoni (1975) found some evidence that would not support Rainwater's hypothesis. Scanzoni found that for
some young wives, greater companionship was positively related to a measure of fertility which summed the number of children born to a wife and the number of additional children she intended to have.

**Hypothesis**

Based on Rainwater's argument and the weight of the evidence presented above, I hypothesize that the greater the companionship the wife feels with her husband, the lower will be her subsequent fertility, especially when she has no previous children.

**Fatalism and Fertility**

Middle class families are relatively secure, which allows them to plan and to orient themselves toward the future—a future which they believe can be controlled or influenced. Their world view is not fatalistic; rather, they believe they can influence events and they plan accordingly. Working and lower class families are oriented toward the present because they are less secure about the future. For them, to plan is to hope, and that is to court disappointment. If they get what they want, they are likely to attribute it to "luck." This fatalistic view of the world may increase fertility by delaying efforts at consistent contraception (Rainwater, 1960). Fatalistic people do not believe that they can
control or influence the course of their lives, and therefore do not try. This fatalistic world view, as applied to their own fertility, creates a self-fulfilling prophecy.

**Evidence Concerning Fatalism and Fertility**

Only a few scholars have included anything similar to fatalism in their research on fertility. Neal and Groat (1975) found that a sense of powerlessness (which was one aspect of alienation) among wives was positively related to their subsequent fertility. Ahmed (1977) found that the degree of planning orientation (the opposite of fatalism) among couples was positively related to their fertility planning success. Those couples with a planning orientation were much less likely to exceed the number of children they wanted than were fatalistic couples. Only Anderson (1977) found evidence which does not support Rainwater's hypothesis. In a national study of the high school class of 1972, Anderson found that the feeling of being in control of one's destiny was not related to the number of children subjects expected. This finding, however, should not be given too much weight in evaluating Rainwater's hypothesis because young women initially tend to overestimate their ability to control their fertility (Westoff and Ryder, 1977).
Hypothesis

Based on the evidence cited above and on Rainwater's analysis, I hypothesize that the degree of fatalism of the wife (particularly her lack of belief in her ability to control her own fertility) will have a positive direct effect on her subsequent fertility. I expect this hypothesis to be most strongly supported among wives with no children because almost all wives eventually become effective contraceptive users (Rainwater, 1960).

Power and Fertility

Rainwater (1960, 1965) noted that the middle class emphasizes the wife's participation in family decision-making more than the working class. Working class wives tend to give in to their husbands without negotiation of disagreements. However, Rainwater made no explicit hypothesis regarding power and fertility.

A number of scholars have gone beyond Rainwater, though, and hypothesized that the wife's equality in decision-making with her husband decreases her fertility (Bean, 1975; Dixon, 1975). Past research has supported this association (Blood and Wolfe, 1960; Heer, 1958; Rosen and Simmons, 1971; Rosenberg, 1972; Weller, 1968). The ideology of keeping a wife "barefoot and pregnant"
is consistent with this evidence. It suggests that a husband may dominate his wife by keeping her tied down with child care responsibilities. Under these circumstances, wives are extremely dependent upon their husbands for personal support, and they are not in a position to successfully dispute any issues. If husbands are aware of this, then their dominance may increase their wives' fertility.

Criticism of the Power and Fertility Literature

There are several reasons why husband dominance may not be related to fertility in the United States. The correlations between power and fertility have been low (Goldberg, 1960; Morris and Sison, 1974), suggesting that the relationship between power and fertility is tenuous or characterizes only a small segment of the population. The cross-sectional nature of the research means that the direction of causality is unclear. Finally, it is possible that some fertility is the result of both husband and wife wanting to have a child.

Hypothesis

Despite the shortcoming of the power and fertility literature, I hypothesize that husband dominance will have a positive direct effect on the wife's fertility. Above and beyond wanted fertility and low correlations, the
possibility of husband dominance increasing the wife's fertility still exists regardless of previous fertility.

Demographic Control Variables

This section reviews the literature concerning the relationships between the wife's fertility and her demographic characteristics: her age, the length of time she has been married, the age of the last child (or the length of time the child has lived with the mother if adopted), and the absence of male children.

Age and Fertility

The age of the wife is positively related to the number of children she expects and has born (Kupinsky, 1971; Ritchey and Stokes, 1974; Ryder and Westoff, 1971; Scanzoni, 1975; Turchi, 1975; Waite and Stolzenberg, 1976) because fertility is cumulative with age; the total number of children born to date in a woman's life can never decrease. However, when women with the same previous parity are compared, older women expect (Namboodiri, 1974) and have (Hout, 1976) fewer subsequent children than younger women because older women are more likely to have attained a family size they desire. This negative relationship may be specific to certain parities. "The age effect is greater at low parities because older wives are equally likely to have completed fertility at each previous parity, but young wives are more likely to have completed fertility at higher parities than at low" (Hout, 1976:148).
Hypothesis

Based on the evidence presented above, I hypothesize that the wife's age will have a negative direct effect on her subsequent fertility, and that this relationship will be strongest at the lowest parity level.

The Length of Marriage and Fertility

Since older wives have generally been married longer than younger wives, it should not be surprising to find that the number of years a wife has been married is positively related to the number of children she expects and has (Kupinsky, 1971; Smith-Lovin and Tickamyer, 1978). It is true for a similar reason; fertility is cumulative with time.

One may also expect that the length of marriage is negatively related to subsequent fertility among wives with the same parity level for the same reason that the wife's age is negatively related to subsequent fertility. Indeed, marital duration is negatively related to subsequent fertility (Hout, 1976, 1978) because wives who have been married longer are more likely to have completed their families than are wives of the same parity level who have been married for a short time. 8
Hypothesis

The longer a wife has been married, the lower will be her subsequent fertility. I expect this relationship to be strongest at the lowest parity level.

The Sex of Children and Subsequent Fertility

It is possible that there is a general preference for male children. Early data suggested that sex-preference was not a determinant of completed family size among the vast majority of married couples (Clare and Kiser, 1952). However, Keller (1972) and Namboodiri (1972) have suggested that the sex composition of the children may be related to the probability of birth of a third child. Pohlman's (1969) data showed that wives whose first two children were girls were more likely to have a third child (hoping that it would be a boy) than were wives whose first two children were not girls. In addition, she found a longer interval between first and second births if the first child was a boy.

Criticism of the Literature on Sex Preference and Fertility

Although there is evidence to support the hypothesis that there is a preference for male children, the results of a few studies should not preclude further investigation of the hypothesis. An argument can be made that those who have male children may be even more motivated to have subsequent children.
If the birth of a boy is like winning a bet, then, after having "won" once or twice, why not try for a third win since luck is with you? On the other hand, one or two "losses" in the birth sweepstakes may be sufficient to deter a wife from trying--and "losing"--a third time. This line of reasoning may make some questionable assumption, but it is possible that some people actually feel this way. The important point is that given the premise of a preference for male children and different assumptions about how people think, it is possible to derive a different prediction. The prediction that would be made (based on the line of reasoning just mentioned) is that wives with two boys would be more likely to have a third child than wives with two girls.

The premise of a preference for male children may also be questioned. With the rise and spread of the women's movement in the late 1960's and 1970's, the preference for male children may have declined. It may be that Pohlman's (1969) findings reflected national sentiments at the time her data were gathered, but sentiments may be different now.

**Hypothesis**

On the basis of the criticism expressed above, I hypothesize that the absence of male children has no effect on the wife's subsequent fertility.
The Age of the Last Child and Fertility

No studies of which I am aware have tested for a relationship between the age of the last child (or the length of time the child has been living with the mother if it was adopted) and the number of children that are subsequently born during a period of time. At least some women try to control the length of time between one birth and another birth (e.g., Scanzoni, 1975). If this is true, then a birth just before the start of the period over which subsequent fertility is measured may have the effect of reducing the number of births which are observed. By contrast, if the occurrence of the last birth was two years before the period began, then a greater number of births may be observed. For example, if two wives each want three children and wish the births of their children to be separated by two and one half years, then the situation described above would happen over a four year period of observation. If one wife had her first child two years before the period of observation, then her second child would be born six months into the period of observation and her third would be born three years into the period of observation. If the other wife had born her first child six months before the period of observation, her second child would be born two years after the start of
the observation period, but her third child would be born six months after the end of the observation period. For the first wife, two births would be observed. Although the two wives eventually have the same completed family size, the different number of births in the observation period would not lead us to this conclusion without controlling for the length of time since the last birth before the observation period.

On the other hand, the age of the child may convey more than desire to space births. After a long period of time (e.g., five years) it may indicate that the wife has completed her childbearing and most likely will have no more children. If this is true, then the length of time since the last birth would be negatively related to any subsequent fertility in the observation period.

**Hypothesis**

If wives are in the process of family formation and are concerned about the timing of births, then the length of time since the birth of the last child will be positively related to the number of births subsequently observed. If wives are finished with family formation, then the length of time since birth of the last child will be negatively related to the number of births subsequently observed.
Summary

Review of the Hypotheses

The theory and research results from four perspectives on fertility—economic, normative-socialization, family structure and world-view, and demographic—were reviewed and usually criticized. A number of hypotheses were developed based on the assumptions of the perspective, the results of previous research, or criticisms made of the perspectives. These hypotheses are summarized below.

Hypotheses from the economic perspective: (1) The husband's income is hypothesized to have no effect on his wife's subsequent fertility at any parity level. This hypothesis is made keeping in mind the criticism expressed by Duesenberry (1960), Okun (1960), and Blake (1968): the use of the husband's income as a predictor of fertility ignores the normative constraints parents face in childrearing. It is also questionable to assume that rationality and specific fertility goals characterize an activity such as childrearing when it is so strongly influenced by norms. (2) The husband's potential income is hypothesized to have no effect on fertility at all levels of previous parity for the same reasons. (3) The husband's relative income is hypothesized to have a positive effect
on the wife's fertility when she has no children or one child, but no effect on the wife's fertility when she has two children. This hypothesis is based on the research results of Bernhardt (1972) and Bahr et al. (1975).

(4) The wife's perception of the adequacy of her husband's income is hypothesized to be positively related to her fertility at all parity levels. This hypothesis is based on the assumption that parents think in terms of the income devoted to childrearing, but that the meaning of a particular amount of income varies from individual to individual.

Hypotheses from the normative-socialization perspective: (1) The extent of employment of the wife is hypothesized to have no effect on her subsequent fertility because the extent of employment is a source of sex role nontraditional attitudes which, in turn, affect fertility. (2) The social class of the husband is hypothesized to have no effect on the subsequent fertility of the wife because the variables for which it is a proxy—sex role nontraditionality, fatalism, companionship—will be measured. (3) The education of the wife is hypothesized to have no effect on her subsequent fertility because the variables for which it is a proxy—sex role nontraditionality, fatalism—will be measured. (4) The Catholic/non-Catholic status of the wife is hypothesized to have no
effect on her subsequent fertility because one of the variables for which it is a proxy—sex role traditionality—will be measured, and because Catholics have become more like non-Catholics in the contraceptive behavior (Bumpass and Westoff, 1970c). (5) It is hypothesized that the greater the sex role nontraditionality of the wife, the lower will be her subsequent fertility because the wife has been socialized to perceive nonfamilial activities as more rewarding than childrearing.

(6) The greater the expected husband modernity, the greater will be the wife's subsequent fertility. (7) It is hypothesized that the more children the wife intends to have, the more children she will have. All of these hypotheses are expected to be supported at each level of parity.

Hypotheses from the family structure and world view perspective: (1) It is hypothesized that the greater the companionship the wife feels with her husband, the lower will be her subsequent fertility. This hypothesis is expected to hold at low parity levels because almost all couples eventually become effective, consistent contraceptive users. (2) It is hypothesized that the more fatalistic the wife is about her ability to control her fertility, the greater will be her subsequent fertility. This hypothesis is expected to hold at low parity levels because almost all couples eventually become effective,
consistent contraceptive users. (3) The degree of husband dominance in the marriage is hypothesized to have a positive effect on the wife's subsequent fertility because dominant husbands may wish their wives to have more children. This hypothesis is expected to hold at all parity levels.

Hypotheses from the demographic perspective:
(1) It is hypothesized that the greater the wife's age, the lower will be her subsequent fertility because older wives are more likely to have completed their family formation. The lower the parity level, the more likely this hypothesis is to hold. (2) It is hypothesized that the longer wives have been married the lower will be their subsequent fertility because wives who have been married longer are more likely to have completed their family formation. (3) The absence of male children is hypothesized to have no effect on the wife's subsequent fertility because times may have changed. (4) If wives are in the process of family formation and are concerned about the timing of births, then the age of the last child is hypothesized to have a positive effect on the number of observed, subsequent births. If wives have finished their family formation, then the age of the last child is hypothesized to have a negative effect on the number of observed, subsequent births.
Notes for Chapter 2

1 Other economists and sociologists have made similar criticisms, generally noting that the monetary inputs for children are not uniform, but vary by the social status of the parents (Easterlin, 1969; Namboodiri, 1972; Turchi, 1975). Espanshade (1973) concluded that wealthier parents spend more money (in terms of absolute dollars) on goods and services for a child than do poorer parents. However, wealthier parents spend a smaller percent of their income on goods and services for a child than do poorer parents. This former conclusion lends support to Becker's critics. Both conclusions taken together call into question Becker's (1960) contention that parents face a trade-off between the quantity and quality of children. If the rich are conforming to the social norms regarding expenditures on goods and services for a child, then why is that amount a smaller percentage of their income than the corresponding percent of income of the poor?

2 Leibenstein (1974, 1975) has developed a parity specific model of fertility, but it is difficult to operationalize and test. For that reason it will not be considered here.

3 There is good reason to suspect that the husband's relative income and perceived income adequacy are related to the wife's subsequent fertility when the wife has no previous children. Goldberg (1960) concluded that the birth of the first child causes a major shift in the activities of couples; once the commitment to home centered activity is made, additional children are a luxury and not a revolution. Presser (1973) came to a similar conclusion. Consequently, the husband's relative income and perceived income adequacy may be related to the wife's subsequent fertility only among wives with one previous child.

4 Some evidence can be interpreted as supporting Keller's (1972) point. Bumpass (1977), Freedman et al. (1959), Kupinsky (1971), Ryder and Westoff (1971), and Whelpton et al. (1966) found that women who are working because they like to work have lower fertility than women who are working for other reasons.
5 The number of (additional) children intended by the wife should not be confused with the number of children which she expects. The number of children a wife expects to have may include past as well as future births, and unwanted births as well as wanted births. The number of additional children a wife intends to have refers only to births wanted in the future.

6 Their research confirms an earlier hypothesis of Hoffman and Wyatt (1960) that women who feel alone and alienated will have larger families as a response to these feelings than will women who do not feel alone and alienated.

7 Powerlessness refers to the wife's sense of a lack of control over her current circumstances, not to any lack of power she may experience in her family. Powerlessness is similar to the concept of fatalism, but lacks fatalism's connotation of "why bother trying?"

8 The length of time a wife has been married is mathematically related to her age at marriage and her age: the length of time a wife has been married is equal to her age minus her age at marriage. It should not be surprising, then, to find that the wife's age at marriage is negatively related to the number of children she expects and actually bears (Bumpass et al., 1978; Dixon, 1975; Ryder and Westoff, 1971; Scanzoni, 1975; Turchi, 1975; Westoff and Ryder, 1977). The relationship is the same even when tested by previous parity (Bean and Wood, 1974). The length of marriage was chosen for inclusion in the data analysis because it is more appropriate than age at marriage for the analysis of period fertility (Hout, 1976:19).
CHAPTER THREE

METHODOLOGY

This chapter describes the sample used to test the hypotheses, discusses the operationalization of variables, states the operational hypothesis tested, and discusses the technique of hypothesis testing.

Sample

The sample consists of 282 white females ages 18 to 29 in 1971 who lived in 10 metropolitan areas. Data were collected from respondents during the summers of 1971 and 1975. In 1971, all of the respondents believed that it was possible for them to bear children. All of the respondents were married throughout the period between the 1971 and 1975 interviews. The sample is a part of a larger sample used by Scanzoni (1975, 1978).

Tony Asman, who devised the sampling procedure for National Analysts, describes the sample as "a probability selection of land areas with a quota selection of respondents within these areas" (quoted by Scanzoni, 1975:13). A total of ten metropolitan areas were selected from
Illinois, Ohio, Michigan and Indiana. The non-poverty section of each metropolitan area was divided into a number of segments. Interviews were randomly obtained from the households within the segments within the restrictions of quotas for age, sex, multiple households, and working wives. Of all the interviewees—young and middle-aged, male and female, black and white—only 427 young white females were reinterviewed in 1975 (Scanzoni, 1978). This fact largely accounts for the huge drop in sample size from 1971 to 1975. This is approximately a 70 percent retention rate for that category of women. Of the 427 cases, only women who had less than three children in 1971 and who had remained married throughout the four year period were selected for data analysis.

Scanzoni (1978) noted that women reinterviewed in 1975 were no different than the women who were not reinterviewed. Both groups of women came from similar status backgrounds and were married to husbands of similar status. Both groups had the same mean educational level and the same mean age at marriage. There was no important self-selection bias which would differentiate the wives who were reinterviewed from the wives who were not.

In addition to the lack of self-selection bias among reinterviewed wives, the Scanzoni data are a nationally representative sample of young, white married
women who had two or fewer children in 1971. Although the Scanzoni data were not drawn as a random sample, the mean values of many variables from the Scanzoni data are quite similar to the mean values of variables from a comparable and nationally representative sample: the National Longitudinal Surveys of Work Experience of Young Women. (I will refer to this as the Parnes data.)

Table 1 shows the comparisons between selected variables from the Scanzoni data and the Parnes data. Each sample was subdivided into three subsamples: those wives with no children by 1971, those wives with one child by 1971, and those wives with two children by 1971. Comparisons were made between the corresponding subsamples. For example, among wives with no children by 1971, the mean number of births per woman between 1971 and 1975 is .84 based on the Scanzoni data, and .83 based on the Parnes data. Table 1 also shows Z test scores of the differences between the means of variables between the corresponding subsamples. Using the same example, the Z test score of the difference between the two subsample means (.84 - .83) equals .118. Since this value is within the range of Z scores from -1.96 to 1.96, the null hypothesis of no difference between the sample means is accepted.
### TABLE 1

**Comparison of Selected Variables from the Subsamples of Scanzoni's Data with Variables from the Samples of Weighted Data from the Young Women's Cohort of the Parnes Data**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Number of Children the Wife Had by 1971</th>
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<tr>
<td></td>
<td>Zero</td>
</tr>
<tr>
<td>Dependent variable: No. of children born between 1971 &amp; 1975</td>
<td>$S^1$</td>
</tr>
<tr>
<td>mean</td>
<td>.84</td>
</tr>
<tr>
<td>s.d.</td>
<td>.86</td>
</tr>
<tr>
<td>range</td>
<td>0 to 3</td>
</tr>
<tr>
<td>Z test</td>
<td>.118</td>
</tr>
<tr>
<td>skewness</td>
<td>.23</td>
</tr>
<tr>
<td>kurtosis</td>
<td>-.59</td>
</tr>
<tr>
<td>N</td>
<td>88</td>
</tr>
<tr>
<td>Economic variables: Husband's 1970 income before taxes</td>
<td></td>
</tr>
<tr>
<td>mean</td>
<td>8284.09</td>
</tr>
<tr>
<td>s.d.</td>
<td>4087.26</td>
</tr>
<tr>
<td>range</td>
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</tr>
<tr>
<td>Z test</td>
<td>4.170*</td>
</tr>
<tr>
<td>N</td>
<td>88</td>
</tr>
<tr>
<td>Husband's highest grade completed</td>
<td></td>
</tr>
<tr>
<td>mean</td>
<td>13.48</td>
</tr>
<tr>
<td>s.d.</td>
<td>2.48</td>
</tr>
<tr>
<td>range</td>
<td>7 to 17</td>
</tr>
<tr>
<td>N</td>
<td>88</td>
</tr>
</tbody>
</table>
TABLE 1 (continued)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Number of Children the Wife Had by 1971</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Zero</td>
</tr>
<tr>
<td>Wife's highest grade completed</td>
<td>S</td>
</tr>
<tr>
<td>mean</td>
<td>13.05</td>
</tr>
<tr>
<td>s.d.</td>
<td>2.44</td>
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<tr>
<td>range</td>
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</tr>
<tr>
<td>Z test</td>
<td>.440</td>
</tr>
<tr>
<td>N</td>
<td>88</td>
</tr>
<tr>
<td>Husband's social class</td>
<td></td>
</tr>
<tr>
<td>mean</td>
<td>.55</td>
</tr>
<tr>
<td>s.d.</td>
<td>.49</td>
</tr>
<tr>
<td>range</td>
<td>0 to 1</td>
</tr>
<tr>
<td>Z test</td>
<td>.837</td>
</tr>
<tr>
<td>N</td>
<td>88</td>
</tr>
<tr>
<td>Mean number of hours worked per week by wives working 35 or more hours per week+</td>
<td></td>
</tr>
<tr>
<td>mean</td>
<td>40.0</td>
</tr>
<tr>
<td>s.d.</td>
<td></td>
</tr>
<tr>
<td>range</td>
<td></td>
</tr>
<tr>
<td>Z test</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td></td>
</tr>
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</table>
### TABLE 1 (continued)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Number of Children the Wife Had by 1971</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Zero</td>
</tr>
<tr>
<td>Mean number of hours worked per week by wives working between 1 and 34 hours per week*</td>
<td></td>
</tr>
<tr>
<td>mean</td>
<td>20.0</td>
</tr>
<tr>
<td>s.d.</td>
<td>----</td>
</tr>
<tr>
<td>range</td>
<td>----</td>
</tr>
<tr>
<td>Z test</td>
<td>2.727*</td>
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<tr>
<td>N</td>
<td>177</td>
</tr>
<tr>
<td>Number of hours worked per week by the wife</td>
<td></td>
</tr>
<tr>
<td>mean</td>
<td>32.73</td>
</tr>
<tr>
<td>s.d.</td>
<td>14.91</td>
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<tr>
<td>range</td>
<td>0 to 40</td>
</tr>
<tr>
<td>Z test</td>
<td>3.576*</td>
</tr>
<tr>
<td>N</td>
<td>88</td>
</tr>
<tr>
<td>Length of time married</td>
<td></td>
</tr>
<tr>
<td>mean</td>
<td>30.99</td>
</tr>
<tr>
<td>s.d.</td>
<td>24.46</td>
</tr>
<tr>
<td>range</td>
<td>3 to 97</td>
</tr>
<tr>
<td>Z test</td>
<td>1.596</td>
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<tr>
<td>N</td>
<td>88</td>
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TABLE 1 (continued)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Zero</th>
<th>One</th>
<th>Two</th>
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<tbody>
<tr>
<td></td>
<td>S</td>
<td>P</td>
<td>S</td>
</tr>
<tr>
<td>The age of the wife**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>mean</td>
<td>23.23</td>
<td>22.68</td>
<td>22.94</td>
</tr>
<tr>
<td>s.d.</td>
<td>2.67</td>
<td>2.45</td>
<td>2.55</td>
</tr>
<tr>
<td>range</td>
<td>18 to 29</td>
<td>18 to 29</td>
<td>18 to 29</td>
</tr>
<tr>
<td>Z test</td>
<td>1.866</td>
<td></td>
<td>-1.031</td>
</tr>
<tr>
<td>N</td>
<td>88</td>
<td>1885</td>
<td>98</td>
</tr>
<tr>
<td>The absence of male children</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>mean</td>
<td></td>
<td>.51</td>
<td>.52</td>
</tr>
<tr>
<td>s.d.</td>
<td></td>
<td>.50</td>
<td>.50</td>
</tr>
<tr>
<td>range</td>
<td></td>
<td>0 to 1</td>
<td>0 to 1</td>
</tr>
<tr>
<td>Z test</td>
<td></td>
<td>-1.248</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td></td>
<td>98</td>
<td>1790</td>
</tr>
<tr>
<td>The age of the last child</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>mean</td>
<td></td>
<td></td>
<td>26.29</td>
</tr>
<tr>
<td>s.d.</td>
<td></td>
<td></td>
<td>19.94</td>
</tr>
<tr>
<td>range</td>
<td></td>
<td></td>
<td>3 to 93</td>
</tr>
<tr>
<td>Z test</td>
<td></td>
<td></td>
<td>.585</td>
</tr>
<tr>
<td>N</td>
<td></td>
<td></td>
<td>98</td>
</tr>
</tbody>
</table>

1"S" means that the statistics presented in this column are from Scanzoni's data.

2"P" means that the statistics presented in this column are from the weighted data from the National Longitudinal Surveys of Young Women, the Parnes data. They are nationally representative.
TABLE 1 (continued)

"s.d." means standard deviation.

#For the Parnes data, the dependent variable is the number of children living in the respondent's household at the time of the interview who are less than or equal to three years of age. The vast majority of these children were born to the wife in the four year interval from 1971 to 1975. The remaining tiny minority were adopted during the same period of time. These two operational measures are comparable, but not identical.

*The Z test score of the null hypothesis is significant beyond the .05 level in a two-tailed test. Therefore, the null hypothesis of the equality of means between S and P data is rejected for that variable in that subsample.

†For the P data, the highest grade completed by the husband slightly underestimates the number of years of schooling of the husband. After the initial interview date (1968), the respondent was asked the highest grade completed by her husband only if he was less than or equal to 24 years of age. Consequently, his highest grade completed is either unknown or underestimated if he was enrolled in school and older than 24. Fortunately, this is an uncommon occurrence.

‡The number of hours worked per week by wives working 35 or more hours and by wives working less than 35 hours are variables created only from the Parnes data. Their purpose was to serve as a comparison for the arbitrary values of 40 for full time employment and 20 for part time employment for the Scanlon variable—the number of hours worked per week by the wife.

‡‡For the Parnes data, the length of time married was originally measured in units of six months. Consequently, the range does not extend below 6.

**Although the age ranges which help define the subsamples are not identical, they are comparable. There are no significant differences between the means.

††Missing data were excluded from the calculation of Parnes statistics.
Inspection of other Z scores in Table 1 shows that only three pairs of the means of variables from comparable subsamples are significantly different from one another. These are the means of the husband's 1970 income and the means of the number of hours worked per week by the wife, from the subsamples of wives with no children, and the means of the husband's highest grade completed from wives with two children. The Z scores for the tests of differences are statistically significant. Scanzoni's data probably overestimate the mean highest grade completed and mean 1970 income level of these particular husbands throughout the nation, and they probably overestimate the mean number hours worked per week by these particular wives throughout the nation. These differences may be explained by the facts that Scanzoni's data were collected from the nonpoverty sections of SMSA's, and that quotas were set for the number of working and nonworking women to be interviewed. With these exceptions, Scanzoni's data appear to be remarkably similar to the nationally representative Parnes data. Since Scanzoni's data are so similar to the Parnes data, then it is possible to generalize from the Scanzoni data to the corresponding sections of the American population—young, white married females with less than three children by 1971 and who remained married for four years.
Variables

The variables used in this study were measured in familiar ways, and range in their levels of measurement from nominal to ratio.

The Dependent Variable: Fertility

Fertility was measured in the summer of 1975, and was operationalized as the number of live births to the wife which had resulted from pregnancies since January, 1971. The construction was based upon responses to a question asked in 1975 about every pregnancy since 1971: "Did that pregnancy result in a live birth?" Women who reported that they had not been pregnant since January, 1971, were assigned a score of 0. (For more details about the construction see Appendices A and B.) There are no missing data for this variable.

Independent Variables:
The Economic Perspective

The Husband's Income

The husband's income was operationalized as the husband's 1970 income (from all sources) before taxes. The exact figure was not recorded. Instead, the wife was asked to indicate into which category (of many) the
exact figure fell. I used the midpoints of the categories as data. This is an acceptable substitute when the exact figures are not available (Dixon and Massey, 1969). If data were missing for this variable, the case was dropped from the analysis.

The Husband's Relative Income

The husband's relative income was operationalized as the ratio of the husband's 1970 income (from all sources) before taxes to the income he could have expected in 1970 based on his social class, age, and education. Appendix C contains further information about the creation of the husband's relative income. There are no missing data for this variable.

The Husband's Potential Lifetime Income

The husband's potential lifetime income was operationalized as the highest grade completed by the husband in 1971. This precedent was set in previous research (see Hout, 1976). The husband's education was measured by the wife's response to the question "What is the last grade your husband finished in school?" The numbers 1 through 12 were assigned to represent grades one through twelve, respectively. The numbers 13 through 16 represent the completion of freshman through senior years of college, respectively. The number 17 represents
postgraduate work of one or more years. There were no missing data for this variable.

**Perceived Income Adequacy**

The wife's perception of the adequacy of the husband's income was measured by her response to the question "How do you feel about the standard of living—the kind of home, clothing, car, opportunities for children, and so on—that your husband's job allows you to have? Do you feel: Very satisfied, Satisfied, Dissatisfied?" "Don't know" and "No answer" responses were also provided. Responses were assigned the following values: "very satisfied": 0; "satisfied": 1; "don't know": 2; "dissatisfied": 3, "No answer" responses were treated as missing data and were recoded to the median category.

**Independent Variables:**

**The Normative-Socialization Perspective**

**The Extent of the Wife's Employment**

One indicator of the wife's home/work commitment is the number of hours she works per week. Wives who were working at the time of the first interview were asked "Are you working full-time or part time?" I coded the number of hours worked per week as "40" if the wife said that she worked full-time, and "20" if the wife said that she was working part-time. Those wives who
were not working at the time of the first interview were coded "0" for the number of hours worked per week.

A comparison of the code "40" with the mean number of hours worked per week by wives employed full-time shows that the code "40" slightly underestimates the actual amount of time spent working. Table 1 shows that wives from the Parnes data who worked 35 or more hours per week (i.e., full-time) and who had no, one or two children averaged 40.40, 40.56 and 40.91 hours per week, respectively. The differences between these figures and the code "40" are statistically significant, but are so slight in absolute magnitude that they are trivial. A comparison of the code "20" with the mean number of hours worked per week by wives employed part time shows that the code "20" overestimates the actual amount of time spent working. Table 1 shows that the wives from the Parnes data who worked between 1 and 34 hours per week (i.e., part-time) and who had no, one or two children averaged 17.93, 17.03 and 14.62 hours per week, respectively. The differences between these figures and the code "20" are statistically significant. However, a comparison of the mean number of hours worked per week by wives from the Scanzoni and Parnes data shows that the use of codes "0", "20" and "40" with the Scanzoni data produces fewer
significant differences. Among wives with no children in 1971, Table 1 shows that wives in the Scanzoni data worked an average of 32.73 hours per week compared with 26.81 hours per week by wives in the Parnes data. The difference between these two means is statistically significant, indicating that the Scanzoni data over represent the extent of employment among wives with no children. Among wives with one child, Table 1 shows that wives in the Scanzoni data worked an average of 12.45 hours per week compared with 11.55 hours per week by wives in the Parnes data. Among wives with two children, Table 1 shows that wives in the Scanzoni data worked an average of 9.58 hours per week compared with 9.34 hours per week by wives in the Parnes data. Neither of these two differences are significant, indicating that the Scanzoni data accurately represent the extent of employment among wives with children. In general, the codes "0", "20" and "40" are fairly accurate. There are no missing data for this variable.

The Social Class of the Husband

The social class of the husband was coded as a dummy variable with "1" representing middle class occupations and "0" representing working class occupations. I defined middle class occupations as those coded from 0 to 399 based on the 1960 Census three digit occupational
classification system. I defined working class occupations as those coded from 400 to 985. An occupational classification code was assigned to the husband based on the wife's description of her husband's current or last full-time job. If this information was not available then the occupational code was assigned based on the wife's description of her husband's current or last part-time job. There are no missing data for this variable.

The Education of the Wife

The education of the wife was operationalized as the highest grade she had completed. Two questions were asked. "Thinking back to the date of your marriage, what was the highest grade of school you had finished at that time?" The wife's response to this question was coded exactly the same way that information about her husband's education was coded. This information about the wife's education was supplemented by her response to the second question. If the wife had attended school since she had been married, she was asked "What is the highest grade you have now completed?" Her answer to this question replaced the answer to the first question. This procedure provides the most recent information concerning the educational level of the wife. There are no missing data for this variable.
Religion

The Catholic status was coded as a dummy variable. Those wives who answered "Catholic" to the question "Are you Protestant, Catholic, Jewish or do you have some other religious preference?" were coded "1." All other responses were coded "0" unless the information was missing. Cases with missing values for this variable were dropped from the data analysis.  

Sex-Role Nontraditionality

The sex-role nontraditionality of the wife was measured by a series of statements to which she responded. The statements covered such areas as: the equality of her personal, nonfamilial interests with those of her husband and children versus the dominance of the interests of her husband and children; equal authority with her husband versus submissiveness; equal pay; the nature of women; the religious legitimation of marriage, motherhood and the family; work and the quality of a mother's relationship with her children; the effects of working motherhood on children; the importance of children for a marriage; and appropriate behavior for sons and daughters. Her responses to these statements were coded on three and five point Likert scales. By agreeing, disagreeing or having mixed feelings in response to a particular statement, the wife indicates her beliefs
about the appropriateness of particular behavior for women, and thus defines what is normative. I arranged the coding of the scores so that high values represent nontraditional responses, middle values represent neutral responses, and low values represent traditional responses. The values of the responses to the statements were then summed to give an overall score on the index. Missing responses for a single statement were recoded to the median value categories of the statement before the values of the statements were summed. The index of sex-role nontraditionality is reliable: the alpha coefficient is .8023.

The validity of the sex-role nontraditionality index

Scanning the statements reveals that they have face validity. However, the index statements should be empirically related to one another as well as logically related. Table 2 shows the correlations between any statement value and an index comprised of the remaining items (this is the item-total correlation). For example, the item-total correlation between the eleventh statement and an index comprised of the remaining seventeen statements equals .50. The item-total correlations for the index of sex-role nontraditionality range from .25 to .58. Given the sample size of 282 cases, each of these
### TABLE 2

ITEM-TOTAL CORRELATIONS FOR INDICES OF SEX-ROLE NONTRADITIONALLY AND EXPECTED HUSBAND MODERNITY

<table>
<thead>
<tr>
<th>Item</th>
<th>Sex-Role Nontraditionality</th>
<th>Expected Husband Modernity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Statement 1*</td>
<td>.58</td>
<td></td>
</tr>
<tr>
<td>Statement 2</td>
<td>.46</td>
<td>.34</td>
</tr>
<tr>
<td>Statement 3</td>
<td>.29</td>
<td>.25</td>
</tr>
<tr>
<td>Statement 4</td>
<td>.46</td>
<td>.42</td>
</tr>
<tr>
<td>Statement 5</td>
<td>.40</td>
<td>.30</td>
</tr>
<tr>
<td>Statement 6</td>
<td>.32</td>
<td>.43</td>
</tr>
<tr>
<td>Statement 7</td>
<td>.41</td>
<td>.25</td>
</tr>
<tr>
<td>Statement 8</td>
<td>.30</td>
<td>.36</td>
</tr>
<tr>
<td>Statement 9</td>
<td>.26</td>
<td>.42</td>
</tr>
<tr>
<td>Statement 10</td>
<td>.37</td>
<td></td>
</tr>
<tr>
<td>Statement 11</td>
<td>.50</td>
<td></td>
</tr>
<tr>
<td>Statement 12</td>
<td>.41</td>
<td></td>
</tr>
<tr>
<td>Statement 13</td>
<td>.32</td>
<td></td>
</tr>
<tr>
<td>Statement 14</td>
<td>.44</td>
<td></td>
</tr>
<tr>
<td>Statement 15</td>
<td>.43</td>
<td></td>
</tr>
<tr>
<td>Statement 16*</td>
<td>.43</td>
<td></td>
</tr>
<tr>
<td>Statement 17</td>
<td>.25</td>
<td></td>
</tr>
<tr>
<td>Statement 18</td>
<td>.31</td>
<td></td>
</tr>
<tr>
<td>Statement 19</td>
<td>.43</td>
<td></td>
</tr>
</tbody>
</table>

Sample size $N = 282$

*Statements 1 and 16 were dropped from the indices of expected husband modernity and sex-role nontraditionality, respectively, because they did not contribute to the greater reliability of the indices.
correlations is nonrandom and statistically significant (see Dixon and Massey, 1969:565, Table A27).

If an index has construct validity, then it should be able to separate groups which are predicted to differ on the basis of some theory (Selltiz et al., 1976). There should be some association between a scale and another variable. In Chapter Two I noted that many previous interpretations of the negative relationships of fertility with the woman's education, class and employment—and the positive relationship between fertility and Catholicism—had referred to the sex-role nontraditionality of the woman. Educated, middle class, employed and non-Catholic women were thought to be less traditional than other women, and that was why their fertility was lower. If this is true, then an index measuring sex-role nontraditionality ought to be positively related to the wife's education, social class and extent of employment, and negatively related to her Catholic status. Table 3 shows that this is generally the case. The sex-role nontraditionality index is positively related to the education of the wife ($r = .26$), the extent of her employment ($r = .18$), and social class ($r = .21$). All of the correlations are statistically significant beyond the .05 level. However, the sex-role nontraditionality index is unrelated to the Catholic status of the wife. The correlation ($r = -.05$) is not significant.
TABLE 3
CORRELATIONS OF THE INDICES
WITH SELECTED VARIABLES

<table>
<thead>
<tr>
<th>Variable</th>
<th>Sex-Role Nontraditionality</th>
<th>Expected Husband Modernity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wife's Catholic status</td>
<td>-.04 (.25)*</td>
<td>-.03 (.33)</td>
</tr>
<tr>
<td>Social Class</td>
<td>.21 (.00)</td>
<td>.16 (.00)</td>
</tr>
<tr>
<td>Wife's Education</td>
<td>.26 (.00)</td>
<td>.18 (.00)</td>
</tr>
<tr>
<td>Number of Hours Worked Per Week</td>
<td>.18 (.00)</td>
<td>.10 (.04)</td>
</tr>
</tbody>
</table>

Sample size N = 282

*The significance level for a one tail test of the Pearsonian correlation coefficient appears in the parentheses beside each coefficient.*
Expected Husband Modernity

The sex-role nontraditionality expected of the husband—expected husband modernity—was also measured by an index. The wife was asked to respond to a series of statements about what was appropriate behavior for husbands. The statements covered topics such as the involvement of the husband in childcare, and greater flexibility and support from the husband concerning her pursuit of her nonfamilial interests. I arranged the coding of responses to the statements so that high scores represent nontraditional expectations for greater husband involvement and support. The values of the responses are summed to give an overall score on the index. Missing responses for a single statement were recoded to the median value categories of the statement before the values of the statements were summed. The index of expected husband modernity is fairly reliable: the alpha coefficient is .6579.

The validity of the expected husband modernity index

The validity of the index of expected husband modernity was established the same way as was the validity of the index of sex-role nontraditionality. Table 3 shows the correlations of each statement with an index constructed from the remaining statements. All of the
correlations are statistically significant, indicating that the items are empirically as well as logically related to one another.

The index also has construct validity. If roles are complementary then it can be expected that scores on the index of expected husband modernity will be positively correlated with the wife's education, extent of employment and class, and negatively correlated with her Catholic status. Table 3 shows that this is largely the case. The index is positively class \((r = .16)\), her education \((r = .18)\) and the extent of her employment \((r = .10)\). These correlation are statistically significant beyond the .05 level. However, the index is unrelated to the Catholic status of the wife \((r = .02)\).

**The Behavioral Intentions of the Wife**

The behavioral intentions of the wife were operationalized as the number of additional children she intended to have. Wives who were not pregnant were asked "How many (more) do you intend to have?" The wife's response was recorded verbatim. If the wife was pregnant at the time of the first interview, she was asked "How many more children do you intend to have in addition to the one you are now expecting?" The wife's response was recorded verbatim. Within each parity, missing data were recoded to the median value of the variable.
Companionship

The companionship the wife felt with her husband was measured by her responses to a two-statement index. She was asked: "How do you feel about the companionship you and your husband have in doing things together during leisure or non-work time—things such as movies, picnics, and so on" and "How do you feel about the way your husband understands your problems and feelings?" Responses to these questions were coded so that low scores indicate very good feelings about companionship—it is a close, primary relationship—and high scores indicate that things are "not so good" between the husband and wife. The responses were summed to arrive at the score for the index. Missing data were recoded to the median value categories of the statements before responses were summed. The index of companionship is fairly reliable for a two-item index: the alpha coefficient is .5420.

The validity of companionship

The validity of the companionship index is also simply established. The item-total correlation is the same as the correlation between the two statements. Table 4 shows that $r = .40$. This is statistically significant beyond the .05.
TABLE 4
VALIDITY AND RELIABILITY
FOR THE INDEX OF COMPANIONSHIP

<table>
<thead>
<tr>
<th>Overall alpha</th>
<th>.5420</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item-Total Correlation</td>
<td>.40</td>
</tr>
</tbody>
</table>

Correlations of companionship with selected variables

| Social class  | -.16 (.01)* |

Sample size N = 282

*The significance level for a one tail test of the Pearsonian correlation coefficient appears in the parentheses beside the coefficient.
The construct validity of the scale was established by testing its correlation with social class. Rainwater (1960) commented that working class wives often feel less companionship with and greater isolation from their husbands than do middle class wives. If this is true, then the companionship index should be negatively correlated with social class. Table 4 shows exactly this ($r = -.16$). The correlation is statistically significant. The companionship index has construct validation.

**Fertility-Fatalism**

The degree of fatalism of the wife concerning fertility control was measured by her response to the question "Suppose you decided *not* to have any (more) children. What would you estimate are your chances of getting pregnant anyway, on the basis of your experience? Would you say you would be: certain to get pregnant, would probably get pregnant, would probably *not* get pregnant, or would be certain not to get pregnant?" The response "certain to get pregnant" indicates a very fatalistic response, and was coded as the highest score. The response "would be *certain* not to get pregnant" indicates that the wife believes she has absolute control over her future fertility, and was coded as the lowest score. There were no missing data for the variable.
Power

Power was conceptualized as the degree of husband dominance in a disagreement between the husband and wife. The variable was operationalized as the wife's responses to two questions: "Of all the many kinds of decisions that come up in a family, what is the one thing that you and your husband disagree about most often?" and "When you and your husband disagree about [the one thing they disagree about most often], who usually gets his way, you or your husband?"

If the wife responded that she and her husband never disagreed, the degree of husband dominance was assigned a middle score, indicating an equalitarian marriage. If the wife responded that she and her husband compromised and worked things out, this was also treated as indicating an equalitarian marriage. If the wife responded that she usually got her way, the variable was assigned a low score to indicate a low degree of husband dominance. If the wife responded that her husband usually got his way, the variable was assigned a high score to indicate a high degree of husband dominance. There are no missing data for this variable.

Because the power exercised by one person in a marriage may vary with the issue (Blood and Wolfe, 1960), and because it is a sensitive issue for many couples,
there is an unknown potential for measurement error with two such simple questions. There is a strong (ideological) emphasis on equalitarian marriage in American culture (e.g., Blood and Wolfe, 1960; Gillespie, 1971). Heer (1958) has noted that under these circumstances it is possible that when couples are interviewed together, the dominant one could cause the submissive one to agree that they had equal influence. On the other hand, it is possible (again, because of the emphasis on equality) that a dominant one, when interviewed alone, will deny dominance. Heer noted several times that a dominant one admitted influence only when his wife pointed out several examples. He noted that it was an empirical question as to which technique (interviewing couples together or separately) produces less bias. Heer's comments should be interpreted as a caveat emptor for data users and the consumers of research results.

Further caution is necessary when interpreting results based on the use of this operational definition of power because the subject of disagreement is unknown. If the subject of disagreement has nothing to do with fertility, then the measure of husband dominance may be unrelated to fertility.
Independent Variables:  
The Demographic Perspective

The Age of the Wife

The age of the wife was operationalized as her age in years on her last birthday. There are no missing data for this variable.

The Length of Marriage

The length of time the marriage had lasted was operationalized as the number of months between the date of marriage (month and year) and September, 1971. There are no missing data for this variable.

The Age of the Last Child

The age of the last child was operationalized as the number of months the wife had been responsible for the last child. If the child was born to her, the operational measure was the number of months between the birth of the child (month and year) and September, 1971. If the child was adopted, then the operational measure was the number of months between the date the child started living with the mother (month and year) and September, 1971. If the second child was no longer living with the mother, the corresponding information about the third child was used. If the second and third child were no
longer living with the mother, then the corresponding information about the fourth child was used. This operational definition, then, does not correspond to the definition of parity (see Spiegelman, 1968). This reflects my interest in the effects of a social (as opposed to a biological) definition of motherhood on the subsequent fertility of the wife. It should be noted, however, that parity and the state of being responsible for a child are almost identical empirically. There were no missing data for this variable.

The Absence of Male Children

When the wife had one child in 1971, the absence of male children was coded as a dummy variable in response to the question "Was your first child a boy or a girl?" If it was a girl, the variable was coded "1". If it was a boy, the variable was coded "0". If the first child was no longer living with the mother, the corresponding information about the second child was used. When the wife had two children in 1971, the absence of male children was coded as a dummy variable in response to the questions "Was your first child a boy or a girl?" and "Was your second child a boy or a girl?" If the wife answered that both children were girls, the variable was coded "1"; otherwise, it was coded "0". If the second child was no
longer living with the mother, the corresponding information about the third child was used. If the second and third children were no longer living with the mother, the corresponding information about the fourth child was used. There was no missing information for this variable.

Data Analysis: The Technique of Hypothesis Testing

Multiple regression is used as the principle technique for testing hypotheses because it is the most efficient approach for testing the effects of a large number of variables simultaneously given relatively small sample sizes. Tabular analysis would require a far larger number of cases for an equivalent simultaneous testing of hypotheses. For example, the simultaneous testing of four variables in multiple regression requires a minimum of 20 cases. The equivalent testing of four variables in tabular analysis requires 80 cases. Adding a fifth variable to a regression equation would require an additional five cases. Adding a fifth variable in the tabular analysis would require an additional 80 cases.13

In statistics the most powerful techniques of data analysis are those which make the most assumptions.
Multiple regression makes twelve assumptions. The following section discusses the relative importance of these assumptions, how well the data from the subsamples meet the important assumptions, and procedures used to insure that the data meet the important assumptions.

The Assumptions of Multiple Regression

Assumptions About the Independent Variable

Multiple regression makes five assumptions about the independent variables: (1) the independent variables have a finite variance greater than zero, (2) the independent variables are uncorrelated with one another (i.e., an absence of multicollinearity), (3) additivity, (4) linearity, and (5) an interval level of measure.

The first assumption simply requires that the independent variables not be constants, and not have values equal to infinity. The first assumption is always met.

Dealing with Multicollinearity

Violation of the second assumption does not bias the estimation of regression coefficients, although the estimates are imprecise. Multicollinearity is a threat to the correct test of a hypothesis because it inflates
the variances and covariances of the regression coefficients. This leads to a greater chance of a type II error (see Farrar and Glauber, 1967; Kmenta, 1971).

Because multicollinearity is present to some degree in every multiple regression equation, it is important to know how much may be tolerated before significance tests of regression coefficients are substantially biased. The investigation of Farrar and Glauber (1967) suggests that partial correlations between independent variables ranging from .45 to -.45 are tolerable. However, if there are more than two independent variables in the equation, the partial correlations between the independent variables can all be within the range of .45 to -.45, and multicollinearity may still be a problem.

Most of the approaches to dealing with the problem of multicollinearity are not used here. Gathering additional data is out of the question. The use of factor analyses would not be appropriate because all of the independent variables measure concepts which are theoretically independent of one another. Instead multicollinearity will be dealt with by using a backwards-stepwise elimination procedure when testing hypotheses. Under this procedure, an independent variable is retained in an equation only when a significant proportion of variation in the dependent variable may be explained solely by the
independent variable. Although an independent variable may have a significant zero-order correlation with the dependent variable, multicollinearity may reduce the direct effect of the independent variable to insufficiency. When that happens, the colinear independent variable with the smallest direct effect is removed from the equation. This procedure is repeated until the regression equation has only variables with significant direct effects.

Additivity

Additivity means that each independent variable has the same impact on the dependent variable regardless of the values of the other independent variables. Interaction effects exist when this is not true. However, no tests for interaction effects will be made for several reasons. First, there are no explicit interaction hypotheses. Second, the large number of independent variables prohibit the test of all possible interaction effects. Finally, the colinearity of any interaction term with at least one of the independent variables which comprises it makes the interpretation of the results very difficult. Therefore, only additive effects will be analyzed in this study.
Linearity

The assumption of linearity means that the relationship between the dependent variable and an independent variable may be summarized by a straight line; the slope of the line, as indicated by the regression coefficient, remains constant over the range of the independent variable. This excludes curvilinear relationships unless special accommodations are made.

The assumption of linearity was checked among the three subsamples, and the results of the tests are shown in Tables 5, 6 and 7. In each subsample, all of the continuous variables were trichotomized into roughly equal parts and means of the dependent variable for each part of the variable were compared. For example, the test for nonlinearity of the sex-role nontraditionality among wives with no children (Table 5) revealed the following situation. Those wives who were traditional averaged 1.28 children born to them between 1971 and 1975. Those wives who were nontraditional averaged .57 children born to them during the same time. Those wives who fell between the two extreme parts averaged .68 births during the time period. The F test for the deviation from linearity equals 1.88, with an associated significance level of .18. Because multiple regression is sensitive to deviations from linearity in relatively small samples, I
### TABLE 5

**TESTS OF LINEARITY AMONG WIVES WITH NO CHILDREN BY 1971.**

**ONE WAY ANALYSES OF VARIANCE OF FERTILITY BY . . .**

<table>
<thead>
<tr>
<th>Variable</th>
<th>$\bar{x}_1^*$</th>
<th>$\bar{x}_2^*$</th>
<th>$\bar{x}_3^+$</th>
<th>$F^+$</th>
<th>$a^#$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Husband's income</td>
<td>.94</td>
<td>.74</td>
<td>.84</td>
<td>.60</td>
<td>.44</td>
</tr>
<tr>
<td>Husband's relative income</td>
<td>.86</td>
<td>.90</td>
<td>.75</td>
<td>.25</td>
<td>.61</td>
</tr>
<tr>
<td>Husband's education</td>
<td>.91</td>
<td>.82</td>
<td>.75</td>
<td>.00</td>
<td>.98</td>
</tr>
<tr>
<td>Perceived income adequacy</td>
<td>.81</td>
<td>1.00</td>
<td>.20$^+$</td>
<td>3.95</td>
<td>.05</td>
</tr>
<tr>
<td>No. of hours worked/week</td>
<td>.86</td>
<td>1.00$^+$</td>
<td>.83</td>
<td>.12</td>
<td>.73</td>
</tr>
<tr>
<td>Wife's education</td>
<td>1.00$^+$</td>
<td>.96</td>
<td>.64</td>
<td>.39</td>
<td>.53</td>
</tr>
<tr>
<td>Social class</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Wife's Catholic status</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Sex-role nontraditionality</td>
<td>1.28</td>
<td>.68</td>
<td>.57</td>
<td>1.88</td>
<td>.18</td>
</tr>
<tr>
<td>Expected husband modernity</td>
<td>.97</td>
<td>.84</td>
<td>.71</td>
<td>.00</td>
<td>.99</td>
</tr>
<tr>
<td>No. of children intended</td>
<td>.67</td>
<td>.96</td>
<td>1.06</td>
<td>.24</td>
<td>.63</td>
</tr>
<tr>
<td>Companionship</td>
<td>.76</td>
<td>.83</td>
<td>1.30</td>
<td>.86</td>
<td>.36</td>
</tr>
<tr>
<td>Fertility-Fatalism</td>
<td>.43</td>
<td>.89</td>
<td>1.06</td>
<td>.62</td>
<td>.43</td>
</tr>
<tr>
<td>Husband dominance</td>
<td>1.10</td>
<td>.79</td>
<td>.73</td>
<td>.47</td>
<td>.49</td>
</tr>
<tr>
<td>Wife's age</td>
<td>1.16</td>
<td>.89</td>
<td>.46</td>
<td>.21</td>
<td>.65</td>
</tr>
<tr>
<td>Length of marriage</td>
<td>.93</td>
<td>.80</td>
<td>.79</td>
<td>.10</td>
<td>.75</td>
</tr>
</tbody>
</table>

Sample Size N = 88

*The mean values of fertility for each of the categories of the independent variable (low scores: 1; middle scores: 2; high scores: 3.*

†The value of the $F$ test for deviation from linearity.

#The significance level of the $F$ test.

$^+$The number of cases in the category is less than 10.

θDummy coded variables are defined as linear. Therefore, no test need be made.
TABLE 6
TESTS OF LINEARITY AMONG WIVES WITH ONE CHILD BY 1971.
ONE WAY ANALYSES OF VARIANCE OF FERTILITY BY . . .

<table>
<thead>
<tr>
<th>Variable</th>
<th>$\bar{x}_1^*$</th>
<th>$\bar{x}_2^*$</th>
<th>$\bar{x}_3^*$</th>
<th>$F^{†}$</th>
<th>a#</th>
</tr>
</thead>
<tbody>
<tr>
<td>Husband's income</td>
<td>.64</td>
<td>.65</td>
<td>.91</td>
<td>.95</td>
<td>.33</td>
</tr>
<tr>
<td>Husband's relative income</td>
<td>.58</td>
<td>.61</td>
<td>.88</td>
<td>.41</td>
<td>.52</td>
</tr>
<tr>
<td>Husband's education</td>
<td>.67</td>
<td>.67</td>
<td>1.00</td>
<td>1.61</td>
<td>.21</td>
</tr>
<tr>
<td>Perceived income adequacy</td>
<td>.91</td>
<td>.73</td>
<td>.45</td>
<td>.12</td>
<td>.73</td>
</tr>
<tr>
<td>No. of hours worked/week</td>
<td>.85</td>
<td>.80⁺</td>
<td>.54</td>
<td>.15</td>
<td>.70</td>
</tr>
<tr>
<td>Wife's education</td>
<td>.82</td>
<td>.68</td>
<td>1.00</td>
<td>2.94</td>
<td>.09</td>
</tr>
<tr>
<td>Social class</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Wife's Catholic status</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Sex-role nontraditionality</td>
<td>.80</td>
<td>.87</td>
<td>.59</td>
<td>1.66</td>
<td>.20</td>
</tr>
<tr>
<td>Expected husband modernity</td>
<td>.81</td>
<td>.71</td>
<td>.77</td>
<td>.42</td>
<td>.52</td>
</tr>
<tr>
<td>No. of children intended</td>
<td>.59</td>
<td>.76</td>
<td>.83</td>
<td>.17</td>
<td>.68</td>
</tr>
<tr>
<td>Companionship</td>
<td>.81</td>
<td>.81</td>
<td>.62</td>
<td>.43</td>
<td>.51</td>
</tr>
<tr>
<td>Fertility-Fatalism</td>
<td>.64</td>
<td>.75</td>
<td>.90</td>
<td>.01</td>
<td>.90</td>
</tr>
<tr>
<td>Husband dominance</td>
<td>.65</td>
<td>.81</td>
<td>.78</td>
<td>.47</td>
<td>.49</td>
</tr>
<tr>
<td>Wife's age</td>
<td>.74</td>
<td>.68</td>
<td>.84</td>
<td>.59</td>
<td>.44</td>
</tr>
<tr>
<td>Length of marriage</td>
<td>.79</td>
<td>.88</td>
<td>.61</td>
<td>1.76</td>
<td>.19</td>
</tr>
<tr>
<td>Absence of male children</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Age of the last child</td>
<td>.84</td>
<td>.89</td>
<td>.53</td>
<td>2.41</td>
<td>.12</td>
</tr>
</tbody>
</table>

Sample Size  N = 98

*The mean values of fertility for each of the categories of the independent variable (low scores: 1; middle scores: 2; high scores: 3.
†The value of the F test for deviation from linearity.
#The significance level of the F test.
⁺The number of cases in the category is less than 10.
₀Dummy coded variables are defined as linear. Therefore, no test need be made.
TABLE 7
TESTS OF LINEARITY AMONG WIVES WITH TWO CHILDREN BY 1971. ONE WAY ANALYSES OF VARIANCE OF FERTILITY BY . . .

<table>
<thead>
<tr>
<th>Variable</th>
<th>$\bar{x}_1^*$</th>
<th>$\bar{x}_2^*$</th>
<th>$\bar{x}_3^*$</th>
<th>$F^+$</th>
<th>$a#$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Husband's income</td>
<td>.38</td>
<td>.44</td>
<td>.34</td>
<td>.30</td>
<td>.58</td>
</tr>
<tr>
<td>Husband's relative income</td>
<td>.32</td>
<td>.52</td>
<td>.31</td>
<td>2.47</td>
<td>.12</td>
</tr>
<tr>
<td>Husband's education</td>
<td>.33</td>
<td>.36</td>
<td>.47</td>
<td>.13</td>
<td>.72</td>
</tr>
<tr>
<td>Perceived income adequacy</td>
<td>.51</td>
<td>.27</td>
<td>.46</td>
<td>2.95</td>
<td>.09</td>
</tr>
<tr>
<td>No. of hours worked/week</td>
<td>.41</td>
<td>.40</td>
<td>.27</td>
<td>.07</td>
<td>.79</td>
</tr>
<tr>
<td>Wife's education</td>
<td>.46</td>
<td>.27</td>
<td>.59</td>
<td>4.36</td>
<td>.04</td>
</tr>
<tr>
<td>Social class</td>
<td>---@</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Wife's Catholic status</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Sex-role nontraditionality</td>
<td>.42</td>
<td>.47</td>
<td>.27</td>
<td>.84</td>
<td>.36</td>
</tr>
<tr>
<td>Expected husband modernity</td>
<td>.28</td>
<td>.51</td>
<td>.34</td>
<td>2.64</td>
<td>.11</td>
</tr>
<tr>
<td>No. of future children intended</td>
<td>.26</td>
<td>.52</td>
<td>.90</td>
<td>.14</td>
<td>.71</td>
</tr>
<tr>
<td>Companionship</td>
<td>.33</td>
<td>.50</td>
<td>.33</td>
<td>1.62</td>
<td>.21</td>
</tr>
<tr>
<td>Fertility-Fatalism</td>
<td>.30</td>
<td>.28</td>
<td>.63</td>
<td>2.36</td>
<td>.13</td>
</tr>
<tr>
<td>Husband dominance</td>
<td>.38</td>
<td>.42</td>
<td>.35</td>
<td>.19</td>
<td>.66</td>
</tr>
<tr>
<td>Wife's age</td>
<td>.47</td>
<td>.45</td>
<td>.26</td>
<td>.43</td>
<td>.51</td>
</tr>
<tr>
<td>Length of marriage</td>
<td>.52</td>
<td>.33</td>
<td>.31</td>
<td>.41</td>
<td>.52</td>
</tr>
<tr>
<td>Absence of male children</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Age of the last child</td>
<td>.47</td>
<td>.36</td>
<td>.32</td>
<td>.06</td>
<td>.80</td>
</tr>
</tbody>
</table>

Sample size  $N = 96$

*The mean values of fertility for each of the categories of the independent variable (low scores: 1; middle scores: 2; high scores: 3.

$^+$The value of the F test for deviation from linearity.

$^#$The significance level of the F test.

@Dummy coded variables are defined as linear. Therefore, no test need be made.
decided to treat all F test values for the deviation from linearity as significant if the significance level exceeded .32. The significance level of .18 indicates that the sex-role nontraditionality of the wife has a nonlinear relationship with her fertility between 1971 and 1975. The significance level of .05 indicates that the perceived adequacy of the husband's income also has a nonlinear relationship with the wife's fertility between 1971 and 1975. The two independent variables illustrate different problems. The relationship of sex-role nontraditionality with fertility shows a threshold effect. The moderate and nontraditional wives had nearly equal fertility, while the traditional wives averaged nearly twice as many children. This nonlinearity was handled by recoding sex-role nontraditionality to a dummy variable. Those wives who were traditional were assigned the value "0". Those wives who were moderate or nontraditional were assigned the value of "1". The relationship between the perceived adequacy of the husband's income and the wife's fertility shows an inverted "U" relationship. Wives who were very satisfied with the husband's income and wives who were not satisfied with the husband's income appear to have lower fertility than wives who were satisfied with the husband's income (.81 and .20 births per wife versus 1.00 births per wife, respectively).
This curvilinearity was handled by recoding the perceived income adequacy to a dummy variable. Those wives who were very satisfied or not satisfied were coded "1". Those wives who were satisfied were coded "0".

Similar procedures were followed to correct for the nonlinear relationships discovered in the subsample of wives who had one child and the subsample of wives who had two children. The general rule for deciding if a relationship is nonlinear is to treat any F test value for nonlinearity as significant if the probability of obtaining such an F value by chance was less than .32. The general rule for deciding if a nonlinear relationship is curvilinear or a threshold effect is based on the distribution of category means. If the mean of the intermediate category is greater than the grand mean of the three categories and the means of the extreme categories are less than the grand mean of the three categories, or if the mean of the intermediate category is less than the grand mean of the three categories and the means of the extremes are greater than the grand mean of the three categories, then the relationship was treated as curvilinear. Otherwise, it was treated as a threshold effect.

Table 6 shows that five independent variables—the husband's education, the wife's education, her sex-role nontraditionality, the length of time she has been
married, and the length of time she has been responsible for a child—have nonlinear relationships with fertility. This was corrected by the following recoding procedure. Husbands and wives with low and intermediate levels of education were coded "0" and husbands and wives with high levels of education were coded "1". Sex-role traditional and moderate wives were coded "0" and nontraditional wives were coded "1". Wives who had been married for short and average lengths of time, and wives who had had a child for a short and average length of time, were coded "0". Wives who had been married for a long time, and wives who had had a child for a long time were coded "1".

Table 7 shows that six variables—the husband's relative income, the perceived income adequacy, the wife's education, the sex-role nontraditionality expected of the husband, the fatalism of the wife, and the companionship she feels with her husband—have nonlinear relationships with fertility. Wives of low and moderate fatalism were coded "0" and fatalistic wives were coded "1". The intermediate values of the remaining variables were coded "0" and the extreme values were coded "1".

The impact of nonlinearity on the hypotheses as they were stated in Chapter Two will be discussed later in this chapter.
Interval Level of Measurement

Multiple regression assumes that variables have (at least) an interval level of measurement. The use of dummy variables in multiple regression does not violate this assumption. It has been shown that dummy variable regression mathematically corresponds to the analysis of variance and the analysis of covariance if proper procedures are followed (Neter and Wasserman, 1974). Consequently, the only variables used in this study which violate the assumption of interval level measurement are: the perceived income adequacy, husband dominance, and fatalism. Treating these three ordinal variables as interval variables risks some degree of measurement error. Measurement error biases regression coefficients. However, all measurements in science have some degree of measurement error. If ordinal measures may be treated as inexact interval measures, the question becomes, at what point does the bias of ordinal measures become unacceptably large for the calculation of regression coefficients?

Research on this question suggests that the bias of treating ordinal measures as interval measures in correlation analysis is extremely small when the number of ranks of the ordinal measure is less than approximately six (O'Brien, 1979). Since the perceived income adequacy, husband dominance, and fatalism have ranks of less than six, I feel that their use in a regression equation as interval level measures is appropriate.
Assumptions About the Dependent Variable

With any stochastic estimation technique, there are differences between the estimated values of the dependent variable and the observed values of the dependent variable. Multiple regression makes five assumptions about the error term: (1) the error term is normally distributed, (2) the mean difference between the estimated and observed values of the dependent variable (i.e., the expected value of the error term) equals zero, (3) the variance of the dependent variable is constant throughout the range of the independent variables (i.e., homoskedasticity), (4) the value of the error term for one case is unrelated to the value of the error term for any other case (i.e., no serial correlation or autoregression), and (5) the value of the error term is unrelated to any of the independent variables.

Normality, Zero Mean, and Homoskedasticity

The first three assumptions allow the dependent variable to be normally distributed with a mean $\mu$ and a variance $\sigma^2$. The failure to meet assumptions biases the significance tests of the regression coefficients toward either a type I or type II error. The violation of these assumptions does not bias estimation
of the regression coefficients. The nature of the violation of these assumptions is the disturbance of the distributions; the area under the curve in the rejection region for the null hypothesis may be more or less than indicated by the probability level.

In practice, though, violations of the assumptions of normality and homoskedasticity must be extreme before the tests of significance will be noticeably inaccurate (Hays, 1963). They are relatively unimportant assumptions.

The violation of the second assumption does not bias the calculation of the regression coefficient, but it biases the computation of the intercept term if one is interested in the population parameter. For any particular sample, though, the least squares estimators force the expected value of the error term to be equal to zero. The population estimate of the intercept term is biased only when the equation has been misspecified.

Other Assumptions

The fourth assumption applies only with time series data where the dependent variable is measured over a number of years.

The fifth assumption is important. Unfortunately, there is no way to adequately test for an association of the error variable with the independent variables before
making the estimates of the path coefficients. It would be possible to compute the values of the error term and test its correlations with the independent variables, but this is a weak test of the assumption because the estimates of the dependent variable (and therefore the estimates of the error term) are based on the regression coefficients to begin with. The only assurance against this problem (and it is a moderate assurance) is that the dependent variable was measured after the independent variables were measured.

Assumptions About the Sample

Multiple regression makes two assumptions about the sample: (1) the number of observations (cases) is greater than the number of coefficients to be estimated, and (2) the sample has been randomly drawn from the population to which one will generalize the results.

The first assumption has been satisfied. Within each subsample there are many more cases than there are variables.

The sample used in this study is not a simple random sample; other sampling techniques were used in addition to the random sampling of households in the sample segments. However, the usefulness of a simple random sample for purposes of generalization may be overrated in practice
(Namboodiri et al., 1975:9-10). The purpose of drawing a simple random sample is to insure that the sample is representative of the population. There are ways other than random drawings to insure the representativeness of the sample (Miller, 1970). I have already demonstrated that Scanzoni's sample is nationally representative within the limitations of race, the ages of the wives, the lengths of their marriages and the number of children they had in 1971. Therefore, the violation of this assumption should not be problematic here.

Hypothesis Testing

There are two principle techniques for testing hypotheses by the use of multiple regression computer program packages: a forward-stepwise solution and a backward-stepwise elimination. I use the backward-stepwise elimination technique because it has several advantages over the more commonly used forward-stepwise solution. (1) The backward-stepwise technique tests each independent variable as if it were the last to enter the equation. This means each variable's relationship with the dependent variable is tested after the effects of the other variables have been accounted for. This is true only of the last variable to enter the equation in
a forward-stepwise solution. (2) The backward-stepwise technique provides the greatest chance of uncovering a suppressed relationship because variables remain in the equation only if their partial correlations with the dependent variable remain significant; the criteria of selection is not based on the strength of the zero-order correlation as with a forward-stepwise solution. Therefore, a variable whose partial correlation with the dependent variable is significant, but whose zero-order correlation is insignificant, will appear in an equation generated by the backwards-stepwise technique. (3) The backwards-stepwise technique allows the greatest chance of arriving at a properly specified equation—one which includes only statistically significant independent variables (Kmenta, 1971). The backwards-stepwise technique eliminates insignificant variables from an equation, one by one, until there are no more insignificant variables. This allows suppressed variables to remain in an equation and eliminates variables which have significant zero order correlations with the dependent variable—but insignificant partial correlations. There is no guarantee that a forward-stepwise solution would allow for either of these possibilities.
Operational Hypotheses

The operational forms of the hypotheses are stated in this section. They are stated so that they conform with the results of the tests of linearity. The hypotheses from Chapter Two are restated.

The Economic Perspective

I hypothesize that the husband's income will have no effect on his wife's subsequent fertility. Therefore, when the number of children born to the wife between 1971 and 1975 is regressed against the husband's 1970 income before taxes, I expect the regression coefficient to be statistically insignificant in all three subsamples.

I hypothesize that the husband's lifetime potential income will have no effect on his wife's subsequent fertility. Therefore, when the number of children born to the wife between 1971 and 1975 is regressed against the highest grade of school completed by the husband, I expect the regression coefficient to be statistically insignificant in all three subsamples.

I hypothesize that the husband's relative income will have a positive direct effect on his wife's subsequent fertility when she has no children or when she has one child. I hypothesize that the husband's relative income will have no effect on his wife's subsequent
fertility when she has two children. Therefore, when the number of children born to the wife between 1971 and 1975 is regressed against the ratio of the husband's actual 1970 income to his expected 1970 income, I expect the regression coefficient to be positive and statistically significant when his wife has one child or no children. I expect the regression coefficient to be statistically insignificant when his wife already has two children by 1971.18

In Chapter Two I hypothesized that the more adequate the wife perceived her husband's income to be, the greater would be her subsequent fertility regardless of the number of children for which she was responsible at the time. However, the tests of linearity reported in Tables 5 and 7 showed that the relationships may be curvilinear. Therefore, the original hypothesis, which implied a linear relationship, must be partially abandoned among wives with no children and wives with two children. The following hypotheses are offered a priori in their place. Among wives with no children by 1971, I hypothesize wives who are very satisfied with their husbands' incomes and wives who are not satisfied with their husbands' incomes will have lower subsequent fertility than wives who are satisfied with their husbands' incomes.
Among wives who have two children by 1971, I hypothesize that wives who are very satisfied with their husbands' incomes and wives who are not satisfied with their husbands' incomes will have greater subsequent fertility than wives who are satisfied with their husbands' incomes. Therefore, when the number of children born to the wife between 1971 and 1975 is regressed against the perceived income adequacy, I expect the regression coefficient to be negative and significant among wives who had no children by 1971, and positive and significant among wives who had two children by 1971. Table 6 showed that relationship between fertility and perceived income adequacy is linear. Therefore, when fertility is regressed against perceived income adequacy, I expect the regression coefficient to be negative and significant.

The Normative-Socialization Perspective

I hypothesized that the extent of the wife's employment, her education, her social class and her Catholic status would have no effect on her subsequent fertility. Therefore, when the number of children born to the wife between 1971 and 1975 is regressed against the number of hours she works per week, her highest grade completed, her husband's middle- or working-class occupation, and whether she identifies herself as a Catholic, I expect
the respective regression coefficients to be statistically insignificant in all three subsamples.

I hypothesized that the sex-role nontraditionality of the wife would be negatively related to her subsequent fertility. Therefore, when the number of children born to the wife between 1971 and 1975 is regressed against the index of sex-role nontraditionality, I expect the regression coefficient to be negative and statistically significant in all three subsamples.

I hypothesized that the greater the expected husband modernity, the greater will be the wife's subsequent fertility. However, the test of linearity reported in Table 7 showed that relation may be curvilinear among wives with two children in 1971. Therefore, the following hypothesis is offered a priori. Among wives with two children in 1971, I hypothesize that wives who expect little familial involvement and personal support from their husbands and wives who expect great involvement and support will have fewer subsequent children than other wives. Therefore, when the number of children born to the wife between 1971 and 1975 is regressed against expected husband modernity, I expect the regression coefficient to be positive and significant among wives with fewer than two children, and negative and significant among wives with two children.
I hypothesized that the wife's behavioral intentions would have a positive direct effect on her subsequent fertility. Therefore, when the number of children born to the wife between 1971 and 1975 is regressed against the number of (additional) children she intends to have, I expect the regression coefficient to be positive and statistically significant.

The Family Structure and World-View Perspective

I hypothesized that companionship the wife feels with her husband will have a negative effect on her subsequent fertility. Therefore, when the number of children born to the wife between 1971 and 1975 is regressed against the index of companionship, I expect the regression coefficient to be positive and statistically significant.

However, Table 7 shows that there is a curvilinear relationship between fertility and companionship. Therefore, the operational hypothesis must be restricted to those wives who have no children or only one child by 1971. For those wives who have two children, the following hypothesis is offered a priori. Wives who are very satisfied with the relationship with their husband and wives who feel the relationship is "not so good" will have lower fertility than wives who are satisfied with their relationship with their husband. Therefore, when
fertility is regressed against the index of companion­ship, I expect the regression coefficient to be negative and significant.

I hypothesized that fatalism is positively related to the wife's fertility. Therefore, when the number of children born to the wife between 1971 and 1975 is regressed against her belief in her ability to avoid an unwanted pregnancy, I expect the regression coefficient to be positive and statistically significant among all three subsamples.

I hypothesized that power and fertility are positively related. Therefore, when the number of children born to the wife between 1971 and 1975 is regressed against the degree of husband dominance, I expect the regression coefficient to be positive and statistically significant in all three subsamples. However, problems with the measurement of husband dominance may weaken the test of this hypothesis.

**Demographic Variables**

I hypothesized that the wife's age would have a negative effect on her subsequent fertility. Therefore, when the number of children born to the wife between 1971 and 1975 is regressed against her age, I expect the regression coefficient to be negative and statistically significant in all three subsamples.
I hypothesized that the length of marriage would have a negative effect on her subsequent fertility. Therefore, when the number of children born to the wife between 1971 and 1975 is regressed against the number of months she has been married, I expect the regression coefficient to be negative and significant in all three subsamples.

I made no single hypothesis about the effect of the length of time since the birth of the last child. If it reflects the end of family formation, then I argued that the relationship would be negative. If it reflected the timing of children, then I argued that the effect would be positive. Therefore, in the former case when the number of children born to the wife between 1971 and 1975 is regressed against the number of months since she became responsible for the last child, I expect the regression coefficient to be negative and statistically significant. In the latter case I expect the regression coefficient to be positive and statistically significant. These hypotheses apply only to women who have had one or two children by 1971.

I hypothesized that the fertility of wives who had no male child would be no different than the fertility of wives who had a male child. Therefore, when the number of children born to the wife between 1971 and 1975 is regressed against the dummy variable representing
the absence of any male children, I expect the regression
coefficient to be statistically insignificant.

Table 8 summarizes the hypotheses in their
operational form. It shows which independent variables
are expected to have positive, negative or no effect in
each of the subsamples.

Summary

This chapter has discussed in detail the technical
aspects of the conduct of this study. The sample selec-
tion procedure was described, and the national repre-
sentativeness of the subsamples was established. The
measurement of the variables— including the display of
the questions from the questionnaire— was described. In
those cases where the operationalization of a variable
involved the use of responses to many questions, the
reliability and validity of the indices was established.
The assumptions of a multiple regression approach to the
analysis of covariance were discussed. A description of
how the assumption of linearity was met was stated. The
advantages of a backward-stepwise elimination over the more
typical forward-stepwise procedure were discussed. Finally,
the operational forms of the hypotheses— after curvilinear-
ities were accommodated— were stated in terms of the opera-
tional measures used and the expected sign and significance
of regression coefficients.
### TABLE 8

**EXPECTED SIGNS OF REGRESSION COEFFICIENTS AMONG THE SUBSAMPLES**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Number of Children Wife Was Responsible for by 1971</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>zero</td>
</tr>
<tr>
<td>Husband's income</td>
<td>0(^1)</td>
</tr>
<tr>
<td>Husband's relative income</td>
<td>+</td>
</tr>
<tr>
<td>Husband's education</td>
<td>0</td>
</tr>
<tr>
<td>Perceived income adequacy</td>
<td>(-^3)</td>
</tr>
<tr>
<td>No. of hours worked/week</td>
<td>0</td>
</tr>
<tr>
<td>Wife's education</td>
<td>0</td>
</tr>
<tr>
<td>Social class</td>
<td>0</td>
</tr>
<tr>
<td>Wife's Catholic status</td>
<td>0</td>
</tr>
<tr>
<td>Sex-role nontraditionality</td>
<td>(-)</td>
</tr>
<tr>
<td>Expected husband modernity</td>
<td>+</td>
</tr>
<tr>
<td>No. of future children</td>
<td>+</td>
</tr>
<tr>
<td>intended</td>
<td>(+)</td>
</tr>
<tr>
<td>Companionship</td>
<td>(+)</td>
</tr>
<tr>
<td>Fertility-Fatalism</td>
<td>(+)</td>
</tr>
<tr>
<td>Husband dominance</td>
<td>(+)</td>
</tr>
<tr>
<td>Wife's age</td>
<td>(-)</td>
</tr>
<tr>
<td>Length of marriage</td>
<td>(-)</td>
</tr>
<tr>
<td>Absence of male children</td>
<td>0</td>
</tr>
<tr>
<td>Age of the last child</td>
<td>(+/-^4)</td>
</tr>
</tbody>
</table>

\(^1\)"0" indicates that a statistically insignificant coefficient is expected. "+" and "-" indicate that positive and negative (respectively) statistically significant coefficients are expected.

\(^2\)This particular variable is coded to account for a curvilinear relationship. However, I expect the coefficient to be insignificant.

\(^3\)This particular variable is coded to account for a curvilinear relationship. I expect the coefficient to be significant.

\(^4\)No single hypothesis was derived.
Notes to Chapter Three

1 The Scanzoni data were collected under contract no. 70-2192 from the Center for Population Research, National Institutes for Child Health and Human Development.

2 Hout (1976) noted that four years is the most useful interval. A shorter interval would allow too much random error to enter into the measurement of the dependent variable. A longer interval risks confusion of the effects of fertility and employment upon one another.

3 Among the 68 wives with no children in 1971, 43.2 percent had no children between 1971 and 1975, 31.8 percent had one child, 22.7 percent had two children, and 2.3 percent had three children. Among the 98 wives with one child by 1971, 34.7 percent had no children between 1971 and 1975, 55.1 percent had one child, and 10.2 percent had two children. Among the 96 wives with two children in 1971, 66.7 percent had no children between 1971 and 1975, 28.1 percent had one child, and 5.2 percent had two children. Among wives with no children, the greatest tendency is to have no children (at least for a while); among wives with one child, the greatest tendency is to have the second child. Among wives with two children, the greatest tendency is to have no more children.

4 Appendices A and B contain the details about questions, coding of responses, and computer program recodes for the construction of the independent variables.

5 The highest income category was coded as "$20,000 or more." This open-ended category has no mid-point. Therefore, I arbitrarily recoded responses which fell into this category as $25,000. This guess can not bias the estimates of the effects of the husband's income on the wife's fertility because only 2 of the 282 wives reported their husband's 1970 income as "$20,000 or more."

6 If a variable had more than two or three percent missing data, the cases with data missing for that variable were dropped from the data analysis. More than two or three percent of the data on the husband's 1970 income before taxes was missing.
If a variable has less than two or three percent missing data, the missing value code was recoded to the median category or modal value of the variable. This procedure biases the regression coefficients toward zero (Kmenta, 1971), but such a bias is minimal. Given the subsample sizes and the number of hypotheses tested, the advantages of saving cases by recoding a few missing values appear to outweigh the disadvantages of the (minimal) bias incurred.

7 Among wives with no children in 1971, 47 percent of the wives were Catholic. Among wives with one child in 1971, 31 percent of the wives were Catholic. Among wives with two children in 1971, 35 percent of the wives were Catholic.

8 Glock and Stark (1965) make a similar argument linking beliefs and norms.

9 Among 88 wives with no children in 1971, 3.4 percent intended to have no children, 8 percent intended to have one child, 37.5 percent intended to have two children, 31.8 percent intended to have three children, 15.9 intended to have four children, and 3.4 percent intended to have five children. Among the 98 with one child by 1971, 17.3 percent intended to have no more children, 52 percent intended to have one more child, 22.4 percent intended to have two more children, 6.1 percent intended to have three more children, and 2 percent intended to have four more children. Among the 96 wives with two children by 1971, 67.7 percent intended to have no more children, 21.9 percent intended to have another child, 9 percent intended to have two more children, and 1 percent intended to have three more children.

10 September, 1971, was arbitrarily set as the data of the date of the first interview for all of the respondents.

11 All of the first children were living with their parents at the time of the first interview.

12 There was only one set of twins in the entire sample at the time of the first interview. Their mother was treated as a member of the subsample of wives responsible for two children. The birth information about the twins was coded for the length of time since the second child. The twins were girls.
13. In regression analysis the absolute minimum number of cases required for results which are other than nonsense is given by the formula $5X = \# \text{ cases}$, where $5$ is the number of cases per independent variable and $x$ is the number of independent variables. In tabular analysis the absolute minimum number of cases required for results which are other than nonsense is given by the formula $5YX = \# \text{ cases}$, where $5$ is the number of cases per cell of the table, $Y$ is the number of categories of the independent variable, and $X$ is the number of independent variables. Every cell is assumed to have $5$ cases. In the example in the text it is assumed that $Y = 2$; i.e., all of the independent variables are dichotomies.

14. This section on the assumptions of multiple regression is based largely on Kmenta (1971).

15. Scanzoni (1975) had five variables representing aspects of sex-role traditionality. I have reduced these to two: the sex-role nontraditionality of the wife, and the sex-role nontraditionality she expects of her husband (husband modernity). This greatly reduces the multicolinearity in the data matrix.

16. The reader will recall that occasionally these variables may be transformed into dummy variables for particular subsamples.

17. It should be noted that statements comprising the scaled variables are ordinal measures. By summing the values assigned to particular responses to arrive at the index score, these variables have been "pushed" from an ordinal to an interval level. Their definition as interval measures occurs at the point of their construction, not at the point of their use in regression. Since the statements of the indices have less than six ranks, the use of Pearson correlation coefficients to establish the reliability of the indices seems appropriate.
On the other hand, if Goldberg (1960) and Presser (1973) are correct in their conclusion that the first child causes activities to be centered around the home, the regression coefficient for the husband's relative income may be insignificant among wives with no children in 1971.

The reader will recall that low scores for this variable indicate that the wife is very satisfied with the income provided by the husband's job.

The reader will recall that low scores for this variable indicate that wife experiences a close, primary type of relationship with her husband. High scores indicate her isolation and alienation.

In the subsample of wives who were responsible for one child in 1971, the dependent variable is regressed against the length of time responsible for the first child. In the subsample of wives who were responsible for two children in 1971, the dependent variable is regressed against the length of time responsible for two children.
CHAPTER FOUR

RESULTS

This chapter discusses the results of the tests of the hypotheses developed in Chapters Two and Three. The first section of this chapter describes the similarities and differences between the subsamples of wives. The second section discusses the implications of the results of the tests of hypotheses for each perspective. The third section briefly discusses the implications of the results of the tests of hypotheses for each subsample of wives.

Subsample Comparison

Table 9 displays the means and standard deviations of the variables for each subsample of wives. A comparison of the means of the subsamples reveals a number of slight differences. Wives with no children are slightly more educated and have slightly more educated husbands. They are more likely to be middle class, Catholic, very satisfied with their husbands'
TABLE 9
MEANS' AND STANDARD DEVIATIONS OF THE VARIABLES
The Number of Children of the Wife in 1971

<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>( \bar{X} )</td>
<td>S.D.</td>
<td>( \bar{X} )</td>
</tr>
<tr>
<td>No. of Children Born: 1971-1975</td>
<td>.84</td>
<td>.86</td>
<td>.76</td>
</tr>
<tr>
<td>Economic</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Husband's Income</td>
<td>8284.09</td>
<td>4087.26</td>
<td>8428.57</td>
</tr>
<tr>
<td>Husband's Relative Income</td>
<td>.96</td>
<td>.44</td>
<td>1.01</td>
</tr>
<tr>
<td>Husband's Education</td>
<td>13.48</td>
<td>2.48</td>
<td>12.52</td>
</tr>
<tr>
<td>Perceived Income Adequacy</td>
<td>.52</td>
<td>.77</td>
<td>.89</td>
</tr>
<tr>
<td>Normative Socialization</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of Hours Worked/Week</td>
<td>32.73</td>
<td>14.91</td>
<td>12.45</td>
</tr>
<tr>
<td>Wife's Education</td>
<td>13.05</td>
<td>2.44</td>
<td>12.21</td>
</tr>
<tr>
<td>Social Class</td>
<td>.55</td>
<td>.50</td>
<td>.31</td>
</tr>
<tr>
<td>Wife's Catholic Status</td>
<td>.47</td>
<td>.50</td>
<td>.31</td>
</tr>
<tr>
<td>Sex-Rule Nontraditionality</td>
<td>27.02</td>
<td>8.87</td>
<td>26.94</td>
</tr>
<tr>
<td>Expected Husband Modernity</td>
<td>15.84</td>
<td>4.49</td>
<td>15.41</td>
</tr>
<tr>
<td>(Additional) Children Intended</td>
<td>2.59</td>
<td>1.07</td>
<td>1.24</td>
</tr>
<tr>
<td>Family Structure and World View</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Companionship</td>
<td>.68</td>
<td>1.07</td>
<td>1.30</td>
</tr>
<tr>
<td>Fertility-Fatalism</td>
<td>1.48</td>
<td>1.27</td>
<td>1.21</td>
</tr>
<tr>
<td>Husband Dominance</td>
<td>1.11</td>
<td>.75</td>
<td>1.19</td>
</tr>
<tr>
<td>Demographics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wife's Age (years)</td>
<td>23.23</td>
<td>2.67</td>
<td>22.94</td>
</tr>
<tr>
<td>Marriage Length (months)</td>
<td>30.99</td>
<td>24.46</td>
<td>46.99</td>
</tr>
<tr>
<td>Absence of Male Children</td>
<td>.51</td>
<td>.50</td>
<td>.22</td>
</tr>
<tr>
<td>Age of the Last Child</td>
<td>26.29</td>
<td>19.94</td>
<td>30.67</td>
</tr>
</tbody>
</table>

N 88 98 96
income and feel very close companionship with their husbands when compared with wives who have children. Wives with two children have fewer children between 1971 and 1975 and husbands who earn slightly higher incomes compared to other wives. Wives with two children are less likely to have no male children than wives with one child. Overall, however, the samples are actually quite similar, especially with respect to levels of the husband's relative income, sex-role nontraditionality, expected husband modernity, fertility-fatalism, husband dominance, the wife's age and the age of the last child. The husband's relative income is a ratio of earned income to income expected on the basis of his age, education and occupation. Therefore, the mean values of the husband's relative income indicate that husbands tend to earn incomes which are the same as incomes expected on the basis of age, education and occupation. Wives tend to be slightly sex-role traditional; the sex-role nontraditionality means are less than 30, the midpoint of the index. Wives tend to be very slightly traditional in their expectations of the husband's familial involvement and personal support. The expected husband modernity means are slightly less than 16, the midpoint of the index. Husbands are slightly dominant in winning disagreements, and wives are somewhat
nonfatalistic about their fertility control, regardless of the number of children they have. Obvious differences — such as the number of (additional) children intended, the length of marriage and the number of hours worked per week — are a function of the number of children the wife has in 1971. In general, the subsamples are largely alike.

Implications of Significant and Insignificant Coefficients for the Hypotheses and the Perspectives

Tables 10 and 11 show the results of the tests of hypotheses. Table 10 shows the results of forward-stepwise solutions and is presented for the reader's information only. Table 11 shows the results of backward-stepwise elimination solutions. Because the backwards-stepwise elimination solutions are more reliable than the forward-stepwise solutions, the results in Table 11 are used as the basis for the discussion of the results of hypothesis testing.

The Economic Perspective

The husband's income.

I hypothesized that the husband's income would have no direct effect on his wife's subsequent fertility because of the lack of consideration of normative
### TABLE 10
REGRESSION COEFFICIENTS PREDICTING THE NUMBER OF CHILDREN BORN TO WIVES BETWEEN 1971 AND 1975

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>The Number of Children of the Wife in 1971</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
</tr>
<tr>
<td>Economic</td>
<td></td>
</tr>
<tr>
<td>Husband's Income</td>
<td>7.6x10^{-5}(.37)</td>
</tr>
<tr>
<td>Husband's Relative Income</td>
<td>-.65(-.34)</td>
</tr>
<tr>
<td>Husband's Education</td>
<td>.02(.05)</td>
</tr>
<tr>
<td>Perceived Income Adequacy</td>
<td>.05(.02)</td>
</tr>
<tr>
<td>Normative Socialization</td>
<td></td>
</tr>
<tr>
<td>No. of Hours Worked/Week</td>
<td>6.3x10^{-3}(.11)</td>
</tr>
<tr>
<td>Wife's Education</td>
<td>.03(.10)</td>
</tr>
<tr>
<td>Social Class</td>
<td>.18(.10)</td>
</tr>
<tr>
<td>Wife's Catholic Status</td>
<td>-.03(-.01)</td>
</tr>
<tr>
<td>Sex-Roll Nontraditionality</td>
<td>-.55(-.30)*</td>
</tr>
<tr>
<td>Expected Husband Modernity</td>
<td>-.02(-.08)</td>
</tr>
<tr>
<td>(Additional) Children Intended</td>
<td>.07(.09)</td>
</tr>
<tr>
<td>Family Structure and World-View</td>
<td></td>
</tr>
<tr>
<td>Companionship</td>
<td>.25(.31)*</td>
</tr>
<tr>
<td>Fertility-Fatalism</td>
<td>.14(.21)*</td>
</tr>
<tr>
<td>Husband Dominance</td>
<td>-.21(-.18)</td>
</tr>
<tr>
<td>Demographic</td>
<td></td>
</tr>
<tr>
<td>Wife's Age</td>
<td>-.16(-.49)*</td>
</tr>
<tr>
<td>Marriage Length</td>
<td>2.8x10^{-3}(.08)</td>
</tr>
<tr>
<td>Absence of Male Children</td>
<td>6.9x10^{-3}(.01)</td>
</tr>
<tr>
<td>Age of the Last Child</td>
<td>-.21(.16)</td>
</tr>
<tr>
<td>Intercept</td>
<td>.31</td>
</tr>
<tr>
<td>R²</td>
<td>.41</td>
</tr>
<tr>
<td>R²*</td>
<td>.27</td>
</tr>
<tr>
<td>N</td>
<td>.88</td>
</tr>
</tbody>
</table>

1 Path coefficients are in parentheses besides the regression coefficients.
2 This coefficient represents an inverted U-shaped curvilinear relationship.
3 This coefficient represents a U-shaped curvilinear relationship.
* This coefficient is significant beyond p=.05 for a one-tail test.
### TABLE 11
SIGNIFICANT REGRESSION AND PATH COEFFICIENTS PREDICTING THE FERTILITY OF WIVES BETWEEN 1971 AND 1975 AFTER THE REMOVAL OF INSIGNIFICANT VARIABLES

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>The Number of Children of the Wife in 1971</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
</tr>
<tr>
<td><strong>Economic</strong></td>
<td></td>
</tr>
<tr>
<td>Husband's Income</td>
<td></td>
</tr>
<tr>
<td>Husband's Relative Income</td>
<td>.45(.32)¹</td>
</tr>
<tr>
<td>Husband's Education</td>
<td>.28(.20)</td>
</tr>
<tr>
<td>Perceived Income Adequacy</td>
<td></td>
</tr>
<tr>
<td><strong>Normative Socialization</strong></td>
<td></td>
</tr>
<tr>
<td>No. of Hours Worked/Week</td>
<td></td>
</tr>
<tr>
<td>Wife's Education</td>
<td>.21(.18)²</td>
</tr>
<tr>
<td><strong>Social Class</strong></td>
<td></td>
</tr>
<tr>
<td>Wife Catholic Status</td>
<td></td>
</tr>
<tr>
<td>Sex-Role Nontraditionality</td>
<td>-.55(-.30)</td>
</tr>
<tr>
<td>Expected Husband Modernity</td>
<td></td>
</tr>
<tr>
<td>(Additional) Children Intended</td>
<td></td>
</tr>
<tr>
<td><strong>Family Structure and World-View</strong></td>
<td></td>
</tr>
<tr>
<td>Companionship</td>
<td>.15(.18)</td>
</tr>
<tr>
<td>Fertility-Fatalism</td>
<td>.15(.22)</td>
</tr>
<tr>
<td>Husband Dominance</td>
<td></td>
</tr>
<tr>
<td><strong>Demographic</strong></td>
<td></td>
</tr>
<tr>
<td>Wife's Age</td>
<td>-.10(-.30)</td>
</tr>
<tr>
<td>Marriage Length</td>
<td></td>
</tr>
<tr>
<td>Absence of Male Children</td>
<td></td>
</tr>
<tr>
<td>Age of the Last Child</td>
<td></td>
</tr>
<tr>
<td>Intercept</td>
<td>.37</td>
</tr>
<tr>
<td>$R^2$</td>
<td>.33</td>
</tr>
<tr>
<td>$R^2$</td>
<td>.29</td>
</tr>
<tr>
<td>$N$</td>
<td>88</td>
</tr>
</tbody>
</table>

¹Path coefficients are in parentheses beside the regression coefficients. All coefficients shown are significant beyond the $p=.05$ level for a one tail test, $t_b=1.665$.
²This coefficient represents a U-shaped curvilinear effect.
³This coefficient represents an inverted U-shaped curvilinear relationship.
constraints, the meaning of income, and the ability of couples to plan. The data support my hypothesis. Table 11 shows that the husband's income has no direct effect on his wife's subsequent fertility. The lack of any significant effect of the husband's income on his wife's subsequent fertility indicates that the classical market and new home economics approaches are not useful in explaining fertility. It appears that the critics of these approaches are correct.

The husband's education.

I hypothesized that the husband's education (a proxy for his potential life-time income) would have no direct effect on his wife's subsequent fertility because it does not consider normative constraints or the meaning of income. The data generally support my hypothesis. Table 11 shows that among wives with no children and wives with two children the husband's education has no direct effect on his wife's subsequent fertility. However, the husband's education has a positive direct effect on his wife's subsequent fertility among wives with one child. I will return to the discussion of this hypothesis at the conclusion of this section.
The husband's relative income.

Based on the work of Bernhardt (1972) and Bahr et al. (1975), I hypothesized that the husband's relative income would have a positive direct effect on his wife's subsequent fertility among wives with fewer than two children and no direct effect on fertility among wives with two children. The data generally support my hypotheses. Table 11 shows that the husband's relative income has a positive direct effect on his wife's subsequent fertility among wives with one child and no direct effect on her fertility among wives with two children. However, the husband's relative income has no effect on fertility among wives with no children. I will return to the discussion of this hypothesis at the conclusion of this section.

Perceived income adequacy.

I hypothesized that the more satisfied the wife was with her husband's income, the greater her subsequent fertility would be. The data do not support this hypothesis. Table 11 shows that perceived income adequacy has no effect on subsequent fertility among wives with fewer than two children. Table 11 also shows that perceived income adequacy has a U-shaped curvilinear effect on fertility among wives with two children. Wives who are very satisfied with their husbands' incomes and wives
who are not satisfied with their husbands' incomes have more children subsequently than do wives who are merely satisfied with their husbands' incomes.

Discussion.

It is interesting to note that none of the economic variables have any effect when wives have no children. This finding is consistent with Goldberg's (1960) and Presser's (1973) conclusion that the first child is the "revolutionary" change in the couple's lives. The start of family formation is not linked to any objective (the husband's income, education or relative income) or subjective (perceived income adequacy) measure of "affordability."

Similarly, objective measures of "affordability" are not significant determinants of subsequent fertility among wives with two children. The effect of perceived income adequacy on the wife's subsequent fertility may not be completely interpretable as rational economic behavior, either. Wives who were dissatisfied with their husbands' incomes tended to have more children and this is not economically rational behavior.

Wives who are not satisfied with their husbands' incomes may have more children as an alternative compensation for their husbands' lack of success in their principle role: breadwinner. This idea corresponds
closely with Rainwater's (1960:85) observation that men who feel ineffective and weak in relation to their world feel that fathering more children is proof of their manhood. In other words, if the husbands are unsuccessful in one aspect of being a man, they may try to compensate for this in another way. I am not suggesting that wives experience a vicarious "failure" or that they have additional children to bolster their husbands' self-concepts. I am suggesting that they have additional children because their husbands are not providing them with the satisfaction his income would bring if it were greater. Consequently, they may try to find satisfaction from additional children. On the other hand, wives who have more children because they are very satisfied with their husband's income may be conforming with the pronatalist norm: "one should not have more children than one can support, but one should have as many children as one can afford" (Rainwater, 1965:28). Both groups of women are responding to the meanings they attach to their husbands' incomes; however, the meanings differ with variations in the husband's income adequacy. A very satisfactory income means that conformity with the pronatalist norm is facilitated. An unsatisfactory income means that satisfaction may be sought from an additional child.
The presence an effect of objective measures of "affordability" (i.e., the husband's education and relative income) only among wives with one child is consistent with Goldberg's (1960) and Presser's (1973) conclusion that once the commitment to home-centered activity is made, subsequent children are a luxury. However, the absence of economic effects among wives with two children is inconsistent with this idea. Instead of thinking of children as luxury items which are "purchased" or produced by parents for their own satisfaction, it may be more useful to interpret the effects of the husband's education and relative income as facilitating the achievement of a goal: having two children. This conclusion is the same as the one reached by Bernhardt (1972) regarding couples with one child.

In sum, the evidence suggests that the economic perspective is not very useful in explaining fertility. Economic effects are almost entirely absent among wives with no children and wives with two children. What economic effects were present--almost exclusively among wives with one child--were interpreted as facilitating the achievement of a two-children family or conformity with the pronatalist norm of having as many children as one can afford. Children are not "purchased" or produced by parents for the satisfaction of their own self-centered consumption desires.
The Normative-Socialization Perspective

Sex-role nontraditionality.

I hypothesized that the sex-role nontraditionality of the wife would have a negative direct effect on her subsequent fertility. The data generally support my hypothesis. Table 11 shows that the sex-role nontraditionality of the wife has a negative direct effect on her subsequent fertility among wives with fewer than two children. However, Table 11 also shows that sex-role nontraditionality has no direct effect on fertility among wives with two children. I will return to the discussion of these findings at the conclusion of this section.

Expected husband modernity.

I hypothesized that expected husband modernity would have a positive direct effect on the wife's subsequent fertility. The data do not support this hypothesis. Table 11 shows that expected husband modernity has no direct effect on the wife's subsequent fertility among wives with fewer than two children. Table 11 also shows that expected husband modernity has an inverted U-shaped effect on fertility among wives with two children. Wives who expect little familial involvement and personal support from their husbands and wives who
expect great involvement and support had fewer children subsequently than wives who expected a moderate amount of involvement and support. It is apparent that the "dual rewards" argument discussed by Scanzoni (1976a) is not useful in explaining fertility. There is a difference between explaining the past fertility and future birth intentions of women (as Scanzoni does) and their actual, subsequent fertility (as this study does). I will return to the discussion of this result at the conclusion of this section.

The background variables: social class, the wife's education, her Catholic status and the extent of her employment.

I hypothesized that the background variables would have no direct effect upon the wife's subsequent fertility. The data generally support these hypotheses. Table 11 shows that the background variables generally have no direct effect on the wife's subsequent fertility. The exception to this generalization is the curvilinear effect of the wife's education. Table 11 shows that among wives with two children wives with at least some college education and wives who are not high school graduates have more children subsequently than wives with a twelfth grade education.3

However, the nontraditionality variables generally do not mediate relationships between fertility and the
background variables. Table 12 shows that the background variables are generally uncorrelated with fertility within each subsample. Further, only two of the four significant correlations are reduced to insignificance when sex-role nontraditionality is controlled: the correlation of fertility with social class among wives with no children, and the correlation of fertility with the extent of the wife's employment among wives with one child. The correlation between fertility and the wife's Catholic status among wives with one child is reduced to insignificance by controlling for all of the variables which have direct effects on fertility (i.e., sex-role nontraditionality, the age of the last child, the husband's relative income and his education). The correlation of fertility with the wife's education among wives with two children is not reduced to insignificance by the control for expected husband modernity.

Behavioral intentions.

I hypothesized that the number of (additional) children intended by the wife would have a positive direct effect on her subsequent fertility. The data generally do not support this hypothesis. Table 11 shows that the number of (additional) children intended has no effect on the wife's subsequent fertility among wives with fewer than two children. However, Table 11 shows
<table>
<thead>
<tr>
<th>Number of Children of the Wife, 1971</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Class</td>
<td>-.17*</td>
<td>.08</td>
<td>-.14</td>
</tr>
</tbody>
</table>
| Wife's Education                   | -.06 | .17+ | .20**+
| Catholic Status                    | .12  | .19* | .03 |
| No. of Hours Worked/Week           | -.02 | -.22* | -.08 |
| **N**                              | 88  | 98  | 96  |

*Significant beyond the p = .05 level, one tail test.
+Coded to represent a curvilinear relationship.
that the hypothesis is strongly supported among wives with two children.

Discussion.

Taken as a whole, the data provide general support for the normative-socialization perspective. However, some refinement of the perspective is needed. With the exception of the wife's education among wives with two children, the background variables of social class, the wife's education, her Catholic status and the extent of her employment have no direct effect upon her subsequent fertility—just as I hypothesized. However, the nontraditionality variables generally do not mediate any relationships between fertility and the background variables because the background variables are generally unrelated to fertility. The most that may be said is that the background variables are sources of nontraditionality, and the nontraditionality variables have direct effects on fertility.

The significant, negative effect of sex-role nontraditionality among wives with fewer than two children also supports the normative-socialization perspective. Although the hypothesized effects of expected husband modernity did not appear, the inverted U-shaped curvilinear effect discovered among wives responsible
for two children may provide support for the normative-
socialization perspective in an unexpected way. Rain­
water's conclusion about a hypothesis suggested by
Hoffman and Wyatt (1960) may be quite relevant in this
regard. He noted that

Women who seek and find gratifying
outside activities which are not anxiety
producing tend to prefer smaller families,
and those who do not find such activities
tend to prefer larger ones. Conversely,
women who find their homemaking responsi­
bilities demanding and/or providing oppor­
tunities for creativity will tend to pre­
fer smaller families (Rainwater, 1965:285).

Women who seek and find gratifying activities out­
side of the family are probably nontraditional wives,
and certainly those wives who expect great familial
involvement and personal support from their husband are
nontraditional. Wives who expect little familial involve­
ment and personal support from their husbands are tra­
ditional wives, and they probably find their homemaking
and childcare activities demanding, if not an opportunity
for creativity. Therefore, it appears that both nontra­
ditional and traditional wives with two children reduce
their subsequent fertility. Perhaps nontraditional
wives do so to facilitate their pursuit of outside acti­
vity, and traditional wives do so to keep from becoming
overburdened.4
When this interpretation of the curvilinear effect of expected husband modernity is considered with negative effects of sex-role nontraditionality and the lack of effects among the background variables (employment, social class, education and Catholic status), it appears that the principle argument of the normative-socialization perspective is supported. Fertility is a function of the values a woman holds, if she feels a primary commitment to home or feels truly free to pursue work involvement. The more nontraditional the role she believes is appropriate for women, the lower her subsequent fertility will be. One refinement to this proposition, though, is the changing emphasis of nontraditionality from what is appropriate for the wife to what she believes are appropriate expectations of the husband. This shift occurs at the point in her life where the pursuit of nonfamilial activities is facilitated by help from her husband; i.e., when she has two children. In either instance, her nontraditionality decreases her subsequent fertility. A second refinement must recognize the change in behavior of traditional wives. Although they appear to have more children (or, they have the children more rapidly), as indicated by the negative effect of sex-role nontraditionality,
the responsibilities implied by the lack of husband involvement make homemaking and childcare responsibilities very demanding. In order to meet these demands and not be burdened with the demands of a third child, traditional wives with two children tend to decrease their subsequent fertility.

Finally, it is interesting to note that the number of (additional) children intended by the wife has a significant effect only when wives have two children. Unlike the effect of traditionality, the effect of the number of (additional) children intended does not reflect decision-making on the basis of what is considered appropriate role behavior. It reflects the influence of personal preference. This suggests a third modification of normative socialization theory: once a wife has two children (the minimum necessary for population replacement), fertility is no longer constrained to decision-making solely based on sex-role norms. Nevertheless, the lack of effect of behavioral intentions on fertility among wives with fewer than two children suggests that norms have a much greater influence on behavior than Fishbein would expect.
Companionship.

I hypothesized that the companionship index would have a positive direct effect on the wife's subsequent fertility, and I expected the strength of this effect to decline as parity increased. The data provide limited support for this hypothesis. Table 11 shows that the companionship index has a positive, direct effect on the wife's subsequent fertility only among wives with no children. In other words, the less companionship wives have with their husbands (i.e., high scores on the companionship index) when they have no children, the more children they subsequently have. Table 11 shows that the companionship index has no direct effect on the wife's fertility among wives with one child. Table 11 also shows that the companionship index has an inverted U-shaped effect on fertility among wives with two children. In other words, wives who feel very close, primary relationships with their husbands and wives who feel alienated from their husbands have fewer subsequent children than wives who feel neither close to, nor alienated from their husbands.

The emergence of this curvilinear relationship among wives with two children means that the effect of
companionship may vary with the parity of the wife. As Rainwater (1960) has noted, wives who felt close, primary relationships with their husbands were effective contraceptive users than other wives, and therefore had lower subsequent fertility. As he also noted, though, and as Bumpass and Westoff (1970b) have confirmed, the effectiveness of contraceptive use increases dramatically after a number of children have been born. Therefore, it is possible that among wives with two children, companionship is no longer related to effective contraceptive use as it was among wives with no children. Among wives with two children, the low subsequent fertility of wives who feel very close to their husbands and wives who feel their relationship with their husband could be better may be motivated by different factors. Wives who feel close, primary relationships with their husbands may have low subsequent fertility because their relationship is so satisfying that they do not need to turn to additional children as a source of gratification. On the other hand, wives who feel their relationship with their husband could be better may avoid further fertility because they do not want to complicate a bad situation. This latter idea is consistent with Thornton's (1975, 1978) finding that fertility decreases before a marriage breaks up. In this
sense, companionship is still important in explaining fertility, but the reason for its importance is no longer related to the consistent use of contraception.\footnote{\textsuperscript{6}}

Husband dominance.

I hypothesized that husband dominance would have a positive direct effect on the wife's subsequent fertility. The data do not support this hypothesis. Table 11 shows that husband dominance has no effect on the wife's subsequent fertility regardless of previous parity. However, considerable caution is necessary when judging this conclusion. The measure of husband dominance used in this study gives no indication of the area(s) of decision-making in which the husband is dominant. If power in the family varies with the issues disputed (Blood and Wolfe, 1960), then the dominance of the husband in an area other than fertility may be unrelated to the wife's fertility. If the results of the test of the hypothesis indicates anything, it indicates that future research on the relationship between power and fertility should focus on two questions: the husband's and wife's desire for a (another) child, and the power of the husband concerning fertility decision-making.
Fertility-fatalism.

I hypothesized that the fertility-fatalism of the wife would have a positive, direct effect on the wife's subsequent fertility. I expected this effect to be strongest among wives with the fewest children. The data provide some support for this hypothesis. Table 11 shows that fertility-fatalism has a positive, direct effect on the wife's subsequent fertility among wives with no children. However, Table 11 also shows that fertility-fatalism has no direct effect on fertility among wives with children. These results indicate that fatalism about the ability to control fertility is of limited use in explaining fertility. Perhaps they also indicate that wives were becoming much more effective contraceptive users much sooner in the 1970's than was true in the 1950's. This inference is consistent with the decline in unwanted fertility over the 1960's (Bumpass and Westoff, 1970c; Westoff and Ryder, 1977).

Discussion.

Taken as a whole, the results of the tests of these hypotheses do not permit such a clear-cut acceptance or rejection of the family structure and world-view perspective as was possible with the economic and normative-socialization perspectives. The absence of any direct effect of the husband dominance on the wife's fertility
indicates either that the hypothesis is not supported or that the measure of husband dominance is poor. The expected effects of the companionship index and fertility-fatality appear only among wives with no children. The most that may be said about the perspective is that it is most useful for predicting fertility among wives with no children.

One refinement of the perspective is necessary. The effects of companionship should not always be linked to effective contraception. This conclusion was based on the interpretation of the curvilinear relationship of fertility with companionship among wives with two children.

The Demographic Perspective

The wife's age.

I hypothesized that the wife's age would have a negative direct effect on her subsequent fertility. I expected the strength of this effect to decrease as parity increased. There is only a little support for this hypothesis. Table 11 shows that the wife's age has a negative direct effect on her subsequent fertility only among wives with no children. It has no effect among wives with children. I will return to the discussion of this hypothesis at the conclusion of this section.
The length of marriage.

I hypothesized that the length of marriage would have a negative direct effect on the wife's subsequent fertility. I expected the strength of this effect to decrease as parity increased. The data do not support the hypothesis. Table 11 shows that the length of marriage has no direct effect on fertility at any parity. I will return to the discussion of this hypothesis at the conclusion of this section.

The age of the last child.

If wives were concerned about the spacing of children, I expected the age of the last child to have a positive direct effect on the wife's subsequent fertility. If wives had completed family formation, I expected the age of the last child to have a negative direct effect on subsequent fertility. The data provide no support for the former interpretation and some support for the latter interpretation. Table 11 shows that the age of the last child has a negative direct effect on subsequent fertility only among wives with one child. I will return to the discussion of these results at the conclusion of this section.

The absence of male children.

I hypothesized that the absence of male children would be unrelated to the wife's subsequent fertility.
The data support this hypothesis. Table 11 shows that the absence of male children has no direct effect on subsequent fertility. If there is a general preference for male children, that preference does not have an effect on subsequent fertility.

Discussion.

When considered together, the two significant effects of the demographic variables—the wife's age among wives with no children and the age of the last child among wives with children—show an interesting trend. Both of these variables have negative effects on the wife's subsequent fertility, and both effects are consistent with the interpretation that the wives have completed their family formation. Hout (1976) argued that the negative relationship between age and the wife's fertility was strongest at the lower parities because wives at higher parities are likely to have completed their fertility regardless of their age. Conversely, older wives are much more likely to have completed their fertility at lower parities than younger wives. This is consistent with my conclusion about the effect of wife's age among wives with no children. I also noted that a negative relationship between the age of the last child and the wife's subsequent fertility might indicate that family formation has been completed. These two negative
relationships endure regardless of the nontraditionality of the wife, the relative and potential income of her husband, the wife's fatalism about her fertility-control ability or her companionship with her husband.

The presence of these two effects among wives with fewer than two children may parallel the conclusions of Veevers (1973) and Houseknecht (1977). Veevers and Houseknecht concluded that two thirds of the voluntarily childless couples they interviewed became childless by constantly postponing plans for children. There was no early, articulated desire to remain childless; the decision evolved over a period of time. Similarly, the effects of the wife's age and the age of the last child mark the passage of time during which a decision to have no more children may have evolved or is evolving. This interpretation is also consistent with the absence of any effect of the number of (additional) children intended among wives with fewer than two children. However, the most that may be said is that the effects of the wife's age and the age of the last child parallel the conclusions of Veevers and Houseknecht. I can not say that what Veevers and Houseknecht concluded is what is indicated by the effects of the wife's age and the age of the last child because I do not know what the wives are thinking. Other interpretations may be possible.
Two general conclusions may be stated based on the results of the tests of hypotheses. (1) The passage of time has a negative effect on the wife's subsequent fertility when she has fewer than two children. This is indicated by negative effects of the wife's age and the age of the last child. (2) Even if there is a general preference for male children, the absence of male children is unrelated to the wife's subsequent fertility.

Patterns of Support and Nonsupport of the Hypotheses: Implications for the Subsamples

This study is based on the assumptions stated by Mishler and Westoff (1955): (1) the numbers of children for which couples are responsible represent different family situations, and (2) in these different family situations, different factors affect the number and timing of future births. Table 11 clearly indicates the utility of these assumptions. Different variables affect the number and timing of subsequent births, and each variable's effect depends on the number of children for which the couple is responsible. The following sections note the general trends in fertility among each subsample of wives.

Wives With No Children

The fertility of wives with no children may or may not reflect decision-making on their part. The negative
The effect of sex-role nontraditionality indicates that nontraditional wives may reduce or delay subsequent fertility on the basis of what they believe is appropriate behavior for women. Their lower fertility may be the product of a decision to pursue a lifestyle centered around employment. Similarly, the negative effect of the wife's age is consistent with the idea of an evolving decision about a lifestyle which does not include children. The longer a woman lives with no more children in her life, the less likely she is to have more.

The idea of decision-making assumes that a choice is made between alternatives and that the choice is implemented in behavior. Some of the effects observed among wives with no children may not be consistent with this idea. For example, the positive effect of the companionship index on fertility is consistent with Rainwater's (1960) observation that wives who are alienated from their husbands turn to their children for affection. Such women may decide to have more children because more children mean more affection. However, this relationship is also consistent with Rainwater's (1960) conclusion that the lack of companionship interferes with fertility decision-making and delays the consistent use of contraception once a decision has been made. In this case, then, fertility may not be the product of decision-making.
Similarly, the positive relationship between fertility-fatality and fertility may or may not indicate that fertility is the outcome of a decision. Wives who are not fatalistic about their fertility control have fewer children, indicating that a decision has been implemented. However, the fact that wives who are fatalistic about their fertility control have more children indicates that even if a decision has been made to limit fertility, it is not being implemented. This interpretation is consistent with the absence of any effect of the number of (additional) children intended.

**Wives With One Child**

Economic considerations become important determinants of the number and timing of subsequent children once a wife has a child. Table 11 shows that both the husband's relative income and his education are positively related to his wife's subsequent fertility. Although I argued earlier in this chapter that these findings do not support the economic perspective, the indicate that parents are acutely aware of the cost of caring for children. Couples hasten the timing of additional children (or have more children) for two economic reasons: (1) the husband is earning a relatively large income, which makes it easier to meet class-related standards
of childrearing expenditures; and (2) the husband anticipates earning a larger than average income in the future, which would make it easier to support children.

The efforts of the husband's relative income and his education indicate that money is a factor in making decisions about the number and timing of additional children. However, other factors affect fertility. The effect sex-role nontraditionality indicates decisions about fertility may be based on norms about appropriate lifestyles for women. The age of the last child marks the passage of time, and this has a negative effect on subsequent fertility. It is possible that the wives may be postponing fertility or may have decided to have no more children for some reason.

Wives With Two Children

There appear to be many bases for decision-making about childbearing. The positive effect of the number of (additional) children intended indicates that the wife's subsequent fertility may be based on her personal preferences regardless of what she believes is appropriate behavior for women. The effect of expected husband modernity indicates that traditional and nontraditional wives reduce their subsequent fertility, albeit for different reasons. Traditional wives may decide to reduce their fertility to avoid being overburdened with childcare
responsibilities. Nontraditional wives may decide to reduce their fertility to pursue their nonfamilial interest. Similarly, wives who are very satisfied with their husbands' incomes may decide to have more children in conformity with the pronatalist norm. In both of these instances, decisions are made on a normative basis. Other bases for decision-making exist. Wives who feel close, primary ties with their husbands may decide to reduce their fertility because their relationships with their husbands are so satisfactory that they do not need to turn to additional children for affection. On the other hand, wives who feel that their relationships with their husbands could be better may decide to reduce fertility because any additional children would complicate the situation. In either case, decisions are made on the basis of the quality of the marriage. Finally, wives who are dissatisfied with their husbands' incomes may decide to have more children as an alternative compensation for their husbands' perceived lack of success.

Summary

This chapter was divided into three sections. The first section noted the similarities and differences between the subsamples. With the exceptions of differences which are a function of parity, I concluded that the subsamples were similar.
The second section evaluated the usefulness of the perspectives for explaining fertility. I concluded that the economic perspective was useful for explaining fertility only after family formation had begun, after modifications for potential income and class-related standards were made, and only in the context of facilitating the achievement of the birth of the second (and possibly third) child. Bearing this in mind, it appears the effect of income on fertility is not to facilitate the "purchase" or "production" of children for the parents' self-gratification. I based this conclusion on the significant effects of the husband's education (a proxy for his potential lifetime income) and his relative income among wives with one child and the absence of economic effects among wives with no children and wives with two children. (I did not interpret the curvilinear effect of perceived income adequacy among wives with two children in economic terms.)

I concluded that the normative-socialization perspective was generally supported. Wives bear (or do not bear) children as a consequence of what they believe to be appropriate behavior for women. This is indicated by the significant effects of sex-role nontraditionality and expected husband modernity. With the exception of the wife's education among wives with two children, the
background variables of social class, the wife's education, the extent of her employment and her Catholic status had no direct effects on fertility. However, sex-role non-traditionality and expected husband modernity generally do not mediate relationships between the background variables and fertility; there were few significant zero-order correlations between the background variables and fertility in the first place. The number of (additional) children intended has a positive, direct effect only among wives with two children, indicating that fertility is quite the object of normative behavior among wives with fewer than two children.

I concluded that the family structure and worldview perspective was only somewhat useful for predicting fertility. Companionship and fertility-fatalism had their expected linear effects only among wives with no children. Husband dominance had no direct effect on fertility, but this may be due to methodological problems with the measurement of power. Companionship had a curvilinear effect on fertility among wives responsible for two children. Rainwater (1960) noted that almost all couples eventually become effective, consistent contraceptive users, implying that the linear effects of fertility-fatalism and companionship would disappear among higher parity women. Therefore, the absence of any linear effects
of these variables among wives with children is consistent with the idea that wives are becoming effective contraceptive users much more quickly in the 1970's than was true in the 1950's.

Two findings emerged from the demographic perspective. First, the passage of time leads to a curtailment of subsequent fertility among wives with fewer than two children, as indicated by the direct negative effects of the wife's age and the age of the last child. Second, the absence of male children is unrelated to the wife's subsequent fertility.

The third section noted what affected fertility within each subsample. Fertility among wives with no children was affected by sex-role nontraditionality, companionship, fertility-fatalism and the wife's age. The effect of sex-role nontraditionality indicates that wives make decisions about childbearing based on what they believe is appropriate behavior for women. However, the effects of the remaining variables may or may not indicate that fertility is the product of decision-making. Wives who feel little companionship with their husbands may have more children because they are ineffective contraceptive users or because they see children as a source of affection. Wives who are fatalistic about their ability to control their own fertility have more children than
nonfatalistic wives regardless of any decision about the number of children intended. The passage of time (indicated by the wife's age) has a negative effect on subsequent fertility. This effect does not explicitly indicate any decision-making, although it parallels Houseknecht's (1977) and Veever's (1973) conclusion that most couples become voluntarily childless by postponing plans for children.

Fertility among wives with one child was affected by the husband's education, his relative income, sex-role nontraditionality and the age of the last child. The effects of the husband's education and his relative income indicate that decisions about having the second (and possibly third) child are based on anticipated income and the current ability to meet class related standards of childrearing. The effect of sex-role nontraditionality indicates that decisions about fertility are still based on what wives believe is appropriate behavior for women. The effect of the age of the last child was interpreted the same way as the effect of the wife's age.

Fertility among wives with two children was affected by the number of (additional) children intended, perceived income adequacy, companionship, expected husband modernity and the wife's education. These effects indicated that decisions about fertility were based on (respectively):
personal preferences, the wife's evaluation of her husband's success, the wife's evaluation of her marriage and what she believes is appropriate behavior for her husband. No explanation was suggested for the curvilinear effect of the wife's education.
Notes for Chapter Four

1 As the reader will remember, the test of the assumption of linearity in Table 7 showed that perceived income adequacy had a possible U-shaped curvilinear relationship with fertility. Table 11 confirms this.

2 The test of the assumption of linearity in Table 7 revealed that expected husband modernity might have an inverted U-shaped curvilinear relationship with fertility. Table 11 confirms this.

3 Although the test of the assumption of linearity revealed that the wife's education might have a U-shaped curvilinear relationship with subsequent fertility, I was amazed that Table 11 confirmed this. Other researchers had other findings which they did not explain. As noted in Chapter Two, Bean and Wood (1974) found the wife's education to be positively related to the birth of the third child; Goldberg (1960) found the wife's education to be positively related to subsequent fertility among wives with three or more children; Namboodiri (1974) found the wife's education to be positively related to the expectation of a sixth child among wives with five children.

4 The conclusions that traditional wives reduce their subsequent fertility and wives who are very satisfied with their husbands' incomes increase their fertility seem contradictory. I argued that traditional wives reduced their fertility because they did not want to be overburdened and that wives who were very satisfied increased their fertility in conformity with the pronatalist norm. It is reasonable to assume that traditional wives are the most likely ones to accept the pronatalist norm of having as many children as one can afford. Affordability is the operative term, and therein lies a possible explanation. Rainwater (1965) concluded that couples who accepted the pronatalist norm had more children because children were a way of avoiding selfishness and materialism. Although traditional wives may feel overburdened by another child, the burden will not be financial, and, since traditional wives have already subordinated their personal interests to those of their children, they will still be acting in a moral fashion by caring for the additional child.
The test of linearity in Table 7 revealed that fertility might have an inverted U-shaped curvilinear relationship with the companionship index. Table 11 confirms this.

Rainwater (1965) argued that fertility has an inverted U-shaped relationship with alienation. Hoffman and Wyatt (1960) hypothesized a positive relationship between fertility and alienation. Both of these hypotheses appear to be supported at different parity levels. Rainwater's (1965) argument is consistent with the curvilinear relationship between companionship and fertility which I found among wives with two children. Hoffman and Wyatt's (1960) hypothesis is consistent with the relationship between fertility and companionship which I found among wives with no children.

In Hout's (1976) work, the wife's age may have served as a proxy for the age of the last child. In this study, the wife's age is correlated to $r = .27$ with the age of the last child among wives with one child. It may be that the age of the last child is the most appropriate variable in making apparent the effect of the passage of time. Conversely, the length of marriage may be the least appropriate variable for uncovering this effect.
CHAPTER FIVE

SUMMARY

This chapter reviews this study, suggests specific topics for future research, and discusses the possible direction of change in fertility in the U.S. and implications of those changes. The goal of this study has been to test a number of hypotheses about what factors affect a wife's subsequent fertility given the number of children she has. The study focused on the fertility of young, white American wives between 1971 and 1975. It was further restricted to include only those wives who: (1) believed that it was not impossible for them to bear a child, (2) stayed married from 1971 to 1975, and (3) had two or fewer children in 1971. No attempt has been made to generalize beyond these restrictions.

The Hypotheses and the Results: Implications for the Perspectives

The literature on fertility was summarized in Chapter Two as reflecting four perspectives: economic
normative-socialization, family structure and worldview, and demographic. Within each perspective the arguments of the perspective were presented and criticized. Supporting and/or disconfirming evidence was presented, and hypotheses were stated. The arguments of the perspectives and the implications of the results of the tests of hypotheses are briefly reviewed here.

The Economic Perspectives

The central argument of the economic perspective is that parents have more children when they have more money because, ceteris paribus, more children will satisfy their consumption desires. Four hypotheses were developed to test this argument. The classical market and new home economics approaches permit the development of the same hypothesis: the greater the husband's income, the greater the wife's subsequent fertility will be (Becker, 1960; Becker and Lewis, 1973; De Tray, 1973; Ferguson and Maurice, 1974; Michael, 1973; Willis, 1973). These approaches spawned extensive critical reactions, the most important of which focused on the lack of consideration of normative restraints (Bean, 1975; Blake, 1968; Duesenberry, 1960; Okun, 1960), the meaning of income (Easterlin, 1969, 1973; Turchi, 1975), and the ability to plan (Mincer, 1962, 1963). With these criticisms in mind, I hypothesized
that the husband's income would have no effect on the wife's subsequent fertility. The data supported my hypothesis.

The second, third and fourth hypotheses tested from this perspective were based on the criticisms of the first and reactions to those hypotheses themselves. Mincer's criticism lead to a focus on the husband's potential life-time income. However, he took no account of normative constraints or the meaning of income. Therefore, I hypothesized that the husband's education (a proxy for his potential life-time income) would have no effect on the wife's subsequent fertility. The data supported my hypothesis among wives with no children and two children. The husband's education had a positive direct effect on the wife's subsequent fertility among wives with one child.

Duesenberry's (1960) and Okun's (1960) comments and Easterlin's (1969, 1973) work lead to the development of the concept of the husband's relative income. The husband's income tries to assess the meaning of income in terms of class-related standards of childrearing expenditures. Based on the work of Bernhardt (1972) and Bahr et al. (1975) I hypothesized that the husband's relative income would have a positive direct effect on the wife's subsequent fertility among wives with fewer
than two children and no effect on fertility among wives with two children. The data supported my hypothesis among wives with children. Among wives with no children, the husband's relative income had no effect on the wife's subsequent fertility.

The last hypothesis was based on Turchi's (1975) "psychological economics" approach. I hypothesized that the more satisfied the wife was with the husband's income, the greater her subsequent fertility would be. The data did not support my hypothesis. Instead, analysis revealed that perceived income adequacy had a U-shaped curvilinear effect on fertility among wives with two children, and no effect among wives with fewer than two children.

Conclusion

Based on the results of the test of hypotheses, I concluded that the central argument of economic perspective was unsupported. People with more money do not have more children to satisfy their consumption desires. The economic perspective is useful in explaining fertility only after family formation had begun, after it had been modified to account for the ability to plan and class-related standards of childrearing expenditures, and only in the context of facilitating the birth of the second (and
possibly third) child. With the second child, population replacement is virtually assured. I based this conclusion on the following results: among wives with one child, the husband's relative income and his education are positively related to the wife's subsequent fertility; among wives with no children and two children, there are no significant economic effects. (I interpreted the curvilinear effect of perceived income adequacy in a noneconomic fashion: wives who were very satisfied with their husbands' incomes were conforming with the pronatalist norm and wives who were not satisfied were seeking an alternative compensation.)

The Normative-Socialization Perspective

The central argument of the normative-socialization is that wives bear more children or curtail childbearing as a consequence of what they believe to be appropriate behavior for women. A secondary argument centered around the interpretation of the frequently observed fertility differentials of employment, social class, the wife's education and her Catholic status. The lower fertility of middle class, educated and non-Catholic wives was frequently interpreted in terms of differential socialization experiences. Middle class, educated, and non-Catholic wives were thought to be less traditional than their working
class, less educated and Catholic counterparts (e.g., Rainwater, 1960; Ryder and Westoff, 1971; Westoff and Potvin, 1967). I argued that the lower fertility of employed women may also be interpreted in terms of differential traditionality. Evidence suggested that middle class, employed, educated wives and non-Catholic wives are less traditional than other wives (Brogan and Kutner, 1976; Macke et al., 1978; Mason and Bumpass, 1975; Rainwater, 1960). Evidence has also suggested that the sex-role nontraditionality of the wife is negatively related to her fertility (Scanzoni, 1975). I made five hypotheses based on the evidence and interpretations. I hypothesized that the wife's sex-role nontraditionality would have a negative direct effect on her subsequent fertility. I also hypothesized that the wife's education, extent of employment, social class and Catholic status would have no effect on her subsequent fertility. The data largely supported these hypotheses. With the exception of the U-shaped curvilinear effect of the wife's education among wives with two children, the extent of employment, social class, the wife's education and her Catholic status had no effect on subsequent fertility. The sex-role nontraditionality of the wife was negatively related to subsequent fertility among wives with fewer than two children.
The sixth hypothesis concerned fertility and the behavior expected of the husband. Because roles are not enacted in a vacuum, the norms held for the spouse may also be relevant to the wife's fertility. Scanzoni (1976a) noted that it was possible to argue that non-traditional wives who expected their husbands to be involved in the family and to support their pursuit of their own nonfamilial interests would want more children because they could have both children and a career. Therefore, I hypothesized that the greater the expected husband modernity, the greater would be the wife's subsequent fertility.

The data did not support this hypothesis. Expected husband modernity had no effect on the wife's subsequent fertility among wives with fewer than two children, and it had an inverted U-shaped relationship effect among wives with two children. However, I noted that the curvilinear relationship with fertility was consistent with earlier evidence. Rainwater (1965) concluded that wives who found outside activities gratifying and wives who found homemaking responsibilities demanding both preferred smaller families. Certainly, wives who find outside activities gratifying are nontraditional wives, and traditional wives who expect little familial involvement and support from their husbands probably feel that their responsibilities are challenging enough without adding another child to their burden.
A seventh hypothesis was based on Fishbein's (1967) modeling of attitudes, behavioral intentions and behavior. I hypothesized that the greater the number of (additional) children the wife intended to have, the greater her subsequent fertility would be. The data supported the hypothesis only among wives with two children. The number of (additional) children intended had no effect on the wife's subsequent fertility among wives with fewer than two children.

Conclusion

I concluded that the normative-socialization perspective was supported. The negative effect of sex-role non-traditionality among wives with fewer than two children and the effect of expected husband modernity among wives with two children supports the central argument that wives have different numbers of children as a consequence of what they believe to be appropriate behavior for women. The secondary argument that the extent of employment, social class, the wife's education and her Catholic status have no direct effect on fertility was largely supported. However, the data showed that sex-role nontraditionality and expected husband modernity do not mediate relationships between fertility and the background variables because fertility is largely uncorrelated with the background variables in the first place.
The normative-socialization perspective needs some refinement, though. The inverted U-shaped curvilinear relationship of fertility with expected husband modernity indicated that traditional wives may reduce their subsequent fertility after a point rather than continually increasing it. The insignificant effect of the number of (additional) children intended (among wives with fewer than two children) indicates that behavior is more constrained by norms than Fishbein (1967) anticipated. However, the positive effect of additional children intended among wives with two children indicates that fertility may also be a function of personal preferences regardless of what is considered appropriate behavior for women. Finally, the fact that among wives with two children, wives with at least some college education and wives with less than a twelfth grade education have greater subsequent fertility than wives with a twelfth grade education remains to be explained.

The Family Structure and World-View Perspective

The central argument of this perspective is that fertility may be understood as the consequence of variation in family structure and the wife's world-view. Rainwater (1960) noted that working class marriages have a much sharper division of labor between husband and wife. One
consequence of this sharper division of labor is that wives feel less companionship with their husbands than other wives. In turn, this lack of companionship serves to delay efforts at consistent contraception, thus increasing the wife's fertility.

The data show some support for this hypothesis. Among wives with no children, the companionship index had a positive direct effect on the wife's fertility, as hypothesized. Among wives with one child, the companionship index was unrelated to the wife's fertility. This did not support the hypothesis. Among wives with two children, companionship had an inverted U-shaped curvilinear effect on fertility. This does not support the hypothesis as originally formulated. Nevertheless, I interpreted this effect as providing some support for the perspective. Wives who feel very close to their husbands may find the relationship so satisfying that they do not need to turn to another child as a source of affection. On the other hand, wives who feel their relationship with their husbands could be better may not want to complicate the situation with another child.

The second hypothesis concerned the relationship of power with fertility. Rainwater (1960) made no explicit hypothesis about power and fertility, but past research (e.g., Blood and Wolfe, 1960; Heer, 1958; Rosenberg, 1972;
Weller, 1968) has shown that wives who are equal in decision-making with their husbands have lower fertility than other wives. Therefore, I hypothesized that the degree of husband dominance would have a positive direct effect on the wife's subsequent fertility. The data did not support the hypothesis. I interpreted this lack of support as reflecting one of two things: a poor measure of power, in which case the test of the hypothesis was inadequate, or the possibility that fertility may be a cooperative endeavor among most couples.

The last hypothesis concerned the wife's world-view and fertility. Rainwater (1960) noted that the experiences of many working class families taught them that they had no control over their futures. When this attitude is extended to fertility, it may create a self-fulfilling prophecy. Therefore, I hypothesized that the greater the fatalism of the wife about her fertility control, the greater would be her subsequent fertility. The data supported the hypothesis among wives with no children. Among wives with children, fertility-fatalism was unrelated to fertility.

Conclusion

I concluded that the family structure and world-view perspective was somewhat useful for predicting fertility.
Companionship and fatalism had their expected effects among wives with no children. The general absence of effects among wives with children is not completely unexpected. Rainwater (1960) and Bumpass and Westoff (1970b) noted that almost all couples eventually become effective, consistent contraceptive users. Perhaps, then, the absence of effects among wives with children indicates that they have become effective contraceptors much sooner than wives in the 1950's. This is consistent with the decline in unwanted fertility observed in the 1960's (Bumpass and Westoff, 1970c). The curvilinear effect of companionship among wives with two children (who are presumably effective contraceptive users) was unexpected. It indicates that the theory should not always be linked to the effectiveness of contraceptive use as Rainwater did (1960).

The Demographic Perspective

Variables from the demographic perspective were originally included to control for the wife's age, the timing of past events (marriage, fertility, adoption) and the sex of the children. Following Hout (1976) I hypothesized that subsequent fertility would be negatively related to (1) the wife's age and (2) the length of marriage, and that these relationships would be strongest among wives at the lowest parity because wives at higher
parities are equally likely to have completed their fertility. A third hypothesis concerned the possible relationships between the age of the last child born (or the date the child came to live with the mother if it was adopted) and the wife's subsequent fertility. If the wife was concerned about the timing of future fertility and had borne (or adopted) a child just before the interview, the fertility observed between 1971 and 1975 may have been less than if the child was older. On the other hand, the passage of a great amount of time since the last birth (i.e., the older the last child) may indicate the wife has completed her fertility. If the former interpretation is correct, I expected the age of the last child to have a positive direct effect on fertility. If the latter interpretation is correct, I expected the age of the last child to have a negative direct effect on fertility.

Only two of all the tests of the three hypotheses found any significant effects. The wife's age had a negative direct effect on fertility only among wives with no children, and the age of the last child had a negative direct effect on fertility among wives with one child. I interpreted these effects as indicating the effect of the passage of time. The longer wives with fewer than two children waited to have a child, the less likely they were to have a child. These effects parallel the conclusions of
Houseknecht (1977) and Veevers (1973); most voluntarily childless couples became childless by constantly postponing plans for children. However, I cannot say that what Houseknecht and Veevers concluded is what is indicated by the effects of the wife's age and the age of the last child.

The fourth hypothesis tested concerned the effects the absence of male children had on the wife's subsequent fertility. Past evidence had been conflicting on the topic of preferences for children of a particular sex and subsequent fertility. Clare and Kiser (1952) found essentially no relationship between sex preference and fertility. Pohlman (1969) found that the absence of male children hastened the second birth and increased the probability of the third birth. Times may have changed though, and there is no guarantee that couples who prefer male children will reduce subsequent fertility when they have at least one boy. Therefore, I hypothesized that the absence of male children would have no effect on subsequent fertility. The data supported my hypothesis. The absence of male children is not a sufficient motive for increasing subsequent fertility even if there is a preference for male children.
The Hypotheses and the Results: Implications for the Subsamples

One of the purposes of this study was to determine which variables affected the wife's subsequent fertility given the number of children she already had. Therefore, the results of hypothesis testing were reviewed not only for their implications for the perspectives on fertility, but also for what they imply about subsequent fertility in each of the subsamples. This section reviews those conclusions.

Wives With No Children

Four variables affected fertility among wives with no children. Sex-role nontraditionality, companionship, fertility-fatalism and the wife's age. The effect of sex-role nontraditionality indicated that wives based decisions about fertility on what they believed was appropriate behavior for women. The effects of the remaining variables may or may not have indicated that fertility was the product of decision-making. The effects of fertility-fatalism indicate that even if a wife has made a decision about childbearing, that decision is not always implemented. The effect of the companionship index indicates that wives who do not feel close, primary ties with their husbands
have more children because they are ineffective contraceptive users or because they turn to children as a source of affection. The passage of time has a negative effect on fertility.

Wives With One Child

Fertility among wives with one child was affected by sex-role nontraditionality, the husband's education, his relative income, and the age of the last child. The effect of sex-role nontraditionality indicates that decisions about fertility are based on what wives believe to be appropriate behavior for women. The effects of the husband's education and his relative income indicate that anticipated income and the ability to meet class-related standards of childrearing facilitate the timing of the second (and possibly third) child. The effect of the age of the last child indicates that the passage of time has a negative effect on subsequent fertility.

Wives With Two Children

Fertility among wives with two children was affected by the number of (additional) children intended, perceived income adequacy, companionship, expected husband modernity and the wife's education. These effects indicated that decisions about fertility were based on (respectively):
personal preferences, the wife's evaluation of her husband's success, the wife's evaluation of her marriage, and what she believes is appropriate behavior for her husband. No explanation was suggested for the curvilinear effect of the wife's education.

A Note on the Divergent Influences Upon Fertility

This study has shown the utility of the assumption that each birth constitutes a different set of circumstances in which different factors affect subsequent fertility. This section notes the divergent influences upon fertility which may occur between subsamples or within subsamples. For example, it is possible to argue that the results of this study are consistent with a norm which specifies two children as the minimum number of children a couple should have. The effect of the husband's relative income and his education were interpreted as facilitating the achievement of a goal—having at least two children—sooner or later. Very traditional wives reduced their fertility after having the second child as indicated by the effect of expected husband modernity. The personal preferences of wives (independent of what they believed to be normative behavior for women) had an impact on the wife's subsequent fertility only after the wife had two children, as indicated by the effect of the number of
additional children intended. Yet "deviance" from this norm, in the form of not attaining it, is obvious when the negative effects of sex-role nontraditionality and the passage of time are recalled.

Other examples of divergent influence upon fertility are evident in the preceding discussions. I argued that fertility is very much the object of norms: the normative-socialization perspective was supported, the effects of the husband's education and his relative income were interpreted as facilitating conformity with the norm of having two children, and wives with two children who were very satisfied with their husbands' incomes were seen as conforming with the pronatalist norm. Yet factors other than norms influence fertility, as indicated by the effects fatalism, companionship, the number of additional children intended, the wife's age, the age of the last child and the wife's education. The fact that wives with two children who are not satisfied with their husbands' incomes have more children than other wives also indicates a non-normative basis of fertility.

**Contradictory Meanings of Children**

Divergent views of children accompany these trends in fertility. Childbearing and childrearing may be thought of as intrinsically rewarding and as the example per
excellence of womanhood by traditional women. At the opposite extreme, children and childrearing may be seen by nontraditional women as a burden which has nothing to do with their self enhancement. Women in between the traditional and nontraditional extremes are more likely to see children and childrearing as one of a number of rewarding alternatives which they may pursue. Similarly, children may be seen by some wives not as goals to be sought, but as compensation for the failure to attain satisfaction in other areas of life (e.g., the perceived success of the husband in his role as provider for the family).

Other views of childrearing are evident. Children may simply be the unavoidable product of marriage for wives who are fatalistic about their ability to control their fertility. It is possible that children may be seen as sources of affection by wives who have no children and feel little companionship with their husbands. On the other hand, wives with two children who feel little companionship with their husbands may see another child as a complication to a troubled marriage.

One meaning which children do not have for parents is that of consumer durables or the output of a household production function. The positive effects of the husband's education (a proxy for his lifetime potential income) and
the husband's relative income on subsequent fertility exist within the context of attaining the two-children-per-family norm. Once the norm has been attained, the economic effects disappear. The fact that wives who are very satisfied with their husband's income and responsible for two children had more subsequent children than most other wives was not interpreted in economic terms. Wives who were not satisfied with husbands' incomes and were responsible for two children had about the same number of children. Instead, it appears that the wife's belief about the adequacy of the husband's income facilitates their conformity with the pronatalist norm of having as many children as one can afford. Rainwater (1965) pointed out that couples who believed they could "afford" more children saw a large family as a way to avoid selfishness and materialism. Decisions about fertility were only superficially economic.

Suggestions for Future Research

It is a hallmark of scientific research not to let things be, but to continually explore new possibilities. Consequently, many scholarly publications suggest questions for future exploration. The suggestions which follow range from the concrete to the limits of current theory.
Replication

One canon of scientific research is the requirement of replicating findings before accepting a hypothesis as true: if the study is repeated (preferably a number of times), will the same results be found? The "truth" of the results obtained here, and the "truth" of the interpretations based on the patterns of results, would be greatly enhanced if this study were repeated with a new cohort of people. However valuable such replications may be, no scientist would be satisfied to make an exact replication and then pursue the questions no further. There are a number of points where this study could be expanded.

Expansion: Methodological

The most basic and most necessary methodological expansion of this study would be an exact replication with a much larger sample size. A larger sample size would be a great help in two ways. It would reduce problems associated with multicolinearity because it would decrease the standard deviations of the regression coefficients. This would provide a better test of the effects of those variables which had significant zero-order correlations with subsequent fertility but insignificant direct effects. It would also contribute to the assessment of curvilinear relationships detected among wives responsible for two
children. I noted in Chapter Three that regression was very sensitive to violations of the assumption of linearity in small samples. Not only is regression less sensitive to such violations in larger samples, large samples are much less likely to have chance variations which leave the impression of a curvilinear relationship. That is, large samples provide a greater degree of assurance in distinguishing between curvilinear effects and threshold effects.

**Expansion: Empirical**

The restrictions on sampling procedures mentioned in Chapter Three point to the areas into which a study such as this should expand. This study was restricted to white American women, ages 18 to 29 in 1971, who stayed married to the same husband throughout the four year period of the study. The study was further restricted to wives who believed that it was not impossible for them to bear a child, and who were responsible for two or fewer children at the start of the study. The inclusion of younger and older women, and women who have three or four children may permit broader generalizations, may lead to the discovery of new generalizations, or may extend the validity of hypotheses and interpretations which I suggested.

This study should be expanded to include minority women. Previous studies of black (e.g., Ryder and Westoff,
fertility indicate that minority fertility may best be studied separately from the fertility of the dominant group (also see Goldscheider and Uhlenberg, 1969). In other words, the same hypotheses should be tested among samples of minority group wives, but their inclusion in a sample with dominant group wives may not be very useful.

It would be nice to see this study replicated in other nations of the world. However, a qualitative study such as Rainwater's (1960, 1965) may be a necessary prelude. Variables of interest--variables which may not have occurred to American scholars--may be developed from such studies. After all, the social context and meanings surrounding fertility may be different from American society. The inclusion of the hypotheses from this study in a replication in a foreign country would be useful for the comparative analysis of fertility.

Obviously, this study cannot be expanded to include women who cannot have children. However, a study of sterilization as a means of birth control would be quite interesting. The answer to the questions of when and why men and women choose sterilization as a means of birth control has implications for population growth.

The inclusion of unmarried women in a fertility study would be marginally important for the purpose of
generalization. The fertility of unmarried women is a very small part of American fertility (Rindfuss and Bumpass, 1977). Furthermore, the completed fertility of married women who have been divorced is about 90 percent of the completed fertility of women who have been married only once (Cohen and Sweet, 1974; Lauriat, 1969). Consequently, nonmarital fertility may best be studied as a separate topic. However, studies of divorce (or divorce rates) may have some implications for the rate of population growth.

Expansion: Theoretical

Theoretical expansion may take two forms: the addition of hypotheses not tested in this study, and the investigation of the effects of fertility on variables treated as independent variables in this study.

Additional Hypotheses

The results of this study have hinted at the possible importance of husbands for the fertility of wives. The effects of companionship, the husband's education and his relative income, perceived income adequacy and expected husband modernity all indicate that, one way or another, the husband is important for the wife's fertility. Therefore, future studies should gather information from husbands concerning their fertility desires, their involvement in
the family, their views of the marriage, and their expectations of their wives. Along this same line, a more adequate measure of power needs to be developed and tested for any effect on fertility.

A second area for further research in the investigation of the interrelationships between nontraditionality, employment and fertility. Other aspects of the wife's employment beside the number of hours worked per week, such as the effort required for advancement, the career (versus dead-end) nature of the job and the ease of entry may also serve as contexts for nontraditional socialization.

The relationship between employment, day care facilities and fertility has been the subject of debate without much evidence. Bernhardt (1972) summarized the arguments surrounding the effects of daycare. On one hand, the availability of day care reduces any role conflict which wives may experience; this would increase subsequent fertility. On the other hand, day care centers would free women from child care responsibilities and permit them to work; this may reduce fertility because employment is a context for nontraditional socialization. Ridley (1972) noted that the evidence was inconclusive, but felt that day care centers did not increase fertility.

Other scholars have hypothesized relationships of fertility with other variables which were not included in
this study. The relationship of fertility with religiosity (Westoff and Potvin, 1967) and self-concepts (Clarkson et al., 1970) should be investigated with controls for the other independent variables already in the analysis.

Finally, a study of the determinants of the number of (additional) children which wives with two children intend to have would help uncover indirect effects of other independent variables on fertility.

The Effect of Fertility on Other Variables

Some work has already been done concerning the parity-specific effects of fertility on subsequent labor force participation (e.g., Shapiro and Mott, 1977), but more work could be done in this area. Shapiro and Mott found that first and second births reduced the labor force participation of wives, but the level of labor force participation after each birth returned to nearly the same level as before each birth. Blacks and the less educated returned sooner than whites and the more educated. However, more work could be done in this area. Such a study could be extended to the third and fourth parities.

Darian (1976) noted that the more convenient the occupation was, the weaker was the effect of the age of the youngest child on labor force participation. This sort of study could be turned about. A new study may
seek to answer the question of what types of jobs will women choose after they have attained a particular parity. Women with two or three children may choose convenient occupations, occupations with easy re-entry, shorter or more flexible hours, or non-career occupations less frequently than women with less than two children.

Other areas of a woman's life may also be effected by her childbearing. A woman's power within the family and her satisfaction with the marriage may vary with the number of children she has. However, the nature of the relationships (linear, threshold or curvilinear) is not known.

Implications of the Results

Blake (1972) argued that the study of individual was important for the study of population growth. This section suggests implications of the results of this study for population growth, society and women.

Population Growth

I believe that the general implication of the results of hypothesis testing is a slower rate of population growth for the foreseeable future. The principle reason for this conclusion is the increasing rate of labor force participation of women. Greater employment will lead to
greater degrees of sex-role nontraditionality (Macke et al., 1978; Mason and Bumpass, 1975), which in turn will decrease the chance of women ever reaching the first and second parities. Employment may also affect fertility in other ways. Employed women tend to marry at older ages and to space their childbearing over longer intervals of time. This study has shown that both the wife's age (among wives with no children) and the age of the last child (among wives with one child) have a negative effect on subsequent fertility.

If the trend toward greater education continues, fertility may continue to decline. More educated women are not only more sex-role nontraditional, they are also less fatalistic (Ryder and Westoff, 1971). This study has shown that, among wives with no children, those who are less fatalistic about their ability to control their fertility have fewer children.

The effects of other variables on population growth are likely to be mixed. One might expect increasing rates of labor force participation to lead wives to expect greater familial involvement and personal support from their husbands. However, this may not have any net effect on fertility because expected husband modernity has a curvilinear relationship with fertility. Wives who move from traditional to moderate expectations of their husbands
may increase their fertility. Wives who move from moderate to nontraditional expectations of their husbands may have fewer children. Wives who move from traditional to nontraditional expectations of their husbands may not change their fertility at all.

The remaining factors affecting fertility do not appear to be linked to, or to reflect, any national trends. The wife's satisfaction with her husband's income and her marriage reflect her perceptions. Similarly, the husband's relative income has no link with national trends because it reflects the unique, personal circumstances of the husband's background and current income. There does not appear to be any trend toward men increasing their educational levels. Therefore, the most that can be expected is that the husband's education and his relative income will continue to facilitate his wife's achievement of the two-children-per-family norm. There do not appear to be any aggregative effects of companionship, expected husband modernity, or perceived income adequacy.

Society

The decline of fertility may have a number of implications for American society at large. Ceteris paribus, a decline in fertility lowers the rate of population growth. A lower rate of population growth is helpful when trying
to solve environmental problems. In particular, a lower rate of population growth would permit more time to deal with problems of land and water usage (e.g., agricultural production, recreational and industrial needs). To a somewhat lesser extent, lower population growth would help in dealing with problems of resource scarcity and pollution.

A decline in fertility also means that the age-structure of the population will change. Young people will make up a smaller proportion of the population. Consequently, less money may be needed for education. Proportionately more money, then, may be spent for other public services, or taxes may be reduced. Lower fertility also means that parents will spend a smaller part of their income on goods and services for their children. The income which is not spent for children may be spent for other goods and services, saved, or invested.

A smaller proportion of young people in the population may also lead to declines in theft, murder, vandalism and other youth-related crimes.

**Women**

The decline in fertility may have an impact on the status of women. Perhaps the greatest impact of lower fertility will be to increase the power of wives vis-a-vis
their husbands. Wives will be either less dependent upon their husbands for support or will be dependent upon them for a shorter period of time. Lower fertility will also have an indirect impact on the power of wives by facilitating their return to employment. Fewer children mean that the wife may return to employment sooner (Rosenberg, 1972). Employed wives have more power vis-a-vis their husbands than unemployed wives (Blood and Wolfe, 1960).

Fewer children may make it easier for a wife to obtain a divorce because child care would be less of a burden.

Summary

This chapter was divided into four sections. The first section reviewed the development of hypotheses from each perspective and evaluated the utility of each perspective for predicting fertility. I came to the following conclusions. (1) The economic perspective is useful in explaining fertility after family formation has started, after it has been modified to account for potential income and class-related standards of childrearing, and only as it facilitates the achievement of a goal: having at least two children. (2) The normative-socialization perspective is largely supported. (3) The family structure and worldview perspective has some support, but it should not always
be linked to effective contraception. (4) Two findings emerged from the demographic perspective: the passage of time has a negative effect on fertility among wives with fewer than two children, and the absence of male children is unrelated to the wives' subsequent fertility.

The second section noted the factors influencing fertility within each subsample. Fertility was affected by sex-role nontraditionality, fertility-fatalism, companionship and the wife's age among wives with no children. Fertility was affected by sex-role nontraditionality, the husband's education, the husband's relative income and the age of the last child among wives with one child. Fertility was affected by the number of (additional) children intended, expected husband modernity, companionship, perceived income adequacy and the wife's education among wives with two children. All of these factors indicated bases of decision-making about fertility, with the possible exceptions fertility-fatalism, companionship, the wife's age and the age of the last child among wives with fewer than two children.

The third section of this chapter suggested four lines for future research. (1) The study should be replicated. (2) The study should be replicated with a much larger sample size for more careful assessment of the nature of the curvilinear and threshold effects and the
consequences of multicolinearity. (3) The study should be expanded to include younger and older wives and wives who have reached the third and fourth parities. Separate studies should be done for minority wives and wives from other nations. (4) Future studies should include additional variables measuring religiosity, self-concepts, occupational characteristics related to role conflict, and the use of day care centers. Data regarding the husband's attitudes about the role of women and his fertility desires should be collected. A better measure of power is needed. The interrelationships of work variables, sex-role nontraditionality and fertility should be more carefully investigated. Similarly, a study of the determinants of the number of (additional) children which wives with two children intend to have would uncover some indirect effects of other variables on fertility.

The fourth section of this chapter reviewed the implications of the patterns of results for society, women and future population growth in the United States. I concluded that the rate of population growth would continue to decline because the effects of increasing sex-role nontraditionality, the wife's age and the age of the last child would increase the number of childless and one-child families. Both of these trends originate with the increasing labor force participation of wives. In addition,
population growth may continue to decline because the possible emergence of the two-children-per-family norm, and the decline of the pronatalist norm may decrease the number of three-or-more-children per family. The remaining variables affecting fertility will not change fertility rates because they are not tied to national trends (expected husband modernity, the husband's education and the husband's relative income) or because they reflect the wife's perceptions (perceived income adequacy and companionship). The lower rate of population growth would make environmental problems easier to deal with. Proportionately less money would be spent on education and other youth-related goods and services. Youth-related crimes would also decline. Finally, smaller family sizes may mean greater power for women in the family because they would be more able to seek employment and would be less dependent on their husbands for support. The actual course of events remains to be seen.
Notes for Chapter Five

1. The death rate and the rate of immigration are assumed not to vary for purposes of this discussion.

2. This section draws very heavily on Westoff et al. (1973).
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These consist of pages:

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APPENDIX B

THE COMPUTER PROGRAM

This appendix contains the computer programs used for defining the data set, modifying the variables, and writing the information on disk. The modifications of the variables are mentioned in the order of their discussion in Chapter Three.

The "cards" in this section define the data set.

/*SETUP UNIT=TAPE9,ID=(SCANWI,XXXX)
// EXEC SPSS
//GO.FT08F001 DD UNIT=TAPE9, LABEL=(1,NL), DCB=(RECFM=FB,
// LRECL=80, BLKSIZE=800), VOLUME=SER=(SCANWI), DISP=(OLD,KEEP)
//FT09F001 DD DSN=TS0243.SCANDL.DATA, DISP=(OLD,KEEP),
// UNIT=USERDA, SPACE=(TRK,(10,5), RLSE), DCB=(RECFM=FB,
// BLKSIZE=12080, LRECL=80)
//SYSIN DD *

The last four cards above are used only for writing a disk.

VARIABLE LIST
CUYRMAR, MB, YRMB, NPREG, NOTPREG, PREGNW1,
PREGNW1, HOWPREG1, PREGNW2, PREGNW2, HOWPREG2,
PREGNW3, PREGNW3, HOWPREG3, PREGNW4, PREGNW4,
HOWPREG4, F3, HERAGE, HISAGE, HISED, HISTT,
HERED, HerTT, HERJBM, HEROCCBM, DADOCC, DATED,
DADTT, MOMARD, DAMARD, YRMARD, HERMARAG,
DIDADOPT, NUADOPT, NBO, NKIDS, PREG1, PREG2,
CONTRA1, F1, F2, CONTRA2, CONTRA3, I1, I2, I3,
I4, I5, I6, FATALM3, TRADW1, TRADW2, TRADW3,
TRADW4, TRADW5, TRADW6, TRADW7, TRADW8,
TRADW9, TRADW10, TRADW11, TRADW12, HUBMOD1,
HUBMOD2, HUBMOD3, HUBMOD4, HUBMOD5, HUBMOD6,
HUBMOD7, HUBMOD8, HUBMOD9, SCON1, SCON2,
SCON3, SCON4, SCON5, SCON6, SCON7, SCON8,
SCON9, SCON10, SCON11, SCON12, SCON13, SCON14,
SCON15, SCON16, SCON17, SCON18, SCON19, SCON20,
SCON21, SCON22, SCON23, SCON24, MOMWRK, MOMOCC,
As the reader can see, not all of the variables defined above were included in the data analysis.
Sample Definition.

The following section of cards are the first step in defining the sample to include only those wives who believe they are not infecund and who stayed married through the entire four year period of the study.

\[
\text{COMPUTE } \text{YRMB}= (\text{YRMB} \times 12) + \text{MMB} \\
\text{SELECT IF } (\text{CURRMAR} = 0 \text{ AND } \text{F1} \neq 1 \text{ AND } \text{YRMB} \leq 861)
\]

Fertility.

The following cards define the number of births which occurred in the four year period between 1971 and 1975.

\[
\text{COMPUTE } \text{NBS} = 0 \\
\text{IF } (\text{HOWPREG1} = 1 \text{ AND } \text{HOWPREG2} \neq 1 \text{ AND } \text{HOWPREG3} \neq 1 \text{ AND } \text{HOWPREG4} \neq 1) \text{NBS} = 1 \\
\text{IF } (\text{HOWPREG2} = 1 \text{ AND } \text{HOWPREG1} \neq 1 \text{ AND } \text{HOWPREG3} \neq 1 \text{ AND } \text{HOWPREG4} \neq 1) \text{NBS} = 1 \\
\text{IF } (\text{HOWPREG3} = 1 \text{ AND } \text{HOWPREG2} \neq 1 \text{ AND } \text{HOWPREG1} \neq 1 \text{ AND } \text{HOWPREG4} \neq 1) \text{NBS} = 1 \\
\text{IF } (\text{HOWPREG4} = 1 \text{ AND } \text{HOWPREG2} \neq 1 \text{ AND } \text{HOWPREG3} \neq 1 \text{ AND } \text{HOWPREG1} \neq 1) \text{NBS} = 1 \\
\text{IF } (\text{HOWPREG1} = 1 \text{ AND } \text{HOWPREG2} \neq 1 \text{ AND } \text{HOWPREG3} \neq 1 \text{ AND } \text{HOWPREG4} \neq 1) \text{NBS} = 2 \\
\text{IF } (\text{HOWPREG1} = 1 \text{ AND } \text{HOWPREG2} \neq 1 \text{ AND } \text{HOWPREG3} \neq 1 \text{ AND } \text{HOWPREG4} \neq 1) \text{NBS} = 2 \\
\text{IF } (\text{HOWPREG1} = 1 \text{ AND } \text{HOWPREG2} \neq 1 \text{ AND } \text{HOWPREG3} \neq 1 \text{ AND } \text{HOWPREG4} \neq 1) \text{NBS} = 2 \\
\text{IF } (\text{HOWPREG2} = 1 \text{ AND } \text{HOWPREG3} \neq 1 \text{ AND } \text{HOWPREG1} \neq 1 \text{ AND } \text{HOWPREG4} \neq 1) \text{NBS} = 2 \\
\text{IF } (\text{HOWPREG2} = 1 \text{ AND } \text{HOWPREG3} \neq 1 \text{ AND } \text{HOWPREG1} \neq 1 \text{ AND } \text{HOWPREG4} \neq 1) \text{NBS} = 2 \\
\text{IF } (\text{HOWPREG2} = 1 \text{ AND } \text{HOWPREG3} \neq 1 \text{ AND } \text{HOWPREG1} \neq 1 \text{ AND } \text{HOWPREG4} \neq 1) \text{NBS} = 2 \\
\text{IF } (\text{HOWPREG1} = 1 \text{ AND } \text{HOWPREG2} \neq 1 \text{ AND } \text{HOWPREG3} \neq 1 \text{ AND } \text{HOWPREG4} \neq 1) \text{NBS} = 3 \\
\text{IF } (\text{HOWPREG1} = 1 \text{ AND } \text{HOWPREG2} \neq 1 \text{ AND } \text{HOWPREG3} \neq 1 \text{ AND } \text{HOWPREG4} \neq 1) \text{NBS} = 3 \\
\text{IF } (\text{HOWPREG2} \neq 1 \text{ AND } \text{HOWPREG1} = 1 \text{ AND } \text{HOWPREG3} \neq 1 \text{ AND } \text{HOWPREG4} \neq 1) \text{NBS} = 3 \\
\text{IF } (\text{HOWPREG2} \neq 1 \text{ AND } \text{HOWPREG1} = 1 \text{ AND } \text{HOWPREG3} \neq 1 \text{ AND } \text{HOWPREG4} \neq 1) \text{NBS} = 3 \\
\text{IF } (\text{HOWPREG3} \neq 1 \text{ AND } \text{HOWPREG1} = 1 \text{ AND } \text{HOWPREG2} \neq 1 \text{ AND } \text{HOWPREG4} \neq 1) \text{NBS} = 3
IF (HOWPREG4 NE 1 AND HOWPREG1 EQ 1 AND HOWPREG2 EQ 1 AND HOWPREG3 EQ 1) NBS=3
IF (HOWPREG1 EQ 1 AND HOWPREG2 EQ 1 AND HOWPREG3 EQ 1 AND HOWPREG4 EQ 1) NBS=4

Economic Variables.

The following cards define the husband's 1970 income before taxes.

RECODE HUBIN1(0=1000)(1=2500)(2=3500)(3=4500)
(4=5500)(5=6500)(6=7500)(7=8500)(8=9500)
(9=10500)(10=11500)(11=12500)
(12=13500)(13=14500)(14=15500)(15=16500)
(16=17500)(17=18500)(18=19500)(19=25000)
(88=99)

The two figures in the last set of parentheses assign "don't know" responses to the code for missing values.

The following cards are used to define the husband's income relative to those of similar age, educational and occupational characteristics.

COMPUTE HISED2=0
IF (HISED GE 12) HISED2=1
COMPUTE HUBRLXNA=(365.96*HISAGE)+(1013.36*HUB0)+(1075.01*HISED2)-2071.70
COMPUTE HUBRLIN=HUBIN1/HUBRLINA

The highest grade completed by the husband is an unmodified variable used directly from the tape.

The following card defines perceived income adequacy and recodes missing data to the median value category.

RECODE SSL(2=3)(8=2)/SSL(9=1)
Normative-Socialization Variables.

The following cards were used to define the number of hours worked per week by the wife.

```
COMPUTE FULL=0
IF (FULPRT2 EQ 1) FULL=20
IF (FULPRT2 EQ 0) FULL=40
```

The following cards are used to divide the husbands into middle and working class categories. Middle class occupations are coded 1 and working class occupations are coded 0.

```
COMPUTE HUBO=HUBOCC
IF (HUBOCC EQ 777) HUBO=HUBOC
IF (HUBOCC EQ 777 AND HUBOC EQ 777) HUBO=HUBP1
IF (HUBOCC EQ 777 AND HUBOC EQ 777 AND HUBP1 EQ 777) HUBO=HUBP2
RECODE HUBO(LO THRU 399=1) (400 THRU HI=0)
```

The following cards are used to define the highest grade completed by the wife. They take into account any post-marital education.

```
IF (MARED2 EQ 99) MARED2=HERED
IF (MARED1 EQ 0) HERED=MARED2
```

The following card created the wife's Catholic status. Catholicism retained its original code of 1 for the variable.

```
RECODE HERREL(2 THRU 98=0)
```

99 is the missing values code.
The following cards were used to construct the scale measuring the sex-role nontraditionality of the wife.

RECODE

\[ \text{TRADW1 TO TRADW12 (8=2) / TRADW3 (0=4) (1=3) (3=1) (4=0) / TRADW5 (0=4) (1=3) (3=1) (4=0) / TRADW8 (0=4) (1=3) (3=1) (4=0) / TRADW9 (0=4) (1=3) (3=1) (4=0) / RLM1, RLM2 (1=2) (8=1) / SRI1, SRI4 (0=2) (1=0) (8=1) / SRI2, SRI3, SRI5 (1=2) (8=1) / TRADW5 (9=2) / RLM1 (9=0) / RLM2 (9=0) / SRI1 (9=1) / SRI2 (9=1) / SRI3 (9=1) / SRI5 (9=0) } \]

\[ \text{COMPUTE TRAD=TRADW1+TRADW2+TRADW3+TRADW4+TRADW5+TRADW6+TRADW7+TRADW8+TRADW9+TRADW10+TRADW11+TRADW12+RLM1+RLM2+SRI1+SRI3+SRI4+SRI5} \]

Parts of cards four and five above recode missing data to the median value category of the individual item.

The following cards were used to construct the scale measuring the sex-role nontraditionality the wife expects of her husband: expected husband modernity.

RECODE

\[ \text{HUBMOD1 TO HUBMOD9 (8=2) / HUBMOD2 TO HUBMOD6, HUBMOD8, HUBMOD9 (0=4) (1=3) (3=1) (4=0) / HUBMOD2 (9=2) / HUBMOD3 (9=3) / HUBMOD5 (9=1) } \]

\[ \text{COMPUTE HUBMOD=HUBMOD2+HUBMOD3+HUBMOD4+HUBMOD5+HUBMOD6+HUBMOD7+HUBMOD8+HUBMOD9} \]

Parts of cards two and three above recode missing data to the median value category of the individual item.

The following cards define the number of (additional) children the wife intends to have.

IF \( I1 \text{ EQ 7) } I1/I4 \)

IF \( I2 \text{ EQ 7) } I2/I5 \)

IF \( I3 \text{ EQ 77) } I3/I6 \)
COMPUTE NACIN=0
IF (I1 EQ 0 OR I2 EQ 0)NACIN=13
IF (NKIDP EQ 0 AND NACIN EQ 88)NACIN=3
IF (NKIDP EQ 1 AND NACIN EQ 88)NACIN=1
IF (NKIDP EQ 2 AND NACIN EQ 88)NACIN=0

The last three cards above recode missing data to the median values for specific subsamples.

Family Structure and World-View Variables.

The following card creates husband dominance: high scores represent husband dominance; low scores represent wife dominance; the middle scores represent egalitarianism; missing data have been recoded to the median category.

RECODE CONFLIC2(0=2)(2=1)(1=0)(3 THRU Hi=1)

The following card modifies fatalism so that the high scores indicate a high degree of fatalism. It also recodes missing values to the median category.

RECODE FATALM3(0=4)(1=3)(8=2)(3=0)(7=9)/FATALM3

The following card is used to construct the scale measuring companionship the wife feels with her husband. A low score indicates the wife feels an intimate, primary relationship with her husband.

COMPUTE COM=COM1+COM3

There are no missing data.
Demographic Variables.

The age of the wife is an unmodified variable used directly from the tape.

The following card defined the length of the wife's current marriage in 1971 in months.

```
COMPUTE MARLEN=861-YR MBA
```

The following cards are used to define the age of the last child for wives with one child - (LEN1) - and two children - (LEN2).

```
IF (SEX1BA EQ 2) LEN2ND=LEN1ST
IF (SEX1BA EQ 2) LEN2NDX=LEN1STX
IF (LEN3RDX GT 12) LEN3RDX=6
IF (LEN4THX GT 12) LEN4THX=6
IF (ADOPT1M GT 12) ADOPT1M=6
IF (ADOPT2M GT 12) ADOPT2M=6
IF (LEN1STX GT 12) LEN1STX=6
IF (LEN2NDX GT 12) LEN2NDX=6
IF (NKIDP EQ 1 AND ADOPT1 EQ 0) LEN1STX=ADOPT1M
IF (NKIDP EQ 2 AND ADOPT1 EQ 0) LEN1ST=ADOPT1M
IF (NKIDP EQ 2 AND ADOPT2 EQ 0) LEN2NDX=ADOPT2M
IF (NKIDP EQ 2 AND ADOPT2 EQ 0) LEN2ND=70
IF (NKIDP EQ 2 AND ADOPT2 EQ 0) LEN2ND=70
IF (NKID EQ 2 AND B1ALIVEA EQ 1) LEN1STX=LEN2NDX
IF (NKID EQ 2 AND B1ALIVEA EQ 1) LEN1ST=LEN2ND
IF (NKID EQ 3 AND B2ALIVEA EQ 1) LEN2NDX=LEN3RD
IF (NKID EQ 3 AND B2ALIVEA EQ 1) LEN2ND=LEN3RD
IF (B2ALIVEA EQ 1 AND B3ALIVEA EQ 1) LEN2NDX=LEN4TH
IF (B2ALIVEA EQ 1 AND B3ALIVEA EQ 1) LEN2ND=LEN4TH
```

```
COMPUTE LEN1=861-((12*LEN1ST)+LEN1STX)
COMPUTE LEN2=861-((12*LEN2ND)+LEN2NDX)
```
The first two cards above help define the length of time since the twins were born. The next six cards are used to recode any missing data about months of births or adoptions among a few cases which were added later in the analysis; preliminary checks of the data revealed no missing values. The next six cards substitute the time of adoption of a child for the missing value codes concerning the time of birth of the child. The values of the years were hand-edited in each of the three cases. The next six cards take account of the absence of four children. The times of birth of the three subsequent children born to the three wives were substituted. One first-born, two second-born, and one third-born child were no longer living with the respondents.

Although the sex of the child was taken directly from the original tape, modifications had to be made for the absence of the four children. The following cards do that.

\[
\begin{align*}
\text{IF} & \quad (\text{NKIDS EQ 2 AND B1ALIVEA EQ 1}) \text{SEX1BA=SEX2BA} \\
\text{IF} & \quad (\text{NKIDS EQ 3 AND B2ALIVEA EQ 1}) \text{SEX2BA=SEX3BA} \\
\text{IF} & \quad (\text{B2ALIVEA EQ 1 AND B3ALIVEA EQ 1}) \text{SEX2BA=} \\
& \quad \text{SEX4BA}
\end{align*}
\]

The following cards define wives who have two girls.

\[
\begin{align*}
\text{COMPUTE} & \quad \text{SAMESEXG=0} \\
\text{IF} & \quad (\text{SEX1BA EQ 1 AND SEX2BA EQ 1}) \text{SAMESEXG=1} \\
\text{IF} & \quad (\text{SEX1BA EQ 2}) \text{SAMESEXG=1} 
\end{align*}
\]
The Number of Children the Wife Had in 1971.

The following cards were used to define the number of children for which the wife was responsible at the time of the interview in 1971.

RECODE B1ALIVEA,B2ALIVEA,B3ALIVEA,B4ALIVEA,
B5ALIVEA,B6ALIVEA(2 THRU 9=0)
COMPUTE NKIPD=NKIDS-B1ALIVEA-B2ALIVEA-B3ALIVEA-
B4ALIVEA-B5ALIVEA-B6ALIVEA

There are no missing data.

Subsample Definition.

The following sections of cards were used to define the particular subsamples of interest for testing hypotheses and for writing the subsample on a disk.

SELECT IF (NKIDP EQ 0 AND HUBIN1 NE 99 AND HERREL NE 99)
COMPUTE SSL2=0
IF (SSL EQ 0)SSL2=1
IF (SSL GE 2)SSL2=1
RECODE TRAD(LO THRU 22=0)(23 THRU HI=1)
WRITE CASES (F1.0,F5.0,F5.3,2F2.0,2F1.0,F2.0,6F1.0,
2F2.0,F3.0)
NBS,HUBIN1,HUBRLIN,HISED,HERED,SSL2,TRAD,
HUBMOD,FATALM3,CONFLIC2,COM,NACIN,HUBO,
HERREL,FULL,HERAGE,MARLEN
READ INPUT DATA
FINISH

SELECT IF (NKIDP EQ 1 AND HUBIN1 NE 99 AND HERREL NE 99)
RECODE TRAD(LO THRU 29=0)(30 THRU HI=1)/HISED(LO THRU 12=0)(13 THRU HI=1)/MARLEN(LO THRU 55=0)(56 THRU HI=1)/LEN1(LO THRU 28=0)
(29 THRU HI=1)
COMPUTE HERED2=0
IF (HERED LE 11)HERED2=1
IF (HERED GE 13)HERED2=1
WRITE CASES (F1.0,F5.0,F5.3,4F1.0,F2.0,6F1.0,2F2.0,
READ INPUT DATA
FINISH

SELECT IF  (NKIDP EQ 2 AND HUBIN1 NE 99 AND HERREL NE 99)
COMPUTE HUBRLIN2=0
IF (HUBRLIN LE .880) HUBRLIN2=1
IF (HUBRLIN GE 1.143) HUBRLIN2=1
COMPUTE HERED2=0
IF (HERED LE 11) HERED2=1
IF (HERED GE 13) HERED2=1
COMPUTE SSL2=0
IF (SSL EQ 0) SSL2=1
IF (SSL GE 2) SSL2=1
COMPUTE HUBMODA=0
IF (HUBMOD LE 14) HUBMODA=1
IF (HUBMOD GE 18) HUBMODA=1
COMPUTE COMA=0
IF (COM EQ 0) COMA=1
IF (COM GE 2) COMA=1
RECODE TRAD(LO THRU 29=0)(30 THRU HI=1)/FATALM3
(LO THRU 1=0)(2 THRU HI=1)
WRITE CASES
(F1.0,F5.0,F1.0,F2.0,10F1.0,2F2.0,2F3.0,F1.0)
NBS,HUBIN1,HUBRLIN2,HISED,HERED2,SSL2,
TRAD,HUBMODA,FATALM3,CONFLICT2,COMA,NACIN,
HUBO,HERREL,FULL,HERAGE,MarLEN,LEN2,
SAMESEXG

READ INPUT DATA
FINISH

Each section of cards starts with the SELECT IF card and ends with the FINISH card. The SELECT IF card selects only the cases without missing data for a particular subsample. The cards between the SELECT IF statement and the WRITE CASES statement modify variables to meet the assumption of linearity. The WRITE CASES and
following cards tell the computer to write the data for the listed variables onto a disk. The FINISH card ends the computer program. Only one section of cards can be used at any one time. Once the subsamples have been defined, any computer program which has a backwards-stepwise elimination procedure may be used to test the hypotheses. I used the OSU Econ Regression Program Package.
APPENDIX C

THE CONSTRUCTION OF THE HUSBAND'S RELATIVE INCOME

This appendix discusses the calculation of the expected income of the husband.

The expected income of the husband was computed by regressing the husband's income against his age, his highest grade completed, and the social class of his occupation in a backwards stepwise elimination. Before this regression was calculated, the assumption of linearity was tested.

The tests of linearity reported here were conducted in the same way as the tests of linearity reported in Chapter Three. Each of the non-dummy independent variables were trichotomized into nearly equal parts, and resultant categories were assigned the values of 0, 1 and 2. A polynomial term was computed by squaring the values of 0, 1 and 2. If the polynomial explained a significant amount of variance of the husband's income after the linear component was accounted for, the independent variable was considered to have a non-linear relationship with the dependent variable. Table 13 shows the results of these tests.

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In the test of the husband's education, respondents' husbands who had not finished high school had an average income of $7,275.51; those whose husbands were high school graduates reported a mean income level of $8,789.47; and those whose husbands had at least some college averaged $8,995.00. Although the F test for deviation from linearity equals 2.13, this is significant beyond the a = .15 level. The means for the young, middle and old husbands show a similar pattern of income differences: the mean of the middle group of the husband's age is closer to the mean of the old group than the mean of the young group. The F test for deviation from linearity equals 2.50 -- a value which is significant beyond the a = .11 level.

Although these tests show that the husband's education and age do not have a linear relationship with the husband's income, only the husband's education was recoded to a dummy variable for use in the regression equation. The husband's age was not recoded because inspection of the pattern of the means of the categories shows that the data do not appear to deviate from linearity to even a moderate degree. Figure 1 displays this pattern and compares it with pattern of means of the categories of the husband's education. The deviation from
The linearity of the means of the categories of the husband's education appears to be more pronounced.

Table 14 shows that the regression coefficients of the three independent variables are significant beyond $p = .03$ level for one tail tests. Therefore, all three independent variables were allowed to remain in the regression equation. (If an independent variable had been unrelated to the husband's income, then it would have been removed from the equation and the equation would have been re-estimated until only significant variables remained.) These coefficients were used to compute the predicted value of the husband's income given his age, education and social class. That equation is displayed below and in Appendix B.

\[
\text{COMPUTE } \text{HUBRLINA} = (365.960 \times \text{HISAGE}) + (1013.36 \times \text{HUBO}) + (1075.01 \times \text{HISED2}) - 2071.70
\]

The husband's relative income is computed by dividing his actual income by the expected income. The equation is displayed below and in Appendix B.

\[
\text{COMPUTE } \text{HUBRLIN} = \text{HUBIN1}/\text{HUBRLINA}
\]
TABLE 13

TESTS OF THE ASSUMPTIONS OF LINEARITY: ONE WAY ANALYSES OF VARIANCE OF THE HUSBAND'S INCOME

<table>
<thead>
<tr>
<th>Variable</th>
<th>$x_1$</th>
<th>$x_2$</th>
<th>$x_3$</th>
<th>$F^@$</th>
<th>$a^\theta$</th>
</tr>
</thead>
<tbody>
<tr>
<td>The husband's education</td>
<td>7275.51</td>
<td>8789.47</td>
<td>8995.00</td>
<td>2.13</td>
<td>.15</td>
</tr>
<tr>
<td>The husband's social class</td>
<td>---- &amp;</td>
<td>----</td>
<td>----</td>
<td>----</td>
<td>----</td>
</tr>
<tr>
<td>The husband's age</td>
<td>6461.54</td>
<td>8875.00</td>
<td>9937.50</td>
<td>2.50</td>
<td>.11</td>
</tr>
</tbody>
</table>

Sample size $N = 282$

* The mean values of the husband's income for each of the categories of the independent variable (low scores: 1; middle scores: 2; high scores: 3).
@ The value of the $F$ test for deviation from linearity.
\(\theta\) The significance levels of the $F$ tests.
& Dummy coded variables are defined as linear. Therefore, no test need be made.
FIGURE 1 Mean Income Levels of the Husbands Within Categories of Their Ages and Education
**TABLE 14**

INITIAL AND FINAL EQUATION CONCERNING TESTS OF HYPOTHESES PREDICTING THE HUSBAND'S INCOME

<table>
<thead>
<tr>
<th>Variable Entered</th>
<th>Regression Coefficients</th>
<th>T Values(^1) (278)</th>
<th>Path Weights</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>-2071.70</td>
<td>1.2359</td>
<td></td>
</tr>
<tr>
<td>The Husband's Age</td>
<td>365.9607</td>
<td>5.7872</td>
<td>.3230</td>
</tr>
<tr>
<td>The Husband's Social Class</td>
<td>1013.36</td>
<td>2.2778</td>
<td>.1347</td>
</tr>
<tr>
<td>The Husband's Education</td>
<td>1075.01</td>
<td>1.9037</td>
<td>.1108</td>
</tr>
</tbody>
</table>

Sample Size N = 282

---

\(^1\) With the exception of the intercept, the minimum t value needed for a variable to remain in the equation is 1.645 for an \( a = .05 \) level for a one tailed test.
Ahmed, Fasihuddin  

Anderson, Jeanne L.  

Arthur, Gerry M.  

Bagozzi, Richard P., and M. Frances Van Loo  

Bahr, Stephan J., Bruce A. Chadwick and Joseph H. Strauss  

Bean, Frank D.  

Bean, Frank D., and Charles H. Wood  

Bean, Frank D., and Gray Swicegood  

Becker, Gary S.  
Becker, Gary S., and H. Gregg Lewis

Berent, Jerzy

Berger, Peter L.

Bernhardt, Eva M.

Blake, Judith
1965 "Demographic science and the redirection of population policy." Journal of Chronic Diseases 18:1181-1200.

Blau, Peter M., and Otis D. Duncan

Blomberg, Robert C.

Blood, Robert O., Jr., and Donald M. Wolfe
Bowen, William G., and T. Aldrich Finegan

Brogan, Donna, and Nancy G. Kutner

Bumpass, Larry L.

Bumpass, Larry L., and Charles F. Westoff


Bumpass, Larry L., Ronald R. Rindfuss and Richard B. Janosik
1978 "Age and marital status at first birth and the pace of subsequent fertility." Demography 15:75-86.

Cain, Glen G., and Adriana Weininger

Campbell, Frederick L.

Clare, Jeanne E., and Clyde V. Kiser
Clarkson, Frank E., Susan R. Vogel, Inge K. Broverman and Donald M. Broverman

Cochrane, Susan H., and Frank D. Bean

Cronkite, Ruth C.

Darian, Jean C.

Davis, Kingsley


Davis, Nancy J. and Larry L. Bumpass

Day, Lincoln H., and Alice T. Day

DeFronzo, James V.
Deimling, Gary T.  

DeJong, G. F., and R. R. Sells  

DeTray, Dennis N.  

Dixon, Ruth B.  

Dixon, Wilfrid J., and Frank J. Massey, Jr.  

Duesenberry, James S.  

Dumont, Arsène  

Easterlin, Richard A.  


Ericksen, Julia A.  
Espanshade, T. J.  

Farrar, Donald E., and Robert R. Glauber  

Featherman, David L.  

Ferguson, C. E., and S. Charles Maurice  

Fishbein, Morris  


Fisher, R. A.  

Freedman, Deborah  

Freedman, Ronald  
Freedman, Ronald, and Lolagene Coombs


Freedman, Ronald, and P. K. Whelpton

Freedman, Ronald, Pascal K. Whelpton and Arthur A. Campbell

Fried, Ellen S.

Garfinkle, Stuart

Gendell, Murray

Gillespie, Dair L.

Glock, Charles Y., and Rodney Stark

Goldberg, David

Goldscheider, Calvin  

Goldscheider, Calvin, and Peter R. Uhlenberg  

Groat, H. Theodore, and Arthur G. Neal  

Groat, H. Theodore, Randy L. Workman and Arthur G. Neal  

Gronau, Reuben  

Hamilton, Mary R.  

Hass, Paula H.  

Hays, William L.  

Heer, David M.  

Hill, C. Russell, and Frank P. Stafford  

Hill, R., J. M. Stycos and K. Back  
Hoffman, Lois W.

Hoffman, Lois W., and Frederick Wyatt

Houseknecht, Sharon K.

Hout, Michael


Jaccard, James J., and Andrew R. Davidson

Janowitz, Barbara S.

Keller, Suzanne

Kiser, Clyde V., and P. K. Whelpton
Kmenta, Jan

Kupinsky, Stanley

Lauriat, Patience

Leibenstein, Harvey

Lester, Barbara J.

Macke, Anne S., Paula M. Hudis and Don Larrick

Mason, Karen O., and Larry L. Bumpass

McLaughlin, Steven

McMurry, Martha J.

Michael, Robert T.
Miller, Delbert C.

Mincer, Jacob


Mincer, Jacob, and Solomon W. Polachek

Mishler, Elliot G., and Charles F. Westoff

Morris, Naomi M., and Benjamin S. Sison

Namboodiri, N. Krishnan


1974 "Which couples at given parities expect to have additional births? An exercise in discriminant analysis." Demography 11:45-56.

Namboodiri, N. Krishnan, Lewis F. Carter and Hubert M. Blalock, Jr.
Neal, Arthur G., and H. Theodore Groat


Neter, John, and William Wasserman

O'Brien, Robert M.

Okun, Bernard

Petersen, William

Piepmeier, K. B., and T. S. Adkins

Pohlman, E.

Polgar, Steven, and Virginia A. Hiday

Pratt, L. V., and P. K. Whelpton

Presser, Harriet B.
Rainwater, Lee
1960 And the Poor Get Children. Chicago: Quadrangle.

Reed, Fred W., and J. Richard Udry

Reed, Fred W., J. Richard Udry and Maxine Ruppert

Ridley, Jeanne C.

Rindfuss, Ronald R., and Larry L. Bumpass

Ritchey, P. Neal, and C. Shannon Stokes

Rosen, Bernard C., and Anita L. LaRaia

Rosen, Bernard C., and Alan B. Simmons
Rosenberg, Harry M.

Ross, Patricia A.

Ryder, Norman B.

Ryder, Norman B., and Charles F. Westoff

Safilios-Rothschild, Constantina

Saraie, Hassan

Scanzoni, John


Selltiz, Claire, Lawrence Wrightsman and Stuart Cook
Shapiro, David, and Frank L. Mott

Shea, J. R., R. S. Spitz, and F. A. Zeller and Associates

Shortlidge, Richard L., and Andrew I. Kohen
1976 Prospective Fertility Among Young Women in the United States: The Determinants of Fertility Expectations and Ideals. Columbus, Oh.: Center for Human Resource Research, Ohio State University.

Simon, Julian

Smith-Lovin, Lynn, and Ann R. Tickamyer

Spiegelman, Mortimer

Stolka, Susan M., and Larry D. Barnett

Stolzenberg, Ross M., and Linda J. Waite

Stycos, J. Mayone, and Robert H. Weller
Sweet, James A.

Thornton, Arland D.
1979 "Fertility and income, consumption aspirations, and child quality standards." Demography 16: 157-175.

Tietze, Christopher

Tomasson, Richard F.

Turchi, Boone A.

U.S. Bureau of the Census

U.S. Department of Health, Education and Welfare

U.S. Department of Labor
Vanek, Joann  

Veevers, J. E.  

Vinokur, Diane R. K.  

Waite, Linda J., and Ross M. Stolzenberg  

Weller, Robert H.  

Weller, Robert H.  

Werner, Paul D., Susan E. Middlestadt-Carter and Thomas J. Crawford  

Wernick, Peter D.  

Westoff, Charles F.  

Westoff, Charles F.  

Westoff, Charles F., and Raymond H. Potvin  
Westoff, Charles F., and Norman B. Ryder

Westoff, Charles F., et al. (eds.)

Whelpton, Pascal K., Arthur A. Campbell and John E. Patterson

Wicks, Jerry D.

Willis, Robert J.